

**Commission of Inquiry into Excess Lead Found in Drinking Water  
("the Commission")**

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**Submissions by Counsel for the Commission  
(for Preliminary Hearing on 20 October 2015 at 10 am)**

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**Background**

1. Since July this year, excess lead (i.e. lead content exceeding 10 micrograms per litre, which is the guideline value recommended in World Health Organisation ("WHO")'s "Guidelines for Drinking Water Quality" representing the concentration of lead in drinking water that normally does not result in any significant risk to health over a lifetime of consumption) has been found in water samples taken from a total of 11 public rental housing estates in Hong Kong. The discovery of excess lead has caused grave public concern over the safety and quality of drinking water, in view of the harmful effects of lead on human beings, in particular, the more easily affected groups which include infants, children, pregnant women, lactating mothers and immunocompromised patients. Blood tests have been carried out for various groups of residents and preliminary development assessments for children have also been conducted for the purpose of ascertaining the extent of the adverse effects of the excess lead discovered.
  
2. On 13 August 2015, pursuant to the Commissions of Inquiry Ordinance (Cap 86), the Chief Executive in Council of the Hong Kong Special Administrative Region appointed the Commission to look into the above-mentioned incidents and the terms of reference are:-
  - (1) to ascertain the causes of excess lead found in drinking water in

- public rental housing developments;
- (2) to review and evaluate the adequacy of the present regulatory and monitoring system in respect of drinking water in Hong Kong; and
  - (3) to make recommendations with regard to the safety of drinking water in Hong Kong.
3. The Commission has wide statutory powers to compel persons to give evidence and disclose documents, and witnesses can be examined on oath. Oral evidence of witnesses will be taken in public and in the presence of other interested parties who, subject to the Commission's permission, would have the opportunity to pose questions to witnesses and make such submissions to the Commission as may be appropriate.

**Steps taken by the Commission**

4. So far, "Salmon letters" (i.e. letters giving advanced notice to persons who might be the subject of criticisms) have been issued to the following parties who have been asked to consider participating and having separate legal representation in the Inquiry, given that criticisms may be raised against them during the course of the proceedings:-
- (1) Water Supplies Department ("WSD").
  - (2) Hong Kong Housing Authority ("HA").
  - (3) Yau Lee Construction Company Limited ("Yau Lee").
  - (4) China State Construction Engineering (Hong Kong) Limited ("China State").
  - (5) Paul Y. General Contractors Limited ("Paul Y").
  - (6) Shui On Building Contractors Limited ("Shui On").
  - (7) Ming Hop Co. Ltd. ("Ming Hop").
  - (8) Ho Biu Kee Construction Engineering Company Limited ("Ho Biu Kee").

- (9) Golden Day Engineering Company Limited (“Golden Day”).
  - (10) Wing Hing Plumbing Drainage (“Wing Hing”).
  - (11) Sum Kee Water-pipe Drainage Ltd. (“Sum Kee”).
  - (12) Hang Lee Engineering Company (“Hang Lee”).
  - (13) Mr. Ng Hak Ming.
  - (14) Mr. Lam Tak Sum.
  - (15) Mr. Cheung Tat Yam.
5. Yau Lee, China State, Paul Y, and Shui On (collectively referred to as “the 4 main contractors”) were the main contractors involved in the construction of the 11 affected public housing estates. Ming Hop, Ho Biu Kee, and Golden Day (collectively referred to as “the 3 sub-contractors”) were the subcontractors engaged by the 4 main contractors with Ming Hop being engaged by Yau Lee, Ho Biu Kee by China State and Shui On, and Golden Day by China State and Paul Y. Wing Hing, Sum Kee and Hang Lee (collectively referred to as “the 3 sub-sub-contractors”) were the sub-sub-contractors employed by Ming Hop. Mr. Ng Hak Ming, Mr. Lam Tak Sum, and Mr. Cheung Tat Yam (collectively referred to as “the 3 licensed plumbers”) were the 3 licensed plumbers involved.
6. The Commission has also directed various categories of documents to be disclosed by:-
- (1) WSD in respect of (a) the water supply system, duties of the Water Authority and WSD; (b) standards and requirements of the quality of drinking water and the steps taken to achieve such required quality; (c) the monitoring and control of water quality from source to inside service (including matters such as the licensing of plumbers, applications on plumbing proposals and commencement of proposed plumbing works, inspection, approval and maintenance of plumbing works); and (d) complaints on water quality regarding

inside service in 2015 in connection with the affected housing estates.

- (2) HA in respect of the plumbing and fresh water pipes design and system, construction and installation, maintenance, periodic inspections and the materials used for the pipes and fittings (as defined in the Waterworks Ordinance (Cap 102)), connection and soldering of fresh water pipes of the affected estates and also a selection of unaffected estates (for the purpose of comparison).
  - (3) Government Laboratory.
  - (4) Department of Health.
7. Pursuant to the Commission's directions, more than 100 carton boxes of documents have been delivered to Messrs. Lo & Lo, solicitors acting for the Commission and new documents are still in the course of being gathered and organised on a continuous basis.
8. Further, the Commission has asked various parties to provide witness statements, information and/or materials on specific issues which will likely form the subject matter of the Inquiry :-
  - (1) (a) the Director of Water Supplies, (b) the Deputy Director of Water Supplies (i.e. Chairman of WSD's Task Force on Excessive Lead Content in Drinking Water ("WSD's Task Force")), and (c) the Chief Chemist of WSD to provide witness statements on the issues set out in Schedule 1 attached hereto;
  - (2) (a) the Chairman of HA, (b) the Chief Architect, (c) the Chief Building Services Engineer and (d) the Chairman of the Review Committee on Quality Assurance Issues Relating to Fresh Water Supply of Public Housing Estates ("HA's Review Committee") to provide witness statements on the issues set out in Schedule 2 attached hereto;

