

Legislative Council Panel on Housing

Excessive Lead in Fresh Water Supply in Public Housing Estates

ISSUE

This paper sets out the major events relating to the incident of excessive lead in drinking water in public housing estates, follow-up actions taken and work to be undertaken by the Hong Kong Housing Authority (HA) and the Government.

BACKGROUND

2. **Annex 1** sets out the major events in chronological order since the end of June and early July when fresh water samples from Kai Ching Estate were first suspected to contain excessive lead¹.

FRESH WATER PLUMBING SYSTEM

Materials of Fresh Water Supply Pipes

3. Galvanized Iron (GI) pipes were used in fresh water plumbing systems of early public housing estates. In the mid-1990s, lined GI pipes were introduced owing to its anti-rust property. However, this material was uncommon in the retail market and difficult to purchase in small quantities. Tenants would use copper pipes instead of lined GI pipes for alterations inside flats. From 2002 onwards, contractors were allowed to use either lined GI or copper pipes. Currently, building contractors are permitted to choose between copper and stainless steel pipes for fresh water plumbing

¹ Exceeding the provisional guideline value for lead in drinking water of 10 µg/L specified in the “Guidelines for Drinking-water Quality, Fourth Edition” published by the World Health Organization (WHO).

systems in public housing estates. However, as stainless steel pipes are still uncommon in the retail market, even if contractors select stainless steel pipes for the plumbing system, copper pipes would still be used inside flats² to facilitate alteration by tenants.

4. We exercise quality control on water supply systems in public housing estates through specifications and testing. In selecting materials, we consider a number of factors, including construction techniques, availability of the material in the market, as well as compliance with the international standards stipulated in the Waterworks Ordinance (WO). All plumbing materials specified by HA comply with the relevant international standards as required under the WO.

5. Connection methods of water supply pipes vary according to pipe sizes and materials. In general, soldering is adopted for copper pipe connections. Soldering materials need to comply with the relevant international standards as stipulated in the WO, and our contract specifications adhere to such requirements. Both our contract specifications and the WO do not permit the use of soldering materials which contain lead. The use of soldering materials containing lead in fresh water plumbing systems is a contravention of contract specifications and regulatory requirements.

Quality of Drinking Water

6. To safeguard the quality of water supply, we carry out tests upon completion of fresh water supply systems. For newly completed public housing estates, contractors are required to cleanse and disinfect the water supply system in each building. Water Supplies Department (WSD) collects water samples from water connection points for testing and analysis. The quality of the water samples must comply with WSD's requirements³ before connection of water supply. The purpose of this arrangement is to ensure the water supply systems inside buildings are properly cleansed and disinfected to prevent them from contaminating the public water supply system upon connection to the latter.

2 Only one pilot project has stainless steel water pipes inside flats.

3 Testing parameters include pH, colour, turbidity, conductivity, residual chlorine, E. Coli and total Coliform.

7. After flat intake, to ensure tenants can enjoy quality water supply, HA has been participating in the “Quality Water Supply Schemes for Buildings – Fresh Water” (the Scheme), administered by WSD, since 2003. The objective of the Scheme is to encourage proper maintenance and repair of water supply systems in buildings by responsible parties. Under the Scheme, fresh water tanks must be cleaned at least once every three months, and water samples must be collected regularly from a randomly selected water supply points fed by each water storage tank in each building for testing. Water sampling tests must be conducted for each building at least once a year for new applications to participate in the Scheme, and at least once every two years for applications for renewal, to ensure the quality of water supply comply with relevant standards⁴. Currently, all public housing estates under the management of HA have been awarded certificates of the Scheme by WSD.

8. To address the risk of Legionnaires’ disease, starting from 2012, we stipulated the disinfection of the inside water supply systems of newly completed public housing estates prior to occupation by filling the systems with chlorinated water at a concentration of 50mg/L for at least two hours. After disinfection, the chlorinated water is drained and the systems are thoroughly flushed with fresh water. This disinfection process was completed for Kai Ching Estate before occupation in 2013 to ensure its water supply system is free of the Legionella bacteria at the time of tenant intake.

