

**Drinking Water Safety Advisory Committee
Tenth Meeting**

Date : 24 May 2022 (Tuesday)
Time : 2:00 pm – 5:00 pm
Venue : Conference Room 4, G/F, Central Government Offices,
2 Tim Mei Avenue, Tamar, Hong Kong / Video conferencing

Minutes of Meeting

Members Present

Ir LEUNG Kwong Ho, Edmund	Chairman
Ir Dr CHAN Hon Fai	Vice Chairman
Dr CHUI Ting Fong, May	(via video conferencing)
Dr CUNLIFFE David Anthony	(via video conferencing)
Prof HO Kin Chung	(via video conferencing)
Dr HO Koon Sing, Gray	(via video conferencing)
Mr HO Kui Yip, Vincent	
Prof LEE Wing Yan, Vivian	(via video conferencing)
Ir Prof LO Man Chi, Irene	(via video conferencing)
Dr MA Yiu Wa, Anthony	(via video conferencing)
Ir TANG Ming Sum, Michelle	(via video conferencing)
Dr TO Kai Wang, Kelvin	(via video conferencing)
Prof TSE Lap Ah, Shelly	(via video conferencing)
Prof WONG Kong Chu, Chris	(via video conferencing)
Dr WONG Siu Ming, Raymond	
Dr WONG TAAM Chi Woon, Vivian	(via video conferencing)
Mr LO Kwok Wah, Kelvin	Director of Water Supplies
Mr CHAU Siu Hei, Francis	Deputy Secretary for Development (Works) 3

Dr HO Ka Wai, Rita	Head, Non-Communicable Disease Branch, Department of Health (“DH”) (via video conferencing)
Mr KAN Yim Fai, Fedrick	Secretary Team Leader (Water Safety), Development Bureau (“DEVB”)

Members Absent with Apology

Ir CHUNG Chi Ming

In Attendance

Ms KWAN Kai Yin, Janice	Assistant Secretary (Water Safety) 1, DEVB
Mr KWOK Yau Ting, Kelvin	Project Assistant Secretary (Water Safety) 2, DEVB
Ms YEUNG Man Yan, Didi	Executive Manager (Water Safety), DEVB
Mr CHAU Sai Wai	Deputy Director of Water Supplies
Mr MA Hon Wing, Wilson	Assistant Director/Development, Water Supplies Department (“WSD”)
Mr CHOY Tak Yip	Chief Chemist, WSD
Ms LAM Lai Hang, Mable	Chief Engineer/Technical Support, WSD
Mr YU Chi Wing, Albert	Senior Chemist/Water Quality (Standards and Monitoring), WSD
Mr TAI Ping Tat, Jackie	Senior Mechanical Engineer/Material Control & Testing, WSD
Mr LEE Chi Kin, Alfred	Chemist/Scientific Support, WSD
Mr TSOI Tik Hung	Chemist/Radiation, WSD
Ms CHAN On Yee, Anna	Chemist/Planning 2, WSD

For Agenda Item 2 (paragraphs 5 to 8) only

Mr DEERE Daniel WSD’s consultant

1. The Chairman welcomed Members to the meeting of the Drinking Water Safety Advisory Committee (“the Committee”), in particular new members Dr Gray HO, Prof Vivian LEE and Prof Chris WONG. He reminded all to note the house rules of the Committee and, where required, declare conflict of interests according to DWSAC Paper No. 1/2018.

2. The Secretary reported that DWSAC Paper No. 1/2022 concerning the analysis of the annual drinking water quality statistics under the Enhanced Water Quality Monitoring Programme (“Enhanced Programme”) in 2021 had been circulated to Members on 28 March 2022. In gist, except for one lead exceedance case found in Wan Chai District, all other test results of the water samples collected complied with the Hong Kong Drinking Water Standards (“HKDWS”) based on the respective testing protocols. The annual statistics had been uploaded to WSD’s website. The Secretary also reported that the updated guideline value for manganese in the Aesthetic Guidelines had been published at DEVB’s and WSD’s websites in March 2022.

Agenda Item 1: Confirmation of Minutes of the Last Meeting

3. The Secretary circulated the draft minutes of the last meeting (i.e. the ninth meeting) to Members on 17 January 2022 and no comment had been received. There being no further comment from Members at the meeting, the minutes were confirmed.