- (3) the 4 main contractors to provide the identity and contact details of (a) all contractors and sub-contractors; (b) all persons or entities responsible for the procurement of pipes and fittings and soldering materials; and (c) all licensed plumbers and other workers involved in the construction, installation, certification of completion, inspection, monitoring and maintenance of fresh water plumbing system in the affected housing estates;
  - (4) the 4 main contractors to provide witness statements on the issues set out in Schedule 3 attached hereto;
  - (5) the 3 sub-contractors to provide witness statements on the issues set out in Schedule 4 attached hereto;
  - (6) the 3 sub-sub-contractors to provide witness statements on the issues set out in Schedule 5 attached hereto; and
  - (7) the 3 licensed plumbers to provide witness statements on the issues set out in Schedule 6 attached hereto.
9. The witness statements sought are – subject to requests and submissions otherwise – expected to be ready from 26 October 2015 onwards. Upon perusal of the witness statements and the documents received, the Commission will determine if further witness statements either from the persons already identified or from any other person will be required and which witnesses will be required to attend to testify on oath. Generally, all witnesses, except those whose evidence is not contentious, are required to give evidence and be examined at the hearing of the Inquiry on oath.
10. Further, the Chairman of the Commission, the Commissioner and the legal team have visited the Sha Tin Water Treatment Works and Muk Wu Pumping Station for the purpose of understanding Hong Kong's water treatment processes and water quality testing and monitoring. A site visit has also been made to the Government Laboratory to learn about the

processes and technologies in the examination and testing of water and pipe samples in connection with the incidents in question.

### **Experts**

11. The Commission is in the process of instructing the following experts for the purpose of the Inquiry.

#### **Professor David Bellinger**

12. Professor Bellinger is a Professor of Neurology and Professor of Psychology at Harvard Medical School. He is also a Professor in the Department of Environmental Health at the Harvard School of Public Health. Professor Bellinger has spent three decades conducting research on the neurotoxicity of metabolic and chemical insults on children. He has served in numerous committees and advisory bodies at national and international levels, many of which focus on the effects of lead on children and human beings. He is a member of a Work Group on Level of Concern, Advisory Committee on Childhood Lead Poisoning, and the US Centers for Disease Control and Prevention. He is currently the Chairman of the WHO Committee responsible for the formulation of guidelines for UN member states on the diagnosis and treatment of lead poisoning.
13. It is expected that Professor Bellinger will assist the Commission in providing his opinion on the following matters:-
  - (1) to explain the short, medium and/or long term health effect(s) (if any) of elevated blood lead level on human beings in general, and in particular on (a) infants; (b) children under six years of age; (c) children/teenagers between six and eighteen years of age; (d) pregnant women; (e) lactating mothers; (f) elderly persons; (g)

immunocompromised patients and (h) long term patients with chronic illnesses;

- (2) to explain the internationally accepted or recognised guidelines and/or parameters (and their rationales), particularly those adopted by the WHO, on the content of lead in (a) tap water and (b) blood in human beings;
- (3) if the guidelines and parameters considered in (2) above have changed/ evolved over time, to explain the reasons for such changes;
- (4) to opine on the adequacy and suitability of the reference values for blood lead level and the care plan published or followed by the Hong Kong Special Administrative Region Government;
- (5) to opine on the adequacy and suitability of the acceptance criteria laid down by the WSD for heavy metals and make recommendations, if necessary.

Professor Joseph Lee

14. Professor Lee obtained a PhD in Civil Engineering from the Massachusetts Institute of Technology. Since 2010, he has been the Vice-President for Research & Graduate Studies and the Chair Professor of Civil and Environmental Engineering at the Hong Kong University of Science and Technology. He has particular research interests in environmental hydraulics/ fluid mechanics and water quality modelling. He undertakes postgraduate teaching on environmental hydraulics, coastal hydraulics, water quality and water quality modelling, urban hydrology and hydraulics. His undergraduate teaching work covers fluid mechanics, engineering hydraulics, environmental engineering, water quality control, water supply engineering and wastewater engineering.

15. Professor Lee will be asked:-

- (1) to ascertain the factual source(s) of excess lead found in drinking

water in public rental housing and to advise on what work and tests are to be performed;

- (2) to evaluate the methodologies and to review and verify the findings of the WSD Task Force's Interim and Final Reports in respect of the Waterworks system and the Inside Service system in public rental housing developments, from the perspective of a civil engineer; and
- (3) to conduct, if necessary, independent investigation on behalf of the Commission into the above systems in order to ascertain the factual source(s) of excess lead found in drinking water.

#### Professor John Fawell

16. Professor Fawell is a biologist and toxicologist resident in the UK who has worked on the implications of contaminants in the environment for human health and aquatic life since 1979. He was previously the chief scientist in a team which provided advice to UK water undertakers and regulators on the risk assessment of contaminants in the environment, particularly for human health, through drinking water, including a 24 hour service for incidents involving drinking water and the aquatic environment. He is currently engaged as a consultant to provide toxicological and risk assessment advice on drinking water in the UK and EU.
17. Professor Fawell is closely involved in the WHO Guidelines for Drinking Water Quality which are the major guidelines relied upon by many developed places in the world, including Hong Kong. He has also taken part in the development and implementation of water safety plans and their incorporation into regulation both in the UK and in a number of regions of the world, including involvement in advising the Romanian government on establishing drinking water regulations to meet the provisions of the drinking water directive. He also works for a WHO initiative to formulate advice for EU member states on developing

regulations based on the Guidelines.