Current Supervision on the Installation of Fresh Water Supply Systems

9. All of HA’s developments must comply with the Buildings Ordinance (BO). The Independent Checking Unit (ICU) exercises building control on HA’s new projects and Alteration and Addition Works in existing buildings in accordance with the BO, approves plans, issues consents to the commencement of works, carries out site monitoring and final inspections, and issues occupation permits for building works. HA’s building contracts follow the common practice in the building industry, and main contractors are responsible for carrying out plumbing installations in public housing projects⁵.

4 According to the requirements of the Quality Water Supply Schemes for Buildings – Fresh Water, items to be tested include pH, colour, turbidity, conductivity, iron, E. Coli and total Coliform.

5 In accordance with current legislation, the registered building contractor is required to provide continuous supervision and to comply generally with the ordinances; while the Authorized Person should make periodic inspection of the works on site.

With respect to the installation of fresh water supply systems, in compliance with the WO -

- (a) the main contractor shall appoint a licensed plumber, who shall construct and install the fresh water supply system in compliance with drawings approved by WSD, the WO and the contract specifications; and
- (b) the Authorized Person and the licensed plumber, in applying to the Water Authority for connection upon completion of the fresh water supply system, shall confirm that the system complies with the WO, and shall attend the necessary inspection and testing.

Approval, Surveillance and Examination of Materials for Fresh Water Plumbing Systems

10. HA checks the materials proposed by main contractors, including catalogues, samples, certificates, test reports, approval documents from respective regulatory authorities (including WSD approval documents, etc.), the contractors' confirmations of full compliance with HA's and other recognized requirements, makes reference to the performance of the materials in other projects, and checks whether the material has ever been listed in the "Material Quality Alerts"⁶, before determining whether to approve the proposed materials for use.

11. We conduct checks on whether the materials or the documents of origin submitted by the main contractors showing compliance of standards are complete when materials are delivered to the site. Visual inspection and verification are carried out on materials against submitted catalogues and certificates. We also select samples on site for checking the appearance, construction, dimensions against relevant standards, and whether there are visible defects. HA's Components and Materials Team conducts laboratory tests on major components such as sink faucet, mixer and shower head to ensure compliance with the specified performance standards.

⁶ The list of Material Quality Alerts contains 25 materials and is maintained by the Component and Materials Team. The team conducts surprise checks, selects and sends random samples to an accredited laboratory for thorough examination, and posts regular reports on findings.

Surveillance at Construction and Completion Stages

12. Main contractors are responsible for continuous supervision of the works in order to ensure compliance with contract requirements. Our project teams conduct periodic inspection by carrying out surveillance checks and tests. We also conduct quarterly Performance Assessment Scoring System⁷ (PASS) assessments with contractors to assess the quality of works. These include assessments on the contractors' management of domestic sub-contractors.

13. We monitor main contractors' works regularly to ensure fresh water plumbing installations are executed in accordance with contractual requirements. For instance, we inspect the alignment of water pipes, position and quantity of brackets and whether they are firmly fixed, adequacy of pipe sleeves and spacing, the connection of pipes, whether the materials used comply with contractual requirements, etc. However, we do not inspect the joints between pipes (including the soldering materials) for lead content. The reason is the construction industry has all along believed that such widely accepted and broadly applied soldering materials comply with relevant requirements. However, with the recent discovery of lead in water, Housing Department (HD) has formulated follow up actions (see paragraph 26).