Agenda Item 2: Matters Arising from Last Meeting

4. In response to the Chairman’s suggestion made in the last meeting on reviewing and mitigating the risks associated with the unavailability of suitable sampling taps for fresh water tanks (paragraph 26 of the minutes of the last meeting), Mr Alfred LEE, Chemist/Scientific Support of WSD, reported that the sampling taps of WSD’s fresh water tanks at Wu Kau Tang, Lin Au, Pak Fu Shan and Ngong Ping had been relocated to above ground.

5. In connection with Japan’s plan to discharge radioactive wastewater from its Fukushima Nuclear Plant into the Pacific Ocean discussed in the Committee’s eighth meeting, Mr TH TSOI, Chemist/Radiation of WSD, briefed Members on

the findings and recommendations of WSD's study on the radiological safety of desalination supply from the Tseung Kwan O Desalination Plant ("TKO Plant") and the associated radiological monitoring programme.

[Ir TANG Ming Sum, Michelle joined at this juncture.]

6. On the radiological monitoring for the TKO Plant, a Member enquired if action levels would be drawn up to trigger necessary follow-ups. Mr TY CHOY, Chief Chemist of WSD, responded that WSD would monitor the gross alpha and beta activities against their standard values in HKDWS, i.e. ≤ 0.5 Bq/L and ≤ 1 Bq/L respectively, which were also the screening level recommended by the World Health Organization ("WHO"). For tritium, noting that its concentration recorded in the coastal waters of Hong Kong under the Hong Kong Observatory's Environmental Radiation Monitoring Programme ("ERMP") had been low (single digit) in the past, WSD would take action to analyse the situation if exceedance of the screening value of 100 Bq/L was recorded, making reference to European Union's parametric value for tritium. For the artificial radionuclides (including iodine-131, caesium-134, caesium-137 and strontium-90), owing to the superior removal efficiency of such radionuclides by the TKO plant's reverse osmosis process, their Derived Intervention Levels ("DILs") in seawater would be much higher than those being adopted in the Daya Bay Contingency Plan for raw fresh water. However, for prudence sake, the latter set of DILs would be adopted as the monitoring thresholds.

[Post-meeting note: Upon review, WSD would (i) step up the monitoring for tritium if its level detected is higher than the Background Radiation Monitoring Programme range; and (ii) adopt the WHO guidance levels (instead of the DILs) as the respective monitoring thresholds for artificial radionuclides.]

7. The Member further opined that a clear action plan should be formulated to deal with emergencies such as accidental discharge of a huge volume of radioactive wastewater from the Fukushima Nuclear Plant into the sea that might happen during natural disasters such as earthquake or tsunami. Mr Daniel DEERE, WSD's consultant, responded that catastrophic failure of a number of wastewater storage tanks at the Fukushima Nuclear Plant at the same time would be remote. In the unlikely event that a large volume of radioactive wastewater in excessive of that currently assessed was discharged, there would still be huge oceanic dilution brought about by the great geographic distance. Mr Francis CHAU, Deputy Secretary for Development (Works) 3 of DEVB added that WSD could shut down the TKO Plant according to its operational plan if so warranted under any critical situations.

8. A Member considered that WSD should establish an action level for tritium correlating to the baseline tritium level established from the monitoring in the first two years after the commissioning of the TKO Plant. Another Member enquired whether WSD would cease the monitoring of tritium if the baseline results was later found to be lower than a certain level. In response, Mr TY CHOY explained that under the proposed monitoring programme, WSD would investigate the situation if the tritium level was found exceeding the screening value of 100 Bq/L which was well below WHO's guidance value of 10,000 Bq/L. After collecting data from the TKO Plant for two years, WSD would review such data against the baseline data obtained from ERMP and assess the need for inclusion of tritium in the Surveillance List or Watch List. In addition, WSD would refine its monitoring programme, action levels and follow-up actions as appropriate. The Chairman requested WSD to consider Members' suggestions in formulating the way forward.