18. The matters that Professor Fawell will be instructed to comment on include:-

- (1) to review and verify the findings of the Interim and Final Reports of the Task Force led by the Water Supplies Department (WSD) in respect of the Waterworks system and the Inside Service system in public rental housing developments, including the overall methodology adopted in the investigation;
- (2) to identify and explain the international standards (particularly those laid down by the World Health Organisation (WHO)) in respect of the following matters for the purpose of ensuring safety and quality of drinking water in Hong Kong:-
  - (a) hazards and hazardous events;
  - (b) risk assessment, prioritization and management;
  - (c) control measures;
  - (d) construction and maintenance;
  - (e) inspection and monitoring;
  - (f) management procedures;
  - (g) rectification;
  - (h) the supply and use of plumbing materials; and
  - (i) the procedures and protocols regarding the use and installation of plumbing materials;
- (3) in the context of the international standards in (2) -
  - (a) to review and evaluate the adequacy of the existing Water Safety Plans of the WSD;
  - (b) to review and evaluate the existing regulatory and monitoring regimes (both prior and subsequent to the excess lead in drinking water incidents as a result of which new measures have been put in place by public authorities) on

quality of drinking water:

- (i) at the pre-construct stage;
  - (ii) at the construction stage;
  - (iii) at the completion of construction (before the WSD issues the certificate for water supply connection); and
  - (iv) at the maintenance stage;
- (c) to opine on whether any further metal(s), chemical(s) and/or microorganism(s) should be included as parameter(s) in addition to those set out in the WSD Circular Letter No.1/2015 for testing of water samples, and if so, the thresholds, benchmarks and/or the acceptance criteria to be set for them; and
- (d) to comment on the effectiveness of the recommendations made by the HA's Review Committee;
- (4) to opine on how the inadequacies (if any) identified for the matters above may be rectified or improved and to make recommendations with regard to the safety of drinking water in Hong Kong; and
- (5) to state, provide advice and recommendations on other areas of concern (if any).

19. Although the questions set out in paragraph 18(1) for Professor Fawell are similar to those which Professor Lee will be asked to comment on, it is believed that the two experts will provide their respective input from different angles as each will focus on his own area of expertise.

#### Plumbing expert

20. The Commission is also considering the engagement of an expert in the plumbing industry to opine on matters relating to the present system in respect of the use and installation of materials for the construction and performance of plumbing work (in particular, the connecting and soldering

process of pipes, joints and fittings).

21. The exact scope of issues to be addressed by each of the above experts will be subject to the terms of reference set out in the letters of instructions to them.
22. Both WSD's Task Force and HA's Review Committee have provided their interim findings. The Commission will independently evaluate and assess their methodologies and findings by taking into account the opinion of the experts and all relevant factual evidence and materials.

#### **Preliminary Hearing on 20 October 2015**

23. At the Preliminary Hearing on 20 October 2015, the Commission will give directions on the further conduct of these proceedings including the language to be used, the filing of witness statements, the manner in which oral evidence will be received, access to documents, etc.
24. A marker should be laid down at the outset for the avoidance of doubt or misapprehension. The inquisitorial procedure adopted by the Commission is not necessarily the same as that adopted in ordinary adversarial civil or construction litigation. A Commission of Inquiry takes a proactive role in investigating the subject matter and the course of proceedings is not to be directed by any "party". Concepts commonly encountered in adversarial civil litigation such as a "list of disputed issues" (often relied on by parties to constrain or limit or object to the scope of questions that can be asked, or matters that can be argued or explored) are not necessarily appropriate. The scope of the Inquiry is defined by the widely worded Terms of Reference. Within the Terms of Reference, a number of lines of inquiry are potentially open. From time to time, new lines of inquiry can be opened up and old lines of inquiry can be closed down, all within a

relatively short timeframe, subject to considerations of procedural fairness to the parties.

25. As the Commission's final report could subject individual persons, departments or institutions to criticisms and make recommendations which have long term impact on the way they conduct themselves in the future, there is a need to ensure fairness to all parties who may be affected by the Inquiry or criticised in the Report. Hence, the Commission at the Preliminary Hearing will also deal with applications by persons/entities who apply to be joined as parties in this Inquiry and also hear all parties on any directions they may wish to seek.
  
26. Part of this Inquiry is concerned with ascertaining the operation and the adequacy or otherwise of various systems and processes in Hong Kong (such as those regarding the construction and maintenance of inside service in multi-storey buildings) which have been in place for many years. As such, it is important for the Commission to consider relevant materials from all parties (and, at the same time, work with the experts) to understand the workings of such systems before they can be critically analysed and evaluated. Hence, the Commission is required to take stock of what will be gathered from all the parties before it can properly formulate the sequence of witnesses and finalise the timetable for the substantive hearing of the Inquiry. The list (and sequence) of witness will be notified by the Secretariat to the parties and the media as and when it becomes ready. It is contemplated that instead of publishing a full list of witnesses, the Secretariat may simply publish list/sequence of witnesses in batches. It is not possible to predict at this stage the period covered by each batch of witnesses or the number of witnesses likely to be comprised within each batch. Much will depend on the actual witness statement

filed by the parties in the near future.

Dated 20 October 2015.