14. On completion of fresh water plumbing systems, main contractors inspect and test them to ascertain compliance with the drawings approved by WSD, statutory requirements and contract specifications, and the licensed plumbers apply to the Water Authority for inspection and approval of the plumbing systems. We also carry out final inspection and testing, including checking the main contractors' cleansing and disinfection of tanks and pipes, conducting pressure tests and checking for water-tightness. In the final inspection of each flat, we check the pipes and fittings for proper fixing and water-tightness, and whether the water supply and drains operate normally. Only upon the satisfactory completion of all tests do we apply to the ICU for Occupation Permit.

7 PASS scores affect the allocation of tendering opportunities to contractors and the evaluation of their submitted tenders. HA may impose regulatory actions on contractors with poor performance, including but not limited to restriction from tendering.

15. As mentioned in paragraph 6 above, WSD collects water samples at the connection points of the fresh water plumbing systems, and analyses them to ensure that the internal plumbing systems have been properly cleansed and disinfected before issuing certificates for permanent water connection. The certificates are pre-requisites for application for Occupation Permit from ICU.

Prefabricated Kitchen and Bathroom

16. Since the early 2000s, HA has been advocating the use of volumetric precasting technology, including volumetric precast bathrooms, and successfully conducted pilots in the public housing developments at Tseung Kwan O Area 73B and the Ex-Kwai Chung Flatted Factory site. Upon the development of the Kai Tak Apron in 2009, considering the fact that the size of the projects was able to offer economies of scale in the use of prefabrication, we adopted extensive application of volumetric precast bathroom (VPB) and volumetric precast kitchen (VPK) in the two Kai Tak development projects (i.e. Kai Ching Estate and Tak Long Estate).

17. HD follows Building Department's requirements on quality control and supervision of precast concrete construction in the Mainland as set out in "Practice Notes for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers" (i.e. PNAP-APP 143). In addition, we also commission independent consultants to provide inspection services, which include full time deployment of resident supervisors to inspect the production of precast concrete components in factories. The independent consultants are also required to appoint Registered Electrical Workers (REW) to audit the fixed electrical installation and certify that the electrical installations comply with the Electricity (Wiring) Regulations. Moreover, HD regular visits the factories to audit the performance of resident personnel as well as the production process. For VPB and VPK construction, the resident supervisors inspect and check the installation of aluminium window frame, application of waterproofing, and fixing of wall and floor tiles according to the contract requirements. Upon completion of installation in the factory, the finished products would be delivered to the construction site, where HD's site inspection personnel would carry out relevant tests, such as water spray test for water-tightness, pull-off test for tile adhesion, and checks for whether sanitary fittings and partially installed pipes have been properly fixed.

18. All water pipes in HA's public housing developments, including those sanitary fittings and water pipes pre-installed in factories, are of surface-mounted design (i.e. exposed pipes). Since the water pipes are not fully installed in the factory and may suffer damage during transportation, the inspection of the water pipes is conducted by site inspection personnel after delivery to site. Upon completion of fresh water plumbing systems on site, main contractors are responsible for final inspection and for checking that the respective materials and the entire systems comply with the WSD approved drawings and relevant regulations as well as the contract requirements. Based on the experience gained from the pilot conducted at Kai Tak Site 1A (i.e. Kai Ching Estate) of pre-installing sanitary fittings and water pipes in factories⁸, we observe that some of these pre-installed components were damaged during transportation. Upon further study and review, we decided not to pre-install sanitary fittings and water pipes in volumetric precast units in subsequent projects.

19. The bathrooms in all six blocks of Kai Ching Estate were prefabricated, and about half of them were partially fitted with water pipes before delivery to site. The kitchens of only two blocks were prefabricated, and about half of them were partially fitted with water pipes before delivery to site. The two vacant flats where lead was found in soldering material were not prefabricated, and were cast in-situ in Hong Kong. Out of the seven flats from which water samples were found to contain excessive lead, only one involved prefabricated kitchen with pipes fitted. Two of them had prefabricated bathrooms with no pre-installed pipes, while the remaining four had kitchens cast in-situ in Hong Kong with no prefabricated elements involved. As for Kwai Luen Estate, no prefabricated bathrooms or kitchens were used. Hence, there is no direct relationship between excessive lead content in fresh water and the use of prefabrication.

