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2015年11月27日

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上午10時01分恢復聆訊

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出席人士：許偉強大律師及鄭欣琪大律師，為外聘律師，代表食水含鉛超標調查委員會

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何沛謙資深大律師，由羅夏信律師事務所延聘，代表香港房屋委員會

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王鳴峰資深大律師、陳樂信大律師及羅頌明大律師，由律政司延聘，代表水務署署長

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Mr. Ian Pennicott 資深大律師及林定韻大律師，由孖士打律師行延聘，代表中國建築工程（香港）有限公司

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鍾耀明大律師及許佐賓大律師，由的近律師行延聘，代表保華建築營造有限公司

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林國輝大律師，由孖士打律師行延聘，代表瑞安承建有限公司

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李頌然大律師，由顧增海律師行延聘，代表有利建築有限公司、明合有限公司及伍克明

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譚俊傑大律師及吳思諾大律師，由何謝韋、李偉業律師事務所延聘，代表啟晴邨及葵聯二邨公屋居民代表 Lee Pui Yi、Chong So Nga 及 Lui Hui Ping

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主席：下一位證人。

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何先生：下一位證人係梁之光先生，係。

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主席：好呀。

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香港房屋委員會第十四證人：梁之光（房屋署（葵聯邨第二期、榮昌邨、牛頭角下邨第一期、石硤尾邨第二期、東匯邨、紅磡邨第二期、欣安邨、彩福邨、清河邨第一期總屋宇裝備工程師））以本地話宣誓作供

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主席：請坐，梁先生。

答：唔該。

何先生：主席，梁生有九份嘅證人口供。

主席：係。

何先生：咁就頭嗰五份，基本上除咗嗰條邨會唔同，咁當然個開工、完工日期會唔同，喺地盤嘅人員嘅名會唔同，同埋做呢個消防嗰個 nominated subcontractor 個名都會唔同。所以我就建議我就讀其中嘅一份，咁呢個就已經係大體上可以--即係頭嗰五條邨...

主席：好呀。

何先生：...係應該可以--除咗一啲細節上唔同，基本上係...

主席：好呀。

何先生：...同一個證供嘅版本嚟。另外後面嗰四條邨，就有幾段係有個唔同嘅演述嘅，咁所以我就會再讀埋嗰啲後面嗰四條邨嘅唔同點。

主席：好呀。

何先生：但係我就唔會逐條邨--除非法官閣下認為我有咁嘅需要，我唔會逐條邨再講話邊一度唔同咗。即係我諗我哋大家都會知道，即係譬如個 fire services submit--nominated subcontractor，個邨同邨之間可能會有個唔同。

主席：嗰啲唔使嘞。

何先生：好。首先我想讀嘅就係葵聯邨嘅第二期，嗰個證人口供係 15.1，37851。

何先生主問

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D **COMMISSION OF INQUIRY**E **WITNESS STATEMENT OF**
F **LEUNG CHI-KWONG ERIC, CHIEF BUILDING SERVICES ENGINEER**
G **OF KWAI LUEN ESTATE PHASE 2**H
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1. I, LEUNG CHI-KWONG ERIC, provide this statement in respect of the Commission of Inquiry into Excess Lead Found in Drinking Water (COI) and in response to a request from the COI dated 12 October 2015. The statement addresses matters relating to one of the "Affected Estates" being Kwai Luen Estate Phase 2.

2. I am a Building Services Engineer by profession, a Corporate Member of The Hong Kong Institution of Engineers and joined the Housing Department (HD) in 1982, which is the executive arm of the Housing Authority (HA). I have been involved in the construction of Kwai Luen Estate Phase 2 as Chief Building Services Engineer from 8 September 2011 until now. The certified completion date of the domestic blocks of the Estate is 30 April 2014. I therefore have direct knowledge of the project from early September 2011 onwards. Whereas I have had to obtain information before early September 2011 from other sources or pursuant to discussions with colleagues for preparation of this statement.