Paul Shieh, SC

Richard Khaw

Bonnie Y.K. Cheng

Counsel for the Commission

Lo & Lo

Solicitors for the Commission

## Schedule 1

Areas to be covered in witness statements from WSD as  
directed by the Commission

### i. Director of Water Supplies (Director)

#### *Supply of drinking water*

1. a Statement on Water Supply System in Hong Kong and Monitoring and Control of Water Quality has been submitted to the Commission on 20 August 2015 (the “**August Statement**”). The Director should provide a signed witness statement to cover the matters set out in the August Statement. If he wishes to elaborate, supplement and provide additional information on the areas and topics covered by the August Statement, he should do so in the witness statement;
2. explain and identify the prevailing statutory and non-statutory requirements and WHO and other relevant standards and parameters in ensuring the safety and quality of drinking water (“**Requirements and Standards**”) (including an explanation as to the reasons/criteria on which the Requirements and Standards were chosen or adopted for Hong Kong);
3. explain the measures and quality control system in place (prior to the incident of excess lead in drinking water) by the WSD in order to comply with such Requirements and Standards and to ensure the safety and quality of drinking water;
4. explain and identify the regulations, provisions and measures pertaining to (a) the construction of the Affected Estates to ensure drinking water will be lead-free and safe and (b) prohibiting the use of pipes, fittings and

- soldering and other plumbing materials (“**Plumbing Materials**”) from which lead may leach into drinking water;
5. please identify the water treatment plant through which water is supplied to each Affected Estate;
  6. paragraph 42 of the August Statement describes the inspection and approval of works carried out by the WSD after plumbing works have been completed: :
    - (a) please explain to the best of his knowledge why the existence of lead has been found in the Plumbing Materials of the Affected Estates notwithstanding such inspection and approval of works by the WSD;
    - (b) please explain and identify any use of Plumbing Materials which deviated from list of Plumbing Materials submitted to the WSD (“**Deviated Plumbing Materials**”). This request is confined to Deviated Plumbing Materials which have now been found to contain lead or from which lead has leached into water. Please also explain why such Deviated Plumbing Materials have been permitted to be installed without being spotted during any monitoring or inspection process by the WSD;
    - (c) please state and identify who in the WSD was/were responsible for the inspection and approval of works and testing of water to ensure its safety and quality after plumbing works have been completed in the Affected Estate and the steps taken in (a) discharging such responsibilities and (b) ensuring the safety and quality of drinking water.
  7. paragraph 45 of the August Statement implies that before connection of water supply to the Affected Estates, water samples would have been

taken not only from the inside service near the connection points but also from the inside service within the building:

- (a) please confirm expressly whether this is the case and if so, explain and identify the locations and points where water samples were taken for testing before connection of water supply to the Affected Estates;
  - (b) describe the tests and parameters of the tests performed;
  - (c) describe and explain the reason and rationale behind the chosen test parameters;
  - (d) describe and explain the reason why, before the incident of lead in drinking water, the list of chosen parameters did not include the four heavy metals (lead, chromium, cadmium and nickel) which have only recently been added to the list.
8. paragraph 48 of the August Statement describes the power and procedures of the WSD to investigate complaints on water quality in the inside service:
- (a) please explain whether the WSD has the power (and/or practice) to conduct periodic tests and inspections (whether on an annual or more regular bases) on the plumbing system of the inside service and to take water samples to ensure the safety and quality of drinking water;
  - (b) if the answer to (a) is affirmative, please state the reasons for the determining the frequency and the contents of such tests and inspections;
  - (c) if the answer to (a) is negative, please comment on the feasibility and effectiveness of carrying out such inspections and tests in order to ensure the safety and quality of drinking water.

9. explain and describe the steps and measures taken by the WSD and the quality control system in place, after lead has been discovered in drinking water (a) to address health concerns of the residents of the Affected Estates and the general public (b) to comply with the Requirements and Standards and (c) to ensure the safety of drinking water in the Affected Estates and in Hong Kong generally. Please also state any other recommendations the WSD may have on the 3 subjects and on how similar incidents may be avoided in the future.

### ***Licensing of Plumbers***

10. describe and explain the work of the Licensing Authority which handles applications for the issuance and renewal of plumbers' licences;
11. describe and explain the qualifications, requirements and criteria for granting a plumbers' licence;
12. sections 15(1) and (2) of the Waterworks Ordinance provide to the effect that no inside service shall be constructed, installed, maintained, altered, repaired, or removed by a person other than a Licensed Plumber ("LP") except for alterations or repairs to the inside service of a minor nature. Please identify and explain if WSD has implemented any monitoring system to ensure that such inside service has been constructed, installed, maintained, altered, repaired or removed by qualified persons. Please also explain and confirm whether the plumbing system for fresh water supply in the Affected Estates has been constructed, installed, maintained, altered, repaired, removed by a person other than an LP and if so, whether any enforcement action has been taken by the WSD against such unlicensed persons. The Director should identify and state the names and contact details of all the LPs and other unlicensed persons involved in the construction, installation, maintenance, alteration, repair or removal of the plumbing system for fresh water supply in the Affected Estates.

**ii. Deputy Director of Water Supplies/Chairman of the WSD Task Force**

1. the WSD Task Force has announced its preliminary findings on 25 September 2015 (“**TF Preliminary Findings**”). The Deputy Director, being the Chairman of the Task Force, should provide a signed witness statement to adduce the TF Preliminary Findings as evidence. If he wishes to elaborate, supplement and provide additional information on the areas and topics covered by TF Preliminary Findings, he should do so in the witness statement;
2. according to the official Press Release issued by the Task Force on 25 September 2015, the Task Force “*aims to issue the final report in October*”. Please include and adduce the Final Report by means of the witness statement (if already published by the deadline stipulated below).

**iii. WSD Chief Chemist**

1. describe and provide a summary of the test results, if samples of Plumbing Materials and water samples have been taken by the WSD for testing after the discovery of lead in drinking water, and identify the locations of all the samples taken;
2. state and explain what conclusions may be drawn from these test results.”