INTERIM MEASURES TO ASSIST AFFECTED TENANTS

20. To date, excessive lead content has been found in fresh water samples from Kai Ching Estate, Kwai Luen Estate Phase 2 and Wing Cheong Estate. We have implemented the following measures in these estates.

⁸ In the Kai Ching Estate development, about 14% of the total quantity of water pipes by length were pre-installed in precast kitchens and bathrooms at the factory.

21. HD and WSD have arranged temporary water supply, including the supply of bottled water⁹, delivery of fresh water by tanker vehicles, and installation of temporary water tanks and pipes outside each block of Kai Ching Estate, Kwai Luen Estate Phase 2 and Wing Cheong Estate, to facilitate collection of water by the residents.

22. The Department of Health has set up a hotline (2125 1122) to respond to questions from the public on the effect of lead on health and to provide related health information. The hotline operates from 9:00 a.m. to 9:00 p.m. daily. The more vulnerable groups, namely infants or children under six years of age, pregnant women and lactating mothers, may call the hotline to make appointments for free blood tests.

23. We have instructed and urged the contractors concerned to take all necessary actions to remedy the situation. First and foremost is to meet residents' daily need for fresh water. To further minimise inconvenience to the tenants in Kai Ching Estate, the contractor will install temporary water supply points on each domestic floor with supply drawn directly from the roof tank. We anticipate that such supply points can be in place before mid-August (in about three weeks). For Kwai Luen Estate Phase 2, we are making similar arrangement to provide temporary water points on each floor, and anticipate that they will be in place by the end of August.

24. In relation to the case of Legionnaires' disease in Kai Ching Estate, we had disinfected the two water tanks and common areas of the whole building block of Mun Ching House on 14 July 2015. We would proceed to disinfect the water tanks of the remaining five blocks in the estate one by one. We will investigate whether more thorough cleansing is required for these five blocks.

WAY FORWARD

25. HD will continue to thoroughly investigate the issue of lead in soldering materials used in fresh water plumbing systems. We will pursue all remedies available under contract against the contractors concerned, and will take appropriate action under HA's prevailing list management

⁹ Priority is given to more vulnerable groups, namely infants or children under 6 years of age, pregnant women and lactating mothers.

procedures. In the meantime, we are liaising with the contractors on pipe replacement plan and programme. The contractors will proceed with pipe replacement works as soon as the temporary water supply points have been put in place.

26. HA is implementing the following improvement measures -

Short and medium term measures

- (a) the latest additional water sample testing requirements, published under WSD's Circular Letter No. 1/2015 on 13 July 2015¹⁰, have been incorporated in all HA contracts;
- (b) strengthen inspection on soldering materials, ensuring compliance with contract requirements, i.e. –
 - revise the specification to require regular inspection of soldering materials at pipe joints of fresh water plumbing systems as well as intensifying spot checks on the same to ensure the material is lead-free;
 - liaise with the Hong Kong Accreditation Service (HKAS) to investigate the possibility of implementing an accreditation scheme for testing lead content in soldering materials for copper pipes under the Hong Kong Laboratory Accreditation Scheme (HOKLAS);
 - explore the use of hand-held equipment in speedy on-site checks for lead content in soldering material; and
- (c) minimise the risk of non-compliant materials by exploring the use of copper pipe fittings with mechanical joints (i.e. press or compression fittings) to ensure lead-free water pipes.

¹⁰ The four new test parameters and acceptance criteria required under this Circular Letter are: lead ($\leq 10\mu\text{g/L}$), cadmium ($\leq 3\mu\text{g/L}$), chromium ($\leq 50\mu\text{g/L}$) and nickel ($\leq 70\mu\text{g/L}$).