3. I have reviewed the letter from Lo & Lo Solicitors dated 12 October 2015 and address the matters raised together with other matters I consider relevant to the COI.

4. For the purposes of this Statement I refer to the different work stages as Pre-contract, Construction and Completion.

U **ROLES AND RESPONSIBILITIES**

A. Chief Building Services Engineer***Responsibilities as Section Head***

5. As Chief Building Services Engineer (CBSE), I am responsible for overseeing various Building Services (BS) matters on behalf of the HA from inception (design) through to completion of new construction projects. Being one of the Chief Professionals of the BS discipline, my responsibilities as Section Head pertaining to the fresh water plumbing system include:
- a. the design, specification, tender and contract administration, inspection of works and confirmation of completion of works for the installation of water pumps, suction and discharge pipework and sundry pipework (hereinafter referred to as water pumps and associated pipework) inside fresh water up-feed pump room on ground floor and booster pump room on roof (hereinafter referred to as water pump rooms) of each block under the Fire Services and Water Pump (FSWP) Nominated Sub-contract;
 - b. following up any non-performance of the FSWP Nominated Sub-contractor in the maintenance and defects rectification of the water pumps and associated pipework inside water pump rooms during the two-year Maintenance Period;
 - c. the design and specification for the fresh water plumbing system outside water pump rooms (excluding sanitary appliances under the Main Contract); and
 - d. my role in respect of contract administration and works inspection is limited to the work of the FSWP Nominated Sub-contractor for the works inside water pump rooms stated above whereas for the plumbing installations outside water pump rooms my role is restricted to one of establishing

the design and specification only. The contract administration and works inspection of the plumbing installations outside water pump rooms fall within the remit of the Chief Architect (CA) and her team (see paragraphs 17 & 18 below).

6. I am assisted by Senior Building Services Engineers (SBSE), Building Services Engineers (BSE), Building Services technical staff and Building Services inspectorate staff to discharge my duties.

Project Specific Responsibilities

7. Under the Main Contract of Kwai Luen Estate Phase 2, the CA, acting as Contract Manager (CM), delegates the CBSE as the CM's Representative (CMR). The duties and powers vested in the CM under the Main Contract insofar as they concern BS Works, with respect to (i) General Conditions of Contract Clause (GCC) 65(2) (termed as use of Prime Cost, Provisional and Contingency Sums); and (ii) GCC Clause 66 & Special Conditions of Contract (SCC) Clause 25 (termed as varied form of sub-contract and objections to nomination), are now produced and shown to me marked "Exhibit 1".

8. As stated above, the CBSE is assisted by a team of BS staff to discharge his duties. The Project BSE is delegated by the CM as a CMR and is responsible for the administration of Building Services Nominated Sub-contracts (including FSWP Nominated Sub-contract), with the assistance of the Project Building Services Inspectors (BSI).

9. BS staff who have been involved in the project are as follows:

a. CK Leung is the CBSE from September 2011 till now; CS Ho (from August 2011 to September 2011) was the CBSE since commencement of the Main Contract;

b. PK Tam is the Project SBSE from July 2012 till

now; CW Hui (from August 2011 to July 2012) was the SBSE since commencement of the Main Contract;

c. CM Tse is the Project BSE from September 2012 till now; KM Tang (from July 2012 to January 2015), YW Yip (from July 2012 to September 2012), and CK Cheng (from August 2011 to July 2012) were the Project BSEs since commencement of the Main Contract;

d. SN Yip (from August 2011 to March 2013), KW Cheung (from March 2013 to September 2013), WK Chu (from September 2013 to January 2014), ST Au (from January 2014 to April 2014) and SC Tam (from April 2014 to project completion) were the Senior Building Services Inspectors (SBSI) at different stages; and

e. SC Tam (from August 2011 to April 2014) and KM Tam (from April 2014 to project completion) were the BSIs at different stages.

