For Discussion
16 January 2012

Legislative Council Panel on Development

Monitoring of the Drinking Water Quality in Buildings

Purpose

This paper aims at briefing Members on the current situation of the quality of water supply in Hong Kong and the monitoring work by the Water Supplies Department (WSD) on the drinking water quality in buildings.

Drinking Water Quality and Monitoring in Hong Kong

2. Hong Kong enjoys one of the safest drinking water supply in the world. Stringent water treatment and comprehensive water quality monitoring of the water supply system are important steps to safeguard the health of the public. WSD has been following WHO's "Guidelines for Drinking-water Quality" as the standards for the quality of drinking water in Hong Kong.

3. The water quality of the entire water supply system is monitored by the professional chemists of the Water Science Division of WSD through continuous physical, chemical, bacteriological, biological and radiological tests. The concerned staff take samples regularly from catchments, impounding reservoirs, water treatment works, service reservoirs and the water distribution network for testing to ensure compliance of the water quality with the relevant standards[1] in WHO's "Guidelines for Drinking-water Quality". The number of samples taken every year by WSD exceeds a hundred thousands.

[1] At present, neither health-based standard nor routine monitoring has been set for Legionella bacteria in drinking water by WHO in their "Guidelines for Drinking-water Quality"; the drinking water quality standards of other countries or regions such as the United States of America, the European Union, Australia, New Zealand and Japan have not stipulated any standard for the Legionella bacteria nor specified the requirements for routine monitoring.

Connecting to Water Supply System

4. WSD has prescribed a set of procedures for approval of inside service of new buildings, which is applicable to both government or private construction projects. In particular, the vertical plumbing line diagram for the inside service has to be submitted to WSD for approval. Throughout the approval process, WSD will check and ensure that the vertical plumbing line diagram will comply with the requirements under the Waterworks Ordinance (Cap. 102), including whether the design has taken into account the use of safe materials, the avoidance of wastage of water, the prevention of pollution to the public supply and the new supply to be properly metered. In addition, in accordance with the Waterworks Ordinance (Cap. 102), the inside service shall be constructed, installed and maintained by a licensed plumber. Before connecting the newly installed inside service to the public water supply network, the consumers shall clean and sterilize the inside service water mains thoroughly so as to avoid contamination to the public water supply after connection. WSD has issued guidelines on the cleaning and sterilization of fresh water mains of inside service. The guidelines are extracted in paragraph 5. WSD usually requires the consumers to submit the test results of water samples taken at the connection point, and will commission water supply only upon satisfactory test results.

5. Consumers shall be responsible for cleaning and sterilization of the newly installed fresh water mains of inside service before they are put into operation. WSD recommends the following steps on how to clean and sterilize the newly installed water mains before the use of newly installed fresh water mains of inside service :

(a) Remove all extraneous materials inside the water mains. Fill the fresh water mains slowly with water and carry out the required water pressure test. If the result of the water pressure test is satisfactory, clean the fresh water mains internally and flush them with potable water. For long fresh water mains of sizes less than 600 mm in diameter, swab to remove the dirt and materials inadvertently left in the water mains and flush them with potable water.

(b) Fill the water mains completely with a homogeneous solution of chloride of lime for sterilization. The concentration of the solution has to meet the requirement that when the water mains are filled up with water, the free chlorine in the water will be at least 30 parts per million. Keep the water mains under sterilization for 24 hours. After sterilization, flush the water mains thoroughly with potable water.

(c) Collect water samples for bacteriological and chemical analysis[2]. If the result is satisfactory, the water mains can be put into operation.

(d) To avoid any possibility of contamination, the water mains should be put in active use at the soonest upon connection for supply.

Maintenance of Fresh Water Mains

6. In accordance with the Waterworks Regulations (Cap. 102A), the consumers shall be responsible for keeping the inside service clean. The drinking water provided by WSD conforms fully to the WHO's "Guidelines for Drinking-water Quality". However, in order to ensure that consumers can enjoy good quality of water from their taps, building owners have to maintain their plumbing systems properly as well. WSD has issued guidelines on the cleaning and sterilization of fresh water mains of inside service.

7. To encourage the building owners to do this, and with the support and endorsement of the Advisory Committee on the Quality of Water Supplies (ACQWS), WSD launched the Fresh Water Plumbing Quality Maintenance Recognition Scheme in July 2002. The scheme has subsequently been renamed as Quality Water Recognition Scheme for Buildings and has included element to recognize continuous participation in the scheme.

[2] The principal tests on the samples are colour, conductivity, pH value, turbidity, free residual chlorine, total coliforms, E. Coli, but not Legionella bacteria which is not required under the WHO "Guidelines for Drinking-water Quality".

Quality Water Recognition Scheme for Buildings

8. The Quality Water Recognition Scheme for Buildings (the Scheme) is a voluntary scheme. The target participants of the Scheme are owners, operators and building management agents of their buildings. The essence of the Scheme is to require the consumers to clean the water tanks and to inspect the plumbing systems once every three months. WSD is now considering extending the Scheme to the flushing supply system. In this connection, WSD will review and work together with the Working Group on Quality of Water in Buildings under ACQWS.

9. The certificates issued under the Scheme signify the recognition of proper maintenance of the plumbing systems of the buildings concerned. WSD will award three grades of certificates to buildings in accordance with their continuity of participation in the Scheme. The three grades of certificates are awarded according to the following criteria:

- Blue Certificates: new participation or continuous participation with less than 3 years;
- Silver Certificates: continuous participation with 3 years or more but less than 5 years; and
- Gold Certificates: continuous participation with 5 years or more

As of end 2011, the number of households joining the Scheme is about 1.04 million, including about 580 000 households for private housing and 460 000 households for public housing.

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