Other long term measures

- (d) collaborate with industry stakeholders to raise the safety standard of sink mixers, other fittings and materials in fresh water plumbing systems; and
- (e) work with WSD, the Construction Industry Council, the Hong Kong Construction Association Ltd., the Hong Kong Plumbing & Sanitary Ware Trade Association Ltd., the HK Licensed Plumbers Association Ltd., the Chartered Institute of Plumbing and Heating Engineering – Hong Kong Branch, the Hong Kong Institution of Plumbing and Drainage, the Hong Kong Water Works Professional Association, and the Hong Kong Plumbing General Union to strengthen the training of licensed plumbers and workers in the plumbing trade, and comprehensively promote quality construction and quality control.

27. HA has formed a Review Committee (**Annex 2** refers) to review the quality assurance mechanism for materials and workmanship used in and the construction of public housing projects, including pre-fabricated components, and look into the quality system and supervisory procedures at various stages of the construction process as well as the enforcement situation.

28. At the same time, Development Bureau has established a Joint Task Force (**Annex 3** refers) to investigate this matter and would make recommendations to prevent recurrence of similar incidents in future. The Joint Task Force will also follow up on a recent case of Legionnaires' disease in Kai Ching Estate. The Task Force is led by the Deputy Director of the Water Supplies and members include academics, professionals from relevant Government departments.

29. In addition, the Government has decided to appoint a Commission of Inquiry under the Commissions of Inquiry Ordinance (Cap.86) to conduct an independent and comprehensive investigation. The Commission of Inquiry (**Annex 4** refers) will determine the cause of the incident; examine and evaluate the standard of the present system of control for drinking water supply system in public and private buildings; and make recommendations to ensure the safety of drinking water supply in

Hong Kong.

Transport and Housing Bureau
Housing Department
July 2015

Major Events in Chronological Order

Date	Events
5 June 2015	Dr Hon Helena WONG enquired HA by letter about the material and connection method of water pipes in public housing estates, water tank cleansing arrangement and whether regular water sampling tests had been conducted to ensure safety for drinking.
25 June 2015	HA replied to Dr Hon Helena WONG by letter to address all her questions.
26 June 2015	Dr Hon Helena WONG further enquired about the water pipe materials used in Kai Ching Estate. She also indicated that tests had been carried out on water samples collected from four flats in Kai Ching Estate. The test results revealed that the lead content of one sample was marginal while the other three samples did not meet the WHO standard, with lead content as high as 38 µg/L. A second test was being carried out to confirm the findings. Dr Hon WONG suspected that the lead detected came from the soldering material for pipe connections and refused to disclose any further details.
29 June 2015	HA specifies the requirement of lead free pipe materials for all works projects, including Kai Ching Estate. The project team of Kai Ching Estate confirmed that the contractor had provided substantiation on compliance with the lead free requirement.
30 June 2015	HA decided to approach Hon WONG to enquire if the results of her water sampling re-test were available and to conduct water sampling tests at Kai Ching Estate to find out if there was any lead in the fresh water plumbing system.
2 July 2015	Dr Hon Helena WONG advised that the re-test results showed that the lead content of three water samples met WHO's standard, while one did not (i.e. 11µg/L). She also indicated that the lead content of one water sample of the neighbouring

