

**Business Facilitation Advisory Committee
Food Business and Related Services Task Force**

***Implementation Details of the
Enhanced Water Quality Monitoring Programme***

Purpose

This paper briefs members on the Enhanced Water Quality Monitoring Programme (“Enhanced Programme”) under the Action Plan for Enhancing Drinking Water Safety in Hong Kong¹ (“Action Plan”) which was launched by the Government on 21 September 2017.

Background

2. Over the years, the Water Supplies Department (“WSD”) has been supplying drinking water in full compliance with the World Health Organization’s Guidelines for Drinking-water Quality (“WHO Guidelines”). WSD has implemented a water quality monitoring programme by taking water samples annually from water treatment works, service reservoirs, connection points and some randomly selected publicly accessible taps (such as those in shopping centres, community facilities, sports grounds, markets and estate management offices, etc.) to check and ensure quality of water as supplied to consumers for compliance with the WHO Guidelines.

3. WSD has engaged an expert consultant to conduct review studies² for formulating drinking water standards and has already completed the review on the metal parameters in the WHO Guidelines. Having consulted the International Expert

¹ The Action Plan comprises five components, namely "Drinking water standards and enhanced water quality monitoring programme", "Plumbing material control and commissioning requirements for new plumbing installations", "Water safety plans", "Water safety regulatory regime" and "Publicity and public education". It aims at further enhancing drinking water safety in Hong Kong in a comprehensive manner.

² The scopes of the review studies include the approaches, rationales and practices of two international organizations (i.e. the World Health Organization and the European Union) and seven overseas countries (i.e. the United Kingdom, the United States of America, Canada, Australia, Singapore, New Zealand and Japan) in establishing their drinking water standards. The expert consultant has already completed the review on the 12 metal parameters in the WHO Guidelines. Further, the expert consultant will also review the remaining WHO’s parameters. Pending the completion of the review, the Government will adopt the corresponding WHO’s GVs/PGVs as drinking water standards for these remaining parameters.

Panel on Drinking Water Safety³ appointed by the Development Bureau, the Government will, according to the WHO Guidelines, collect local water quality data for reviewing the drinking water standards which includes assessing the appropriateness for some parameters to adopt a standard beyond WHO Guidelines (“WHO+”). Against this, WSD will enhance its current water quality monitoring programme to collect random water samples from consumers’ taps for testing the six metals viz. antimony, cadmium, chromium, copper, lead and nickel that could be present in the internal plumbing system. WSD will launch the Enhanced Programme with implementation details provided in the ensuing paragraphs.

Implementation details

4. The Enhanced Programme will monitor the quality of drinking water at consumers’ taps. WSD has engaged an independent consultant to randomly select about 670 premises from all water accounts for potable use in Hong Kong. The Registered Consumer(s) (“RC(s)”) and occupiers of the selected premises will receive invitation letters from our consultant and they can decide whether to participate in the Enhanced Programme.

5. Since the participation is non-mandatory, we will also issue invitation letters to more premises adjacent to the target premises than the target number of premises required⁴ in order to collect sufficient water samples for creation of a territory-wide database of drinking water quality for reviewing the drinking water standards in Hong Kong. A sampling team consisting of a WSD’s water sampler and our consultant’s licensed plumber will visit the premises to collect water samples. The visit will generally take place two weeks after the invitation letters are issued and it takes about an hour for collecting all the required water samples.

6. A two-tier sampling protocol will be adopted under the Enhanced Programme, namely (1) Tier 1 – Random Day Time (“RDT”) sampling⁵ for monitoring the water quality in respect of the six metals; and Tier 2 – 30-minute stagnation (“30MS”) sampling⁶ for verifying the metal exposure of consumers⁷, which will only be tested if

³ DEVB established the International Expert Panel on Drinking Water Safety (IEP) on 1 June 2016, comprising five members viz. three overseas experts from Australia, Canada and United Kingdom and two local experts, to provide expert advice on matters relating to drinking water safety.

⁴ It is to cater for unsuccessful entry to some of the invited premises (e.g. the door is not answered) for collection of water samples.

⁵ A 1-litre unflushed sample will be randomly taken during daytime.

⁶ The tap will first be flushed for 5 minutes and then stagnated for 30 minutes. After stagnation, a 1-litre unflushed sample will be taken at the tap.