10. The Project BSE is responsible, in relation to the fresh water plumbing system, for:

a. the design, specification, tender and contract administration including approval of drawings and materials, inspection of works and recommendation to CBSE for confirmation of completion of works for the installation of water pumps and associated pipework inside water pump rooms under the FSWP Nominated Sub-contract;

b. following up any non-performance of the FSWP Nominated Sub-contractor in the maintenance and defects rectification of the water pumps and associated pipework inside water pump rooms during the two-year Maintenance Period;

c. the design and specification of the fresh water plumbing system outside water pump rooms

(excluding sanitary appliances under the Main Contract), liaison with the Water Supplies Department (WSD) on the availability of water supply at design stage, obtaining approval of plumbing drawings from the WSD and producing tender drawings and specifications; and

d. checking and advising from design perspective, upon request from Project Architect, on the approval of plumbing materials installed outside water pump rooms (excluding sanitary appliances) submitted by the Main Contractor under the Main Contract at construction stage.

11. The CBSE, with the assistance of the Project SBSE, is responsible for the supervision of the Project BSE at all stages of work for the duties stated in paragraph 10.

12. At construction and completion stages, all contract administration including statutory submissions to the Water Authority (WA) (i.e. Forms WWO46 and WWO132 Part II) and works inspection for the fresh water plumbing system outside water pump rooms are the responsibility of the CA and her team and do not fall under the remit of the CBSE, except that the Project BSE would provide revised plumbing drawings as necessary to the Project Architect for issuing of Site Instruction and submit revised drawings to the WSD for approval if required.

13. The FSWP Nominated Sub-contractor was selected and nominated by the HA and overseen by the CBSE. For this project the FSWP Nominated Sub-contractor is Shun Cheong Electrical Engineering Co., Ltd.

B. FSWP Nominated Sub-contractor

14. The FSWP Nominated Sub-contractor was responsible for the installation, testing and commissioning of FSWP installation during the Contract Period and

subsequent maintenance during the two-year Maintenance Period of the FSWP Nominated Sub-contract. Pertaining to the fresh water plumbing system, the works undertaken by the FSWP Nominated Sub-contractor included only the installation of water pumps and associated pipework inside the water pump rooms of each block.

15. The FSWP Nominated Sub-contractor engaged a licensed plumber (LP) for the execution of the water pumps and associated pipework installation inside the water pump rooms in accordance with the WSD's approved drawings. The nature, size and quality of pipes and fittings were as prescribed by the Waterworks Ordinance and the Waterworks Regulations. The LP, together with the Project Architect, notified the WA of the commencement and completion of the water pumps and associated pipework installation inside water pump rooms which were carried out in accordance with the WSD's approved drawings and WA's accepted materials under Form WWO46. As one of the CMRs, the Project BSE monitored the works of the FSWP Nominated Sub-contractor for which the Main Contractor was responsible.

16. The LP of water pumps and associated pipework installation inside water pump rooms for this project is Yue Kam Man (Licence No. 03508).

C. Site Inspection Team

17. The CM's Site Inspection Team conducted periodic and sample checks on materials and workmanship for conformance to Specifications and the progress of the Main Contractor's works. The Site Inspection Team comprised two disciplines with various ranks of Site Staff as follows:

- a. Building Works Team (comprising Senior Clerk of Works, Clerk of Works, Assistant Clerk of Works

and Works Supervisor) inspects Building Works including builder's works requirements for BS works;

b. Building Services Team (comprising Senior Building Services Inspector, Building Services Inspector, Assistant Building Services Inspector, Works Supervisor (Building Services)) inspects BS works.

18. For the inspection of the fresh water plumbing system, the Building Works Team inspected installation outside water pump rooms under the supervision of the CA and the Project Senior Architect I Project Architect. The Building Services Team inspected the installation inside water pump rooms under the FSWP Nominated Sub-contract (see paragraph 33 below) under the supervision of the Project BSE who was in turn under the supervision of the CBSE, with the assistance of the Project SBSE.