## Schedule 2

Areas to be covered in witness statements from HA as  
directed by the Commission

### i. Chairman of the HA

1. explain and identify the prevailing statutory and non-statutory requirements and WHO and other relevant standards in drinking water (“**Requirements and Standards**”) (including an explanation as to the reasons/criteria on which the Requirements and Standards were chosen or adopted for Hong Kong);
2. explain the measures and quality control system in place (prior to the incident of excess lead in drinking water) by the HA in order to comply with such Requirements and Standards and to ensure the safety and quality of drinking water;
3. explain and identify the specific contractual terms and provisions pertaining to (a) the construction of the Affected Estates to ensure drinking water will be lead-free and safe and (b) prohibiting the use of pipes, fittings and soldering and other plumbing materials (“**Plumbing Materials**”) from which lead may leach into drinking water;
4. explain the choice and decision of joining the pipes (i) by soldering instead of (ii) using mechanical compression joints, and why the former method of joining the fresh water pipes was extensively used in the Affected Estates. If it is a matter of costs, please state the difference in costs;
5. state who in the HA was responsible for the procurement, inspection, construction and installation and approval of Plumbing Materials used in

the Affected Estate and the steps taken in (a) discharging such responsibilities and (b) ensuring the safety of drinking water;

6. explain to the best of his knowledge how Plumbing Materials containing lead came to be used in the Affected Estates and also why the use of the same had been allowed and overlooked;
7. explain what, after lead has been discovered in drinking water, steps have been taken by the HA (a) to address health concerns of the residents of the Affected Estate and (b) to ensure the safety of drinking water in the Affected Estates;
8. describe the test results, if samples of Plumbing Materials have been taken by the HA for testing after the discovery of lead in drinking water and identify the locations of the samples taken;
9. describe the measures and quality control system in place and/or any other recommendations (after the discovery of excess lead in drinking water) by the HA in order to comply with the Requirements and Standards and to ensure the safety and quality of drinking water supply;
10. given the incident of lead in drinking water, please comment on the necessity, appropriateness, feasibility and effectiveness of replacing the entire fresh water plumbing system (or part(s) thereof) in the Affected Estates to ensure the safety and quality of drinking water. On this subject, the witness's comment is also sought on the time-table and costs involved.

**ii. Chief Architect and Chief Building Services Engineer**

1. explain their respective roles and responsibilities and the respective roles and responsibilities of the main contractor, sub-contractor(s), licensed plumber(s) (“LP”) and other person(s) in the contractual, construction and

post-construction stages relating to the installation, supervision of work, inspection, certification of completion, monitoring and maintenance of the fresh water plumbing system as far as controlling the content of lead of the Plumbing Materials is concerned, stating the procedures, criteria and standards involved;

2. explain the procedures, their respective roles and responsibilities and the respective roles and responsibilities of the main contractor, sub-contractor(s), LP(s) and other person(s) in the procurement and variation of Plumbing Materials and in constructing, installing, inspecting, testing, checking and approving such Plumbing Materials as far as any requirement about the content of lead is concerned;
3. explain the steps taken by them, the main contractor, sub-contractor(s), LP(s) and other person(s) in ensuring that the work in connection with the construction and installation of the Plumbing Materials was carried out by workers with sufficient training and qualifications;
4. explain to the best of their knowledge how Plumbing Materials containing lead came to be used in the Affected Estates given the explanation in paragraph 2 above and why the use of the same had been allowed and overlooked;
5. explain and identify any use of Plumbing Materials which deviated from the Plumbing Materials contracted for (“**Deviated Plumbing Materials**”). This request is confined to Deviated Plumbing Materials which have now been found to contain lead or from which lead has leached into water. Please also explain why such Deviated Plumbing Materials have been permitted to be installed without being spotted during any monitoring or inspection process;
6. describe the measures and/or recommendations (after the discovery of excess lead in drinking water) by the Chief Architect and the Chief

Building Services Engineer in order to prevent similar incidents from happening in the future.

**iii. Chairman of the Review Committee on Quality Assurance Issues Relating to Fresh Water Supply of Public Housing Estates (“Review Committee”)**

1. the Review Committee has published its interim findings on 6 October 2015 (“**RC Interim Findings**”). The Chairman of the Review Committee should provide a signed witness statement to adduce the RC Interim Findings (together with all the main papers reviewed by the Review Committee) as evidence. If he wishes to elaborate, supplement and provide additional information on the areas and topics covered by RC Interim Findings, he should do so in the witness statement;
2. according to the RC Interim Findings, the Review Committee “*aims to submit a full report to the HA by end of 2015*”. Please include and adduce the full report by means of a further witness statement when it is available.

### Schedule 3

Areas to be covered in witness statements from the 4 main contractors as directed by the Commission

#### The CEO / Managing Director of the Company

1. describe and explain the **steps and procedures in the construction** and installation of the fresh water plumbing system in the Affected Estates;
2. With reference to the steps and procedures outlined above, explain the **role and responsibilities** of the Company and the respective roles and responsibilities of its sub-contractor(s), sub-sub contractor (if any), licensed plumber(s) (“**LPs**”) and other person(s) in the contractual, construction and post-construction stages relating to the installation, supervision of work, inspection, certification of completion, monitoring and maintenance of the fresh water plumbing system as far as controlling the content of lead of the Plumbing Materials is concerned, stating the procedures, criteria and standards involved;
3. explain and identify with reference to the tender documents, the Main Contract and Sub-Contract the **specific contractual terms and provisions** pertaining to (a) the construction of the Affected Estates to ensure drinking water will be lead-free and safe and (b) prohibiting the use of pipes, fittings and soldering and other plumbing materials (“**Plumbing Materials**”) from which lead may leach into drinking water (the “**Contractual Requirements**”);
4. explain the **measures, supervisory, monitoring and quality control system** in place by the Company in order to comply with such Contractual Requirements and to ensure the safety and quality of drinking water;
5. explain and identify the prevailing Contractual Requirements and statutory and non-statutory requirements pertaining to the **approval of Plumbing Materials** by the HA;