WSD

Agenda Item 3: Updates on Implementation of Action Plan for Enhancing Drinking Water Safety in Hong Kong ("Action Plan")

9. Mr Alfred LEE and Mr Jackie TAI, Senior Mechanical Engineer/Material Control & Testing of WSD, updated Members on the implementation of the Action Plan.

[Dr HO Koon Sing, Gray left at this juncture.]

10. The Chairman remarked that the lead exceedance case, having been resolved after the cleansing of water tanks, was a demonstration of the need for promoting water safety plan for buildings ("WSPB"). Whilst advocating the wider implementation of WSPB in the community would remain challenging given its voluntary nature, he expected WSD to continue its promotional work to arouse public awareness.

11. A Member enquired if the low residual chlorine level of 0.1 mg/L recorded in some water samples under the Enhanced Programme was acceptable. Mr TY CHOY advised that a guideline value of ≤ 5 mg/L established by WHO had been adopted as the standard value of chlorine in HKDWS. In fact, WHO had not established a guideline value on the minimum residual chlorine level in drinking water but recommended a minimum level of 0.2 mg/L at the point of delivery (i.e. connection point in Hong Kong). Mr TY CHOY added that a low residual

chlorine level would not give rise to a health hazard but it could not guard against bacteriological risk. That was the reason why WSD had been testing residual chlorine alongside with *Escherichia coli* (“*E.coli*”) under the department’s routine monitoring at consumers’ taps to verify the risk of faecal contamination in case the residual chlorine level was found to be low. If no *E.coli* was detected, the drinking water was safe for consumption.

12. Regarding the General Acceptance (“GA”) Product Shop Scheme, a Member enquired the proportion of GA Product Shops to all plumbing shops in Hong Kong. Ms Mable LAM, Chief Engineer/Technical Support of WSD, responded that there had not been many plumbing shops joining the scheme and WSD would continue its promotional work and relax the scheme requirements with a view to driving more participation by the plumbing shops. Another Member suggested WSD consider ways to better promote to the public the identification and use of GA products sold in the market, for instance through the use of easily recognisable label affixed on such products.

[Post-meeting note: WSD supplemented after the meeting that the relaxation on the GA Product Shop Scheme requirements were expected to be effective in August 2022. A Voluntary Labelling Scheme (“VLS”) had been in place for GA products since 2017 to facilitate recognition of GA products and easy retrieval of useful information about the product by the public. As at May 2022, about 28% of approved GA products had joined the VLS.]

13. On the roadmap of furthering the voluntary GA* Scheme on adoption of plumbing products of low metal leaching rate, Ms Mable LAM elaborated that testing requirements on metal leachability of plumbing materials in potable plumbing systems would be imposed after enactment of the Waterworks (Amendment) Bill in about two years tentatively.

[Prof HO Kin Chung left at this juncture.]

14. A Member enquired about the follow-up action in case water sample(s) collected in the commissioning for new plumbing installations, when subject to the current 6-hour stagnation sampling test, failed to comply with HKDWS. Ms Mable LAM responded that if the failure was related to a metal parameter, water samples would be collected again at the same sampling location for testing of all metal and non-metal parameters. If the failure was related to a non-metal parameter such as *E.coli*, the retesting would only include all non-metal parameters.

15. Regarding the 24-hour stagnation (“24HS”) sampling test adopting the refined systematic flushing protocol, a Member noted that the failure rate in terms of the number of development sites joining the trial was quite high, and enquired about the actions taken to follow up the failure cases concerned. He added that it was important to ascertain whether the failure cases had provided any indication about the robustness of the protocol. Ms Mable LAM replied that the 24HS sampling test was a voluntary trial and the data collected were still being analysed. She pointed out that in terms of the total number of water sample collected from all the test sites, a small percentage (i.e. 6%) of water samples had failed in metal content. She added that WSD had planned to obtain further data from another three to four development sites for analysis. Another Member enquired about the effectiveness of the refined flushing protocol and suggested WSD arrange more development sites to join the trial so as to increase the sample size, hence facilitating the drawing up of meaningful conclusions. Mr SW CHAU, Deputy Director of Water Supplies, explained the details of the refined flushing protocol and supplemented that there had been difficulties in persuading developers to participate in the voluntary trial. A Member also asked how the sampling locations in a development site were determined, and whether any common cause(s) had been identified amongst the failure cases so that necessary improvement to the flushing protocol could be developed. Ms Mable LAM responded that WSD’s consultant would assist in analysing the results of the trial with a view to finding out the possible reason(s) of the failure so that the refined flushing protocol could be further enhanced if needed. Members in general emphasised on the need for WSD to conduct more trials and to find out the cause(s) of failure, so as to ensure the robustness of the refined flushing protocol under the 24HS sampling test.