PRE-CONTRACT STAGE - DESIGN AND SPECIFICATION

19. For the design and specification of the fresh water plumbing system, the responsibilities of CBSE are detailed in paragraphs 5, 10 and 11 above.

20. The complete plumbing system was designed in accordance with the requirements stipulated in the Waterworks Regulations (Cap 102A), WSD's Circular Letters, handbooks and guidelines. Standard specification and in-house design guidelines (Building Services Technical Guide on water pump and water services installation and Technical Guide to Public Housing Developments for water services installation) were also adopted.

21. All plumbing materials specified by the HA complied with the relevant British Standards I International Standards as required under the Waterworks Ordinance and Regulations. All pipes and fittings were to

conform to the specification and where applicable, be accepted by the WA for the intended application.

CONSTRUCTION STAGE

22. Upon commencement of the Works after award of the Main Contract and Nominated Sub-contracts, the FSWP installation works were executed by the FSWP Nominated Sub-contractor under the supervision of the Main Contractor. The FSWP Nominated Sub-contract was between the Main Contractor and the Nominated Sub-contractor. There is no direct contract between the HA and the Nominated Sub-contractor.

A. Material Submissions - Water Pumps and Associated Pipework inside Water Pump Rooms

23. The FSWP Nominated Sub-contractor submitted FSWP materials via the Main Contractor to the CM for approval. Disapproval by the CM would mean resubmission by the FSWP Nominated Sub-contractor until approval was obtained before such materials could be used on site. From my recollection there was no issue arising from the materials approval process.

24. The FSWP Nominated Sub-contractor was required to submit material catalogues, test certificates and other relevant certificates to substantiate the water pumps and associated pipework materials for use inside water pump rooms fully complied with the specifications via the Main Contractor for the approval of the CM. This they did.

25. The Main Contractor vetted the FSWP Nominated Sub-contractor's materials submissions which, with respect to water pumps and associated pipework installation inside pump rooms, normally included equipment such as fresh water pump, modulating float valve, stainless steel pipe & fitting, ductile iron pipe & fitting, gate valve, strainer, stainless steel

flexible connector, pressure reducing valve, non-return valve and pneumatic pressure vessel.

26. While verification of compliance with relevant requirements could be effected through documental checks, the Project BSE with the assistance of the Project BSI required the FSWP Nominated Sub-contractor to submit samples of some materials via the Main Contractor to the CM for approval before the commencement of the installation work. The sample board consisted of water pipe and fittings and was approved. The approved sample board was then kept in the Project BSI's site office throughout the Sub-contract period. The Project BSE with the assistance of the Project BSI determined the extent of the items for which samples were required. For those materials which were of limited use or bulky in nature such as large pipes and fittings, water pumps, motors and pneumatic pressure vessels, etc., no sample submission was required. These were based upon the submission of documents only. To my recollection there was no issue arising from the materials submissions made by the FSWP Nominated Sub-contractor via the Main Contractor.

27. The Project BSE also took into consideration job references quoted by the FSWP Nominated Sub-contractor and made reference to any material quality alerts issued by the central materials teams.

28. In so far as there might be alloys contained within the materials submitted by the FSWP Nominated Sub-contractor, the Project BSE checked the relevant test reports, certificates and WSD's acceptance letter as appropriate to ensure that the materials complied with relevant British Standards I International Standards which were acceptable to the WA. The Project BSE would not conduct any tests on the materials before granting approval.

29. Upon approval of the materials or samples submitted, the FSWP Nominated Sub-contractor was at liberty to proceed to purchase materials of the approved quality.

B. Material Submissions- Fresh Water Plumbing System outside Water Pump Rooms

30. The plumbing materials used outside water pump rooms were supplied and installed by the Main Contractor. While approval of these materials was granted by the Project Architect, the Project BSE, upon receipt of request from the Project Architect, checked the documents submitted by the Main Contractor against the specification requirements and design intent. The Project BSE then offered his comments (excluding sanitary appliances), if there were any, to the Project Architect for his consideration in granting approval to the submission.