6. explain and identify the **types of Plumbing Materials** submitted to the HA for approval;
7. explain the choice and decision of joining the pipes (a) by soldering instead of (b) using mechanical compression **joints**, and why the former method of joining the fresh water pipes was extensively used in the Affected Estates. If it is a matter of costs, please state the difference in costs;
8. from the preliminary findings of the WSD Task Force published on 25 September 2015, Plumbing Materials (including valves and taps) were used which deviated from the list of Plumbing Materials submitted to the WSD ("**Deviated Plumbing Materials**"). Please explain and identify the Deviated Plumbing Materials and also, to the best of the Company's knowledge, why the Deviated Plumbing Materials were allowed to be used without being spotted during the supervisory and monitoring processes. This request is confined to Deviated Plumbing Materials which have now been found to contain lead or from which lead has leached into water;
9. identify the persons, companies and entities responsible for the **procurement of Plumbing Materials**. If such materials were procured by the Company's sub-contractors or any other persons or entities other than the Company, explain the measures, supervisory, monitoring and quality control system in place by the Company in ensuring that (a) the Plumbing Materials are lead-free, (b) they comply with the Contractual Requirements, statutory and non-statutory requirements and (c) that drinking water will be lead-free and safe;
10. identify the persons in the Company responsible for the **inspection, construction and installation and approval/certification of completion of the fresh water plumbing system** in the Affected Estates and the steps taken by them in (a) discharging such responsibilities and (b) ensuring the safety of drinking water;
11. explain the **steps taken by the persons identified** in the 2 preceding paragraphs in ensuring that (a) the work in connection with the construction and installation of the Plumbing Materials was carried out

by workers with sufficient training and qualifications, and (b) only approved and lead-free Plumbing Materials which comply with Contractual Requirements, statutory and non-statutory requirements will be used in the construction and installation of the fresh water plumbing system;

12. given the answers to the matters in the preceding paragraphs, explain to the best of the Company's knowledge **how Plumbing Materials containing lead came to be used** in the Affected Estates and also why the use of the same had been allowed and overlooked;
13. describe the **measures and quality control system in place and/or any other recommendations** (after the discovery of excess lead in drinking water) by the Company in order (a) to address the health concerns of the residents of the Affected Estates, (b) to comply with the statutory and non-statutory requirements and standards in drinking water and (c) to ensure the safety and quality of drinking water supply. Please also state any other recommendations the Company has in relation to (a), (b) and (c) above and on how similar incidents may be avoided in the future.

#### Schedule 4

Areas to be covered in witness statements from the 3 sub-contractors as directed by the Commission

#### The CEO / Managing Director of the Company

1. adduce the part(s) of the Sub-Contract(s) and Sub-Sub-Contracts pertaining to (a) the construction and installation of the fresh water plumbing system in the Affected Estates and (b) the procurement of pipes, fittings and soldering and other plumbing materials (“**Plumbing Materials**”) in connection therewith;
2. describe and explain the **respective roles and works of the relevant sub-contractors or the relevant sub-sub-contractors** in the construction and installation of the fresh water plumbing system and procurement of Plumbing Materials for the Affected Estate;
3. describe and explain the **steps and procedures in the construction** and installation of the fresh water plumbing system in the Affected Estates;
4. With reference to the steps and procedures outlined above, explain the **role and responsibilities** of the Company and the respective roles and responsibilities of its sub-contractor(s) and licensed plumber(s) (“**LPs**”) and other person(s) in the contractual, construction and post-construction stages relating to the installation, supervision of work, inspection, certification of completion, monitoring and maintenance of the fresh water plumbing system as far as controlling the content of lead of the Plumbing Materials is concerned, stating the procedures, criteria and standards involved;
5. explain and identify with reference to both the Sub-Contract and Sub-Sub-Contracts the **specific contractual terms and provisions** pertaining to (a) the construction of the Affected Estates to ensure drinking water will be lead-free and safe and (b) prohibiting the use of

Plumbing Materials from which lead may leach into drinking water (the “**Contractual Requirements**”);

6. explain the **measures, supervisory, monitoring and quality control system** in place by the Company in order to comply with such Contractual Requirements and to ensure the safety and quality of drinking water;
7. explain and identify the prevailing Contractual Requirements and statutory and non-statutory requirements pertaining to the **approval of Plumbing Materials** by the HA and the Main Contractor;
8. explain and identify the **types of Plumbing Materials** submitted to the HA and the Main Contractor for approval;
9. explain the choice and decision of joining the pipes (a) by **soldering** instead of (b) using mechanical compression joints, and why the former method of joining the fresh water pipes was extensively used in the Affected Estates. If it is a matter of costs, please state the difference in costs;
10. from the preliminary findings of the WSD Task Force published on 25 September 2015, Plumbing Materials (including valves and taps) were used which deviated from the list of Plumbing Materials submitted to the WSD (“**Deviated Plumbing Materials**”). Please explain and identify the Deviated Plumbing Materials and also, to the best of the Company’s knowledge, why the Deviated Plumbing Materials were allowed to be used without being spotted during the supervisory and monitoring processes. This request is confined to Deviated Plumbing Materials which have now been found to contain lead or from which lead has leached into water.
11. adduce all **purchase orders, receipts and information** showing the brand names, types and specifications of (a) the soldering materials used, (b) Deviated Plumbing Materials used and (c) other Plumbing Materials in which lead has been found;
12. identify the persons, companies and entities responsible for the **procurement of Plumbing Materials**. If the Plumbing Materials were

procured by the Company, describe and explain the steps taken by the Company in ensuring that (a) the Plumbing Materials are lead-free, (b) they comply with the Contractual Requirements, statutory and non-statutory requirements and (c) that drinking water will be lead-free and safe. If such materials were procured by the Company's sub-contractors or any other persons or entities other than the Company, explain the measures, supervisory, monitoring and quality control system in place by the Company in ensuring the matters stated in (a), (b) and (c) above;