Major Events in Chronological Order

Date	Events
	Tak Long Estate was 2µg/L. She expressed her intention to announce the findings to media.
3 July 2015	HA contacted WSD and two HOKLAS accredited laboratories to collect water samples from 11 locations in Kai Ching Estate to verify the findings and for cross-checking.
5 July 2015	<p>Dr Hon WONG held a press conference to announce that heavy metals, such as copper, lead, zinc and silver, were found in 27 water samples taken from 13 estates/buildings in Kowloon West region between April and June 2015. She stated that lead was found in some of the water samples taken from Sheung Ching House and Lok Ching House of Kai Ching Estate at levels which exceeded the WHO standard, i.e. lead content in drinking water exceeding 10 µg/L.</p> <p>Housing Department (HD) responded on the same day that water samples collected earlier from 11 locations in Kai Ching Estate all met the WHO standard, i.e. lead at levels below the WHO standard of 10 µg/L.</p>
6 July 2015	Representatives of HD, Department of Health (DH) and Water Supplies Department (WSD) held a joint meeting to discuss the follow-up action after the fresh water at Kai Ching Estate was suspected of containing excessive lead. After the meeting, the Government spokesman announced that all the results of the tests on 33 drinking water samples from Kai Ching Estate commissioned by the HD and the WSD earlier this month indicated that the lead content met the standard of the WHO. On reports that non-compliant lead content had been detected in the drinking water supply for four households in Kai Ching Estate on 3 July 2015, the authorities would conduct more tests on their drinking water and would announce the results as soon as possible subject to the agreement of the four households. The authorities would

Major Events in Chronological Order

Date	Events
	extend the water sampling tests for Kai Ching Estate systematically to alleviate residents' concerns.
7 and 8 July 2015	HD and WSD collected another 16 water samples from Kai Ching Estate for testing. The lead content in these tested samples met the WHO standard.
9 July 2015	HD announced that lead was found in the soldering materials used in two water pipe joints in Kai Ching Estate and this contravened both the relevant legislation on water supply and the conditions of HA building contract. HD would replace non-compliant parts systematically. From the health point of view, DH opined that if the lead content in drinking water met the WHO standard, acute lead poisoning would be unlikely. Nevertheless, infants or children under six years of age, pregnant women and lactating mothers were recommended to take additional precautions, including flushing each faucet individually before using the water for drinking or cooking. It would also be preferable to use alternative source of drinking water.
10 July 2015	The Government spokesman noted that amongst the 30 water samples tested on 9 July 2015, the lead content of four samples did not comply with the WHO standard, with readings at 11, 14, 17 and 23 µg/L respectively. HD had instructed the building contractor to provide a plan to locate all possible pipe parts which might contain lead, and to replace them as soon as possible with the least disruption to residents. A resident forum with the presence of representatives from DH, Hospital Authority and HD was held in Kai Ching Estate in the evening.
11 July 2015	A press conference was jointly held by the Transport and Housing Bureau, the Development Bureau, HD, WSD, DH and the Hospital Authority to explain the details of the

Major Events in Chronological Order

Date	Events
	<p>follow-up actions discussed at the inter-departmental meeting chaired by the Chief Secretary of Administration. The test results of the last batch of 36 water samples collected from Kai Ching Estate was announced. 35 samples were taken from residential flats and one from a facility in the common area of the estate. 33 samples met the WHO standard. Three samples, all from residential flats, did not meet the WHO standard, with readings at 10.8, 11.6 and 35.1 µg/L respectively. WSD set up two temporary water supply points and commenced the laying of a temporary water pipe to the ground floor of each block in Kai Ching Estate to facilitate collection of fresh water by the residents.</p> <p>Overall for Kai Ching Estate, a total of 115 samples in four batches were tested, 108 samples met the WHO standard and seven did not.</p>
13 July 2015	<p>A press conference was jointly held by the Transport and Housing Bureau, the Development Bureau, HD, WSD, DH to give an update on the latest follow-up work. It was also announced at the press conference that a tenant of Mun Ching House in Kai Ching Estate had contracted Legionnaires' disease earlier. Water samples taken from water pipes supplying the patient's flat as well as the same floor, and from the water pipe on the first floor of the building had also been tested positive for this bacteria. HD expressed that disinfection of Mun Ching House was necessary. To ease tenants' concern, consideration would be given to carry out disinfection for the remaining five blocks in the estate.</p> <p>HD and WSD proceeded to take water samples for testing on the same day from four other housing estates (Kwai Luen Estate Phase 2, Shui Chuen O Estate, Cheung Sha Wan Estate and Lung Yat Estate) where the same licensed plumber as Kai Ching Estate was appointed for installation of the fresh water</p>