C. Works Execution

31. After the WA has given permission to proceed with the water pumps and associated pipework installation inside pump rooms, the FSWP Nominated Sub-contractor shall execute the installation work in strict accordance with the FSWP Nominated Sub-contract to the satisfaction of the CM. The FSWP Nominated Sub-contractor shall also comply with the Waterworks Ordinance and Regulations and to provide notifications to the WA as required.

32. Following commencement, the Building Services Team monitored and inspected the works of the FSWP Nominated Sub-contractor for the water pumps and associated pipework installation inside water pump rooms.

33. For the works executed by the FSWP Nominated Sub-contractor, Building Services Team conducted inspection according to the approved Project Inspection Plan. The Project Inspection Plan

detailed the inspection percentages of BS works with reference to the BS Site Inspection Guide. It was prepared by the Building Services Team, endorsed by the Project BSE and approved by the Project SBSE. Besides functional tests, major inspection items included verifying that materials installed were the same as the approved materials, and that they were installed according to the approved drawings.

34. Pursuant to the FSWP Nominated Sub-contract, the FSWP Nominated Sub-contractor deployed trade tested workers (skilled workers and semi-skilled workers as defined in Section 2(1) of the Construction Workers Registration Ordinance) to fulfil the requirements specified in the specification clause PRE.BS1.460.P, now produced and shown to me marked "Exhibit 2". The FSWP Nominated Sub-contractor submitted the return of the trade tested workers to the Main Contractor for submission to the CM every month in accordance with the clause SCC133(b) of the Special Conditions of Contract, now produced and shown to me marked "Exhibit 3".

35. Solder was used primarily for joints between copper pipework and its fittings but it did not apply to the water pumps and associated pipework installation inside water pump rooms where ductile iron pipes and stainless steel pipes were used and hence there was no risk of having leaded soldering joints.

36. The role of the CBSE at this stage was, with the assistance of the Project SBSE, to provide supervision of the Project BSE and Building Services Team who were to liaise with the Main Contractor in respect of BS Nominated Sub-contract matters. In view of my role overseeing a number of BS staff who were delegated by respective CMs to monitor various projects, it was not feasible or indeed possible for me to be resident on any one project. However, a dedicated Building Services Team was resident on site for its duration.

37. Other than the pre-installation approvals of materials referred to above, the FSWP Nominated Sub-contract prescribed various tests on the water pumps and associated pipework installation inside water pump rooms to be carried out by the FSWP Nominated Sub-contractor upon completion. Typically these included the functional test and the pressure test of water pumps and associated pipework installation. These tests were necessary to ensure the installation met the prescribed functional performance; but not as a necessary prerequisite to gaining the WA's approval for connection of the mains supply.

38. The Main Contractor's obligation was to supervise the works of the FSWP Nominated Sub-contractor to ensure that the tests were carried out successfully and, in the event of default, to continue carrying out testing until such time as it complied with the FSWP Nominated Sub-contract. As the LP was engaged and supervised by the FSWP Nominated Sub-contractor to discharge his duties under the Waterworks Ordinance and Regulations for the water pumps and associated pipework inside water pump rooms, he was not under the direct monitoring of the Building Services Team.

39. For the fresh water plumbing system installation outside water pump rooms, the works monitoring was conducted by the Building Works Team under the supervision of the CA and is addressed by the CA in her witness statement. I repeat that I experienced no particular issue arising from the performance of the FSWP Nominated Sub-contractor.

COMPLETION STAGE

40. Upon completion of the water pumps and associated pipework installation inside water pump rooms, the LP engaged by the FSWP Nominated Sub-contractor, together with the Project Architect, notified the WA the completion of works via Form WWO46 Part IV.