WSD

16. A Member suggested WSD supplement the Committee with more detailed explanation on the arrangement of the systematic flushing, sampling and testing protocols related to the commissioning test for new plumbing installations.

WSD

Agenda Item 4: 2021 Annual Report on Drinking Water Quality in Hong Kong

17. Ms Janice KWAN, Assistant Secretary (Water Safety) 1, and Mr Kelvin KWOK, Project Assistant Secretary (Water Safety) 2 of DEVB, briefed Members about the 2021 Annual Report on Drinking Water Quality in Hong Kong prepared by the Drinking Water Safety Unit (“DWSU”) of DEVB, which would be

published at DEVB's website after the meeting. Ms Anna CHAN, Chemist/Planning 2 of WSD, shared with the Committee the case of detection of one *Giardia* cyst in a raw water sample of the High Island Main Tunnel.

[Ir TANG Ming Sum, Michelle and Dr TO Kai Wang, Kelvin left at this juncture.]

18. A Member remarked that it was clear that the raw water from the Lowland Pumping Stations ("LLPSs") was the source of the *Cryptosporidium* oocyst & *Giardia* cyst ("C&G") found and enquired about the sampling locations for C&G. In response, Mr TY CHOY said that after the incident, WSD had not only increased the C&G monitoring frequency for the High Island Main Tunnel, but also required staff members to verify the absence of C&G at LLPSs prior to resuming the operation of individual LLPS. For the latter, water samples would be collected at locations just upstream of the pump inlet of the LLPSs.

19. A Member enquired if C&G could be eliminated by the water treatment process. Mr TY CHOY advised that the current treatment process including flocculation/coagulation and filtration adopted by the water treatment works ("WTW") in Hong Kong could remove 99.9% of C&G. For WTW with ozone treatment process i.e. Tai Po and Ngau Tam Mei WTW, a C&G removal efficiency of 99.99% could be achieved. He supplemented that C&G had been included in the Surveillance List and the WTW concerned had been able to remove the C&G detected as revealed by the surveillance monitoring.

20. In response to a Member's enquiry on the situation of subsidies disbursement under the Water Safety Plan Subsidy Scheme ("WSPSS"), Ms Janice Kwan elaborated the application procedures and the pre-requisites for disbursement. Noting that COVID-19 might impact on arranging and convening owners' meetings to pass the resolution of participating WSPSS, WSD had already allowed applicants to submit the application forms first, and then supplement the relevant documents at a later stage, thus allowing the applicants to convene the necessary owners' meetings when circumstances permit. Mr Kelvin LO, Director of Water Supplies, supplemented that the progress of disbursement was also dependent on the progress of WSPB formulation involving various building management procedures that the building owners needed to go through, which had also been impacted by COVID-19.

21. A Member commented that (i) the updates on the implementation of the multi-faceted Action Plan, (ii) the content of the 2021 Annual Report on Drinking Water Quality in Hong Kong, as well as (iii) the detailed deliberations by WSD on

the two exceedance cases on lead and *E.coli* in drinking water samples and the follow up on the discovery of a *Giardia* cyst in raw water sample, fully supported the confidence on the safety of Hong Kong's drinking water supply. The Chairman concluded that the Committee acknowledged WSD's effort in ensuring drinking water safety and generally agreed with the comments made by DWSU on WSD's performance in 2021.

Agenda Item 5: Summary on International Water Quality Incidents

22. Ms Anna CHAN gave a brief account of WSD's review on major international water quality incidents for the period from June to September 2021. Of the four incidents more relevant to Hong Kong, Ms Anna CHAN deliberated the situation in Hong Kong and Members had raised no specific comments.

Agenda Item 6: Any Other Business

23. There being no other business, the meeting adjourned at 5:00 p.m.