DRINKING WATER SAFETY ADVISORY COMMITTEE

Annual Water Quality Statistics of the Enhanced Water Quality Monitoring Programme in 2018

PURPOSE

This Paper aims to provide the annual water quality statistics of the Enhanced Water Quality Monitoring Programme ("Enhanced Programme") in 2018¹ and the associated observations. In addition, the Paper proposes the arrangement for publication of the water quality statistics.

BACKGROUND

2. The Water Supplies Department ("WSD") launched the Enhanced Programme in December 2017. Being one of the five components of the Action Plan for Enhancing Drinking Water Safety in Hong Kong promulgated in September of 2017, the Enhanced Programme is to monitor the drinking water quality at consumers' taps and collect local water quality data for reviewing the Hong Kong Drinking Water Standards ("HKDWS") in three to five years' time.

3. Under the Enhanced Programme, the WSD engaged an independent consultant to randomly select premises from all water accounts of the 18 district council districts ("DCDs") in Hong Kong according to the population distribution of the individual DCDs based on a sampling rate of 8 premises per 5 000-100 000 people. 672 premises were selected in 2018. Water samples were collected from the drinking water taps of the selected premises using a two-tier sampling protocol to test for six metals, viz. antimony, cadmium, chromium, copper, lead and nickel, which might be present in an internal plumbing system as follows:

Tier 1 – Random Day Time ("RDT") sampling: the purpose was to monitor the water quality in respect of the six metals. A 1-litre unflushed sample was randomly taken during daytime.

¹ Water samples from 672 premises were taken during the period from 25 December 2017 to 31 December 2018.

Tier 2 - 30-minute stagnation ("30MS") sampling: the purpose was to verify the metal exposure of consumers and the water sample would only be tested if exceedance was found in the RDT sample. The tap would first be flushed for 5 minutes and then stagnated for 30 minutes. After stagnation, a 1-litre unflushed sample would be taken.

WATER QUALITY STATISTICS

4. A summary of the water quality statistics of the water samples collected from the 672 premises is tabulated in Table 1 below.

Table 1. Summary of Amindar Water Quarty Statistics of the Eminanced Programme in 20						IIC III 2010
	Minimum	Maximum	Average	95 th percentile	Standard Value	Compliance of water quality with HKDWS*
Antimony (µg/L)	<1	<1	<1	<1	20	~
Cadmium (µg/L)	<1	<1	<1	<1	3	\checkmark
Chromium (µg/L)	<1	<1	<1	<1	50	\checkmark
Copper (µg/L)	<3	460	21	78	2 000	\checkmark
Lead (µg/L)	<1	14	<1	1	10	\checkmark
Nickel (µg/L)	<1	290	3	5	70	\checkmark

Table 1: Summary of Annual Water Quality Statistics of the Enhanced Programme in 2018

* A " \checkmark " indicates compliance of drinking water quality with the HKDWS in all selected premises based on the two-tier water sampling test results of the Enhanced Programme.

5. Besides, the key information of the above water quality statistics in 2018 are highlighted below: -

- (a) The maximum content of antimony, cadmium, and chromium of all RDT samples were below the reporting limit² of $< 1 \mu g/L$.
- (b) For copper, the maximum value and the 95th percentiles of all RDT samples were 460 μ g/L and 78 μ g/L respectively which were well below the standard value of 2 000 μ g/L in the HKDWS. It indicates that the risk of exceedance of copper content in the drinking water at consumers' taps in Hong Kong is low.
- (c) For lead, the maximum value of all RDT samples was $14 \mu g/L$ and two RDT samples exceeded the standard value of $10 \mu g/L$.
- (d) For nickel, the maximum value of all RDT samples was 290 μ g/L and

 $^{^2\,}$ Reporting limit is the lowest level above which the results are reliable within an analytical method's operation range.

two RDT samples exceeded the standard value of 70 μ g/L.

- (e) In respect of the exceedances as mentioned in (c) and (d) above, according to the two-tier sampling protocol of the Enhanced Programme, the corresponding 30MS samples for the four RDT samples with exceedance were tested to verify the lead/nickel exposure of the concerned consumers. The results of all the four 30MS samples complied with the standards, representing that the drinking water quality of the four concerned premises complied with the respective standard values in the HKDWS. The exceedances of the RDT samples were likely due to unduly long stagnation time before sampling or sporadic presence of metal particles.
- (f) Since the 95th percentiles of RDT samples of lead and nickel were 1 μ g/L and 5 μ g/L respectively which were all well below their corresponding standard values of 10 μ g/L and 70 μ g/L in the HKDWS, the risk of exceedance of lead and nickel contents in the drinking water at consumers' taps in Hong Kong is low.

6. The test results of the water samples collected in 2018 under the Enhanced Programme showed that the contents of the six metals in the drinking water of all the premises selected for sampling were in compliance with the corresponding standard values of the HKDWS.

7. As regards the few cases of exceedance that were likely due to unduly long stagnation time before sampling or sporadic presence of metal particles, the WSD would continue to conduct publicity and public education to advise the consumers to flush the taps after long periods of stagnation (for instance, overnight stagnation) before using the water for drinking or cooking, which is a common and effective practice to lower the metal level in the drinking water.

PUBLICATION OF ANNUAL WATER QUALITY STATISTICS

8. In order to provide a comprehensive picture to the public regarding the Enhanced Programme and the annual water quality statistics in 2018, the WSD will publish in its website³ ("the Webpage") the information as discussed in

³ The website of Enhanced Programme at WSD's website is: -

https://www.wsd.gov.hk/en/core-businesses/water-quality/action-plan-for-enhancing-of-drinking-water-safety/drinking-water-standards-enhanced-water-quality/index.html

paragraphs 2 to 6 above.

9. In addition, summary tables for each of the 18 DCDs showing the minimum, maximum and average values of the contents of the six metals in the water samples taken will be provided at the WSD's Webpage. In this connection, an interactive map, as illustrated at Appendix, will be provided in the Webpage to enable ease of access by the public on the annual water quality statistics of the DCD(s). By clicking on a DCD on the interactive map, the annual water quality statistics of the data.gov.hk will also be available for accessing the annual water quality statistics under the open data policy of the Government.

Development Bureau Water Supplies Department January 2019

Appendix



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