13. identify the persons in the Company responsible for the **inspection, construction and installation and approval/certification of completion of the fresh water plumbing system** in the Affected Estates and the steps taken by them in (a) discharging such responsibilities and (b) ensuring the safety of drinking water;
14. explain the **steps taken by the persons identified** in the 2 preceding paragraphs in ensuring that (a) the work in connection with the construction and installation of the Plumbing Materials was carried out by workers with sufficient training and qualifications, and (b) only approved and lead-free Plumbing Materials which comply with Contractual Requirements, statutory and non-statutory requirements will be used in the construction and installation of the fresh water plumbing system;
15. explain the witness's **role in supervising and monitoring** the work of the LPs and other workers and persons involved in the construction and installation of the fresh water plumbing system;
16. identify all workers and persons who constructed and installed the pipes and fittings in the fresh water plumbing systems in the Affected Estates ("Plumbing Workers"). With reference to such list(s) of Plumbing Workers, explain and confirm whether all such Plumbing Workers were **licensed plumbers**;
17. given the answers to the matters in the preceding paragraphs, explain to the best of the Company's knowledge **how Plumbing Materials containing lead came to be used** in the Affected Estates and also why the use of the same had been allowed and overlooked;

18. describe the **measures and quality control system in place and/or any other recommendations** (after the discovery of excess lead in drinking water) by the Company in order (a) to address the health concerns of the residents of the Affected Estates, (b) to comply with the statutory and non-statutory requirements and standards in drinking water and (c) to ensure the safety and quality of drinking water supply. Please also state any other recommendations the Company has in relation to (a), (b) and (c) above and on how similar incidents may be avoided in the future.”

## Schedule 5

Areas to be covered in witness statements from the 3 sub-sub-contractors as directed by the Commission

### The Owner of the Company

1. adduce the part(s) of the Sub-Sub-Contract pertaining to (a) the construction and installation of the fresh water plumbing system in the Affected Estate and (b) the procurement of pipes, fittings and soldering and other plumbing materials (“**Plumbing Materials**”) in connection therewith;
2. describe and explain the **respective roles and works of the relevant sub-sub-contractors** in the construction and installation of the fresh water plumbing system and procurement of Plumbing Materials for the Affected Estate;
3. describe and explain the **steps and procedures in the construction** and installation of the fresh water plumbing system in the Affected Estate;
4. With reference to the steps and procedures outlined above, explain the **role and responsibilities** of the Company and the respective roles and responsibilities of the sub-contractor(s)(if any) and licensed plumber(s) (“**LPs**”) and other person(s) in the contractual, construction and post-construction stages relating to the installation, supervision of work, inspection, certification of completion, monitoring and maintenance of the fresh water plumbing system as far as controlling the content of lead of the Plumbing Materials is concerned, stating the procedures, criteria and standards involved;
5. explain and identify with reference to the Sub-Sub-Contract the **specific contractual terms and provisions** pertaining to (a) the construction of the Affected Estate to ensure drinking water will be lead-free and safe and (b) prohibiting the use of Plumbing Materials from which lead may leach into drinking water (the “**Contractual Requirements**”);

6. explain the **measures, supervisory, monitoring and quality control system** in place by the Company in order to comply with such Contractual Requirements and to ensure the safety and quality of drinking water;
7. explain and identify the prevailing Contractual Requirements and statutory and non-statutory requirements pertaining to the **approval of Plumbing Materials** by the HA, the Main Contractor and Ming Hop;
8. explain and identify the **types of Plumbing Materials** submitted to the HA, the Main Contractor and Ming Hop for approval;
9. explain the choice and decision of joining the pipes (a) by **soldering** instead of (b) using mechanical compression joints, and why the former method of joining the fresh water pipes was extensively used in the Affected Estate. If it is a matter of costs, please state the difference in costs;
10. from the preliminary findings of the WSD Task Force published on 25 September 2015, Plumbing Materials (including valves and taps) were used which deviated from the list of Plumbing Materials submitted to the WSD ("**Deviated Plumbing Materials**"). Please explain and identify the Deviated Plumbing Materials and also, to the best of the Company's knowledge, why the Deviated Plumbing Materials were allowed to be used without being spotted during the supervisory and monitoring processes. This request is confined to Deviated Plumbing Materials which have now been found to contain lead or from which lead has leached into water;
11. adduce all **purchase orders, receipts and information** showing the brand names, types and specifications of (a) the soldering materials used, (b) Deviated Plumbing Materials used and (c) other Plumbing Materials in which lead has been found;
12. identify the persons, companies and entities responsible for the **procurement of Plumbing Materials**. If the Plumbing Materials were procured by the Company, describe and explain the steps taken by the Company in ensuring that (a) the Plumbing Materials are lead-free, (b)

they comply with the Contractual Requirements, statutory and non-statutory requirements and (c) that drinking water will be lead-free and safe. If such materials were procured by the Company's sub-contractors or any other persons or entities other than the Company, explain the measures, supervisory, monitoring and quality control system in place by the Company in ensuring the matters stated in (a), (b) and (c) above;

13. identify the persons in the Company responsible for the **inspection, construction and installation and approval/certification of completion of the fresh water plumbing system** in the Affected Estate and the steps taken by them in (a) discharging such responsibilities and (b) ensuring the safety of drinking water;
14. explain the **steps taken by the persons identified** in the 2 preceding paragraphs in ensuring that (a) the work in connection with the construction and installation of the Plumbing Materials was carried out by workers with sufficient training and qualifications, and (b) only approved and lead-free Plumbing Materials which comply with Contractual Requirements, statutory and non-statutory requirements will be used in the construction and installation of the fresh water plumbing system;
15. explain the witness's **role in supervising and monitoring** the work of the LPs and other workers and persons involved in the construction and installation of the fresh water plumbing system;
16. identify all workers and persons who constructed and installed the pipes and fittings in the fresh water plumbing systems in the Affected Estate ("**Plumbing Workers**"). With reference to such list(s) of Plumbing Workers, explain and confirm whether all such Plumbing Workers were **licensed plumbers**;
17. given the answers to the matters in the preceding paragraphs, explain to the best of the Company's knowledge **how Plumbing Materials containing lead came to be used** in the Affected Estate and also why the use of the same had been allowed and overlooked;

18. describe the **measures and quality control system in place and/or any other recommendations** (after the discovery of excess lead in drinking water) by the Company in order (a) to address the health concerns of the residents of the Affected Estate, (b) to comply with the statutory and non-statutory requirements and standards in drinking water and (c) to ensure the safety and quality of drinking water supply. Please also state any other recommendations the Company has in relation to (a), (b) and (c) above and on how similar incidents may be avoided in the future.