Major Events in Chronological Order

Date	Events
	plumbing systems.
14 July 2015	<p>An inter-departmental meeting chaired by the Chief Secretary for Administration discussed both temporary and long-term measures to tackle excessive lead content in drinking water. The Secretary for Transport and Housing announced that the likely cause of drinking water not meeting the WHO standard was lead in the soldering material of water pipes. A number of follow-up measures were announced, including the provision of temporary water points on each floor of each domestic block in Kai Ching Estate in around three weeks' time to facilitate water collection by tenants. He also expressed that the possibility of replacing all water pipes would not be ruled out, but priority would be given to replacing those pipes with non-compliant soldering material in public areas outside the residential units.</p> <p>It was also announced on the same day that out of the four other public housing estates and two other facilities for which the same licensed plumber as Kai Ching Estate had carried out pipe works, the lead content of water samples from two public housing estates, namely, Kwai Luen Estate Phase 2 and Shui Chuen O Estate, did not comply with the WHO standard. More than 40 water samples were taken from Kwai Luen Estate Phase 2 in Kwai Shing Circuit, among which five samples were found with lead content levels of 10.4, 10.5, 16.8, 19.4 and 23.3 µg/L, exceeding the WHO standard. For Shui Chuen O Estate, one sample taken from a vacant unit at Hei Chuen House was found to have a lead level of more than 14µg/L, which slightly exceeded the WHO Guideline. The water sample taken from the rest of the three domestic blocks met the WHO standard. WSD would take more water samples from the domestic block for testing to ascertain the situation of water supply of the building. It was concluded that the water sample which exceeded WHO standard was affected</p>

Major Events in Chronological Order

Date	Events
	<p>by the environment. An open forum with the presence of representatives from DH, WSD and HD were arranged in Kwai Luen Estate Phase 2 in the evening.</p> <p>In summary, the water sample test results as at 14 July 2015 were as follows –</p> <ul style="list-style-type: none"> ● Kai Ching Estate – 115 samples tested, seven did not meet the WHO standard. ● Kwai Luen Estate Phase 2 – 44 samples tested, five did not meet the WHO standard. ● Shui Chuen O Estate – 43 samples tested, samples from Long Chuen House, Ching Chuen House and Yan Chuen House met the WHO standard but one sample taken from a vacant unit at Hei Chuen House was found to have a lead level of more than 14 µg/L, which did not meet the WHO Guideline. On 15 July 2015, WSD took 10 more samples from the same block for testing and all met the WHO standard. ● Cheung Sha Wan Estate – 42 samples tested, all met the WHO standard. ● Lung Yat Estate – 33 samples tested, all met the WHO standard.
15 July 2015	<p>HD announced that although there was no indication of any problem of lead level in drinking water in the following estates, in order to ease residents' concerns, water samples would be collected from nine public housing estates completed since 2013, namely, (1) Wing Cheong Estate, (2) Mei Chuen House of Mei Tin Estate, (3) Shek Foon House of Shek Lei (II) Estate, (4) Fung Wo Estate, (5) Tak Long Estate, (6) Mei Tak House of Mei Tung Estate, (7) Yee Ming Estate, (8) Cheung Lung Wai Estate and (9) Hung Fuk Estate Phases 1, 2 and 3, for lead-testing. In addition, although Kwai Luen Estate Phase 1 was completed prior to 2013, since it was</p>