⁷ To verify that the exceedance is not caused by unduly long stagnation (e.g. A water tap that has not been used for a few day due to long vacation or other reason)

exceedance is found in the Tier 1 sample. During collection of the above two-tier samples, WSD's water sampler will also collect auxiliary samples⁸ at the same time which will only be tested to provide supplementary information if exceedance is found in the two-tier samples.

Notification of Water Test Results and Follow-up Actions

7. WSD will provide the test result of the water sample(s) to the RC and occupier of the concerned premises within two weeks from the sampling date by mail. WSD will publish on its website the water quality statistics under the Enhanced Programme once every week.

8. If exceedance in metal parameter(s) in both Tier 1 and Tier 2 samples is found in a selected premises, it suggests possible contamination of water in the internal plumbing system of the concerned premises, WSD will:

- (i) after confirming the test results, immediately arrange to notify the RC and occupier (and the owner as far as practicable) of the concerned premises, and in some cases the relevant Government bureaux and departments and the relevant licensing authorities (e.g. Food and Environmental Hygiene Department will be notified if exceedance is found in restaurants, etc.), of the water test results by hand and by mail, and request them to notify other water consumers in the same premises of the exceedance;
- (ii) provide information on the related health risks;
- (iii) advise on possible mitigation measures;
- (iv) provide technical information such as possible source of the exceedance and options to deal with the problem including the engagement of designated person(s) (e.g. licensed plumbers) to rectify the internal plumbing system; and
- (v) offer the RC a one-off free investigation⁹ with an attempt to find out the cause of exceedance.

— A flowchart of the Enhanced Programme is shown in **Annex**.

⁸ A number of 1-litre sequential samples from taps (generally 4 to 6 samples) will be taken for assessing whether the problem is confined to the premises or not, while a 2-minute flushed sample will be taken to confirm applicability of flushing advice as a mitigation measure in case of exceedance.

⁹ Alternatively, the RC can choose to engage a qualified person (i.e. building services engineer, building surveyor or licensed plumber who has been included in the list of qualified person for the investigation) for conducting the investigation work.

9. Moreover, WSD will, depending on individual circumstances, take follow-up actions for certain types of premises. For the premises where drinking water is supplied for potable consumption either by the general public (e.g. restaurants) or, in case of lead exceedance, the more easily affected groups (e.g. kindergartens), WSD will work with the RC and occupier of the premises with a view to implementing contingent measures for stopping contaminated water from being supplied, such as arranging alternative sources of water supply including installation of certified water filters tested by accredited organisation for potable consumption and engage a plan for subsequent rectification of the internal plumbing system.

10. WSD will undertake to follow up the progress of the mitigation/rectification work in these premises bearing in mind the overriding public health interest. We believe that the respective RC and occupier will normally take cooperative action to carry out the necessary mitigation or long term rectification measures, however, there may be sporadic cases in which no effective measures are taken by the concerned RC and occupier. For these sporadic cases resulting in public health being jeopardised, WSD will consider taking further actions including appropriate enforcement action in order to protect public health.

11. If it is revealed that there is a possibility¹⁰ of exceedance in plumbing systems other than that in the selected premises in the same building, WSD will notify the relevant parties responsible for maintaining and managing the building (such as building management, owners' associations, etc.) ("Relevant Parties"). They will be advised to arrange detailed investigations by engaging a qualified consultant to follow up to verify the problem of exceedance and to establish its extent in the building. WSD will provide the Relevant Parties with the necessary technical advice and recommendations. The Relevant Parties should also notify all the owners and occupiers in the building to make arrangements to ensure all water users are aware of the problem and to implement the recommended mitigation measures until the extent of problem has been ascertained. The long term solution to exceedance is to replace any non-compliant pipes and/or fittings in the concerned plumbing system.

12. WSD will not reveal the identity of the participant and the full address of the premises unless relevant parties (e.g. the RC, the occupier and the owner, etc.) give their explicit permission or when general public health is at risk.

¹⁰ Renovation and/or routine maintenance of a premises often involves alteration of the plumbing installations (e.g. replacement of water taps or realignment of water pipes) and the use of non-compliant water pipes and fittings may give rise to water samples exceeding the drinking water standards. In other words, exceedance of water samples in one premises may either be a standalone case or there may be a possibility of similar exceedance in other premises in the same building.

Way Forward

13. The Enhanced Programme is targeted to commence before the end of December.

14. Members are requested to note the implementation details of the Enhanced Programme and offer views/comments, if any.

Water Supplies Department
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Flowchart of the Enhanced Programme