## Schedule 6

Areas to be covered in witness statements from the 3 licensed plumbers as directed by the Commission

1. confirm whether the LP was in the **full time employment** of the relevant sub-contractor when he carried out the fresh water plumbing works for the Affected Estates and whether he is currently in the employment of the sub-contractor;
2. if he was/is an employee of the sub-contractor, state the period of employment in the sub-contractor and **his duties and work experience**;
3. if he was not an employee of the sub-contractor, state in what capacity he was engaged to carry out the plumbing work of the Affected Estates and adduce all **contracts or letters of engagement** in relation thereto;
4. state and set out the LP's **qualifications and experience** in the plumbing trade and industry;
5. describe and explain the **steps and procedures in the construction** and installation of the fresh water plumbing system in the Affected Estates;
6. with reference to the steps and procedures outlined above, explain the **role and responsibilities** of the LP and all other plumbing workers and persons (whether licensed or not) in the contractual, construction and post-construction stages relating to the installation, supervision of work, inspection, certification of completion, monitoring and maintenance of the fresh water plumbing system as far as controlling the content of lead of the Plumbing Materials is concerned, stating the procedures, criteria and standards involved;
7. identify all workers and persons who constructed and installed the pipes and fittings in the fresh water plumbing systems in the Affected Estates ("**Plumbing Workers**"). With reference to the LP's list(s) of Plumbing Workers, explain and confirm the relationship between the LP and the Plumbing Workers and whether all such Plumbing Workers were

**licensed plumbers** (and if not, what training and qualifications they have acquired in relation to the construction and installation of fresh water plumbing system);

8. explain the LP's **role in supervising and monitoring** the work of the Plumbing Workers involved in the construction and installation of the fresh water plumbing system;
9. state and confirm whether the LP was aware that, in the construction and installation of the fresh water plumbing system, the use of pipes, fittings and soldering and other plumbing materials (**“Plumbing Materials”**) **containing lead** or from which lead may leach into drinking water is prohibited. The LP should state the relevant statutory and non-statutory requirements pertaining thereto;
10. explain the **measures, supervisory, monitoring and quality control system** in place by the LP in order (a) to ensure that Plumbing Materials used in the construction and installation of the fresh water plumbing system are lead-free, and (b) to ensure that drinking water will be lead-free and safe;
11. explain and identify the statutory and non-statutory requirements pertaining to the **approval of Plumbing Materials** by the WSD, HA, Main Contractor and its sub-contractor(s)(if any);
12. explain and identify the **types of Plumbing Materials** submitted to the WSD, HA, Main Contractor and its sub-contractor(s) for approval and confirm whether the LP was involved in the submission of such Plumbing Materials for approval and the steps he had taken if he was so involved. The LP should adduce the relevant completed forms submitted to the WSD to seek approval;
13. explain the choice and decision of joining the pipes (a) by **soldering** instead of (b) using mechanical compression joints, and why the former method of joining the fresh water pipes was extensively used in the Affected Estates. If it is a matter of costs, please state the difference in costs;

14. from the preliminary findings of the WSD Task Force published on 25 September 2015, Plumbing Materials (including valves and taps) were used which deviated from the list of Plumbing Materials submitted to the WSD (“**Deviated Plumbing Materials**”). Please explain and identify the Deviated Plumbing Materials and also, to the best of the LP’s knowledge, why the Deviated Plumbing Materials were allowed to be used without being spotted during the supervisory and monitoring processes. This request is confined to Deviated Plumbing Materials which have now been found to contain lead or from which lead has leached into water.
15. adduce all **purchase orders, receipts and information** showing the brand names, types and specifications of (a) the soldering materials used, (b) Deviated Plumbing Materials used and (c) other Plumbing Materials in which lead has been found;
16. identify the persons, companies and entities responsible for the **procurement of Plumbing Materials**. If the Plumbing Materials were procured by the LP, describe and explain the steps taken by the LP in ensuring that (a) the Plumbing Materials are lead-free, (b) they comply with the statutory and non-statutory requirements and (c) that drinking water will be lead-free and safe. If such materials were procured by any other persons or entities other than the LP, explain the measures, supervisory, monitoring and quality control system in place by the LP (as the LP) in ensuring the matters stated in (a) (b) and (c) above;
17. identify the persons or entities responsible for the **inspection, construction and installation and approval/certification of completion of the fresh water plumbing system** in the Affected Estates and the steps taken by them in (a) discharging such responsibilities and (b) ensuring the safety of drinking water; state and describe the involvement, roles and responsibilities of the LP in these steps;
18. explain the **steps taken by the persons identified** in the 2 preceding paragraphs in ensuring that (a) the work in connection with the construction and installation of the Plumbing Materials was carried out by workers with sufficient training and qualifications, and (b) only

approved and lead-free Plumbing Materials which comply with statutory and non-statutory requirements will be used in the construction and installation of the fresh water plumbing system;

19. given the witness's answers to the matters in the preceding paragraphs, explain to the best of the LP's knowledge **how Plumbing Materials containing lead came to be used** in the Affected Estates and also why the use of the same had been allowed and overlooked.