Major Events in Chronological Order

Date	Events
	<p>located near to Kwai Luen Estate Phase 2 where five out of 44 samples were found not complying with the WHO standard, it would also be included in the sampling exercise</p> <p>On the same day, the Government announced the membership of the Task Force to be chaired by the Deputy Director of Water Supplies. The Task Force would investigate into the cause of excessive lead content in drinking water found recently at public housing estates and recommend measures to prevent recurrence of similar incidents in future. It would also follow up on a recent case of Legionnaires' disease at Kai Ching Estate.</p>
16 July 2015	HA held a briefing session to discuss the issue and recommended to set up a Review Committee to carry out comprehensive examination on the existing system and mechanisms for quality assurance of materials and parts, and the supervision work of the construction process.
17 July 2015	The Chief Executive announced the appointment of a Commission of Inquiry under the Commissions of Inquiry Ordinance (Cap. 86) to conduct an independent and comprehensive inquiry.
20 July 2015	<p>From 17 to 19 July, HD and WSD had taken 370 water samples for lead testing from six PRH estates completed in 2013 and Kwai Luen Estate Phase 1. The test results were as follows –</p> <ul style="list-style-type: none">● Kwai Luen Estate Phase 1 – 41 samples tested, all met the WHO standard.● Mei Chuen House of Mei Tin Estate – 33 samples tested, all met the WHO standard.● Shek Foon House of Shek Lei (II) Estate – 26 samples tested, all met the WHO standard.

Major Events in Chronological Order

Date	Events
	<ul style="list-style-type: none">● Fung Wo Estate – 50 samples tested, all met the WHO standard.● Mei Tak House of Mei Tung Estate – 24 samples tested, all met the WHO standard.● Hung Fuk Estate Phases 1, 2 and 3 – 150 samples tested, all met the WHO standard. <p>For Wing Cheong Estate, 46 samples were taken. One of the samples taken from the estate management office on the ground floor of Wing Chun House was found to have a lead level of 14µg/L, not complying with the WHO standard. Preliminary finding by a X-ray fluorescence detector also showed the existence of lead at the soldering material of a pipe joint.</p> <p>As the lead content level in a water sample did not meet the WHO standard and as lead was detected in the soldering material of a pipe joint in Wing Cheong Estate, a series of measures actions similar to those adopted in Kai Ching Estate and Kwai Luen Estate Phase 2 were put in place.</p>

**Review Committee on Quality Assurance Issues Relating to Lead in
Fresh water of Public Housing Estates**

公屋食水質量控制問題檢討委員會

Terms of Reference (final revision as at 24 July 2015)

1. To comprehensively review the present arrangements for quality control and monitoring in relation to the installation of fresh water supply system in public housing estates;
2. In the process of (1), to critically review various aspects of quality inspection relating to materials used (including prefabricated components), quality inspection and works supervision at different stages of construction; and
3. To report findings to the Hong Kong Housing Authority and recommend any improvement in procedures/guidelines and follow-up actions as necessary.

– End –

Task Force on Excessive Lead Content in Drinking Water

食水含鉛量超標專責小組

Terms of Reference (tentative)

職權範圍 (暫定)

1. To carry out investigation to ascertain the causes of the recent incidents leading to presence of lead in water drawn by households.

就近日住戶用水含鉛事件進行調查，以確定其成因。

2. To recommend measures to prevent recurrence of similar incidents in future.

建議可防止日後再次發生同類事件的措施。

3. To follow up on a recent case of Legionnaires' disease found at Kai Ching Estate.

跟進最近於啟晴邨發現的退伍軍人症個案。

- End -

Commission of Inquiry

調查委員會

Terms of Reference (as at 17 July 2015)

職權範圍 (截至 2015 年 7 月 17 日)

1. Determine the causes of the incident.

裁定事件的成因。

2. Examine and evaluate the adequacy of the present system of control for drinking water supply system including the technology, standards and monitoring of the design, construction, repairs and maintenance, installation and the use of materials, etc, in public and private buildings.

檢視及評核現時公共及私人樓宇食水供應系統的設計、建造、維修、保養，以及裝置和物料使用等的技術標準和監管制度是否妥當。

3. Make recommendations to ensure the safety of drinking water supply in Hong Kong.

提出建議確保香港食水的安全。

– End –