Similarly, upon completion of the fresh water plumbing system outside water pump rooms, the LP engaged by the Main Contractor, together with the Project Architect, notified the WA of the completion of works via Form WWO46 Part IV. After satisfactory inspection, the WA approved the plumbing installation via Form WWO46 Part V. The overall administration of the application for connection of water supplies was under the ambit of the CA.

41. At the time of completion, CBSE issued a memo to the CA confirming that the BS installations, in which the water pumps and associated pipework installation inside water pump rooms under the FSWP Nominated Sub-contract was included, could be certified as substantially complete such that the BS installations could be safely put into use for their intended purpose. This confirmation was issued upon the major BS installations satisfactorily passing the prescribed tests and inspections. This confirmation for the domestic blocks of Kwai Luen Estate Phase 2 was dated 30 April 2014.

42. All the BS installations were subsequently handed over to Estate Management Division of the Housing Department according to the prescribed procedures for use and overseeing the maintenance carried out by the BS Nominated Sub-contractors within the two-year Maintenance Period.

DEVIATED PLUMBING MATERIALS

43. In respect of works under my supervision and in relation to the water pumps and associated pipework installed by the FSWP Nominated Sub-contractor inside water pump rooms, there was no use of plumbing materials which deviated from the plumbing materials contracted for.

RECOMMENDATIONS TO PREVENT OCCURRENCE OF EXCESS LEAD IN

WATER

44. For water pumps and associated pipework inside water pump rooms, ductile iron and stainless steel pipes with flange or other types of mechanical joints are specified to allow ease of disassembling and reassembling for maintenance works. They also provide better strength against damages in a plant room environment. This practice will continuously be adopted in our projects in future.

45. For the design and specification of copper pipework outside water pump rooms, the following mid to long term enhancement measures can be explored:

a. adopting the use of proprietary copper pipe fittings such as those with built-in soldering material or of press fit I push fit I compression types which involve no solder; and

b. adopting the use of pipes and fittings carrying a "BSI Kitemark" issued by the British Standards Institution and collaborate with stakeholders to implement product certification for plumbing materials in the long run as a product quality surveillance regime.

問：或者我試下咁樣，梁生，我剛才讀咗呢個葵聯邨二期嘅你嘅證人口供，你有冇需要修改？

答：冇嘅。

問：你願唔願意呢一份口供係作為你呢一次嘅你研訊嘅口供？

答：係，願意嘅。

問：係。咁就係類似呢一個版本嘅證人口供，你係有五份嘅，我想請你睇37883頁。都係15.1，37883頁。見到嘛？

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答：係，睇到。

問：至到去 37897 頁。

答：係，睇到。

問：同埋有三個附件嘅，見到嘛？

答：係。

問：見到嘛？

答：見到。

問：你唔好吸頭，你要講，...

答：係，見到。

問：...因為要錄音。

答：係，見到。

問：見到。咁呢一份就係呢個榮昌邨嘅證人口供。

答：係。

問：你確認呢一份口供係一個真實嘅口供嘛？

答：冇錯。

問：唔。除咗即係有啲日子同埋啲人名，或者係嗰個 FSWP 嗰個 nominated subcontractor 嗰啲名，諸如此類呢一啲，特別係榮昌邨有關嘅資料之外，大體上呢一份榮昌邨嘅口供同我哋剛才讀嗰個葵聯邨嘅口供係基本上係一致嘅？

答：係，正確嘅。

問：唔。咁呢個榮昌邨嘅口供，你願意呈畀呢個委員會作為你嘅口供嘛？

答：願意。

問：唔。同樣我哋睇 37916 至到 37930，同埋之後有三個附件。

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答：係，睇到。

問：係。呢一份就係你個牛頭角下邨一期嘅口供，見到嘛？

答：係，冇錯。

問：唔。咁呢份口供亦都係一樣，除咗有一啲日子等等嘅唔同之外，係同你個葵邨聯，我哋剛才讀出嚟嗰份口供大體上係一樣？

答：正確嘅。

問：唔。咁你可以證實呢一份牛頭角下邨一期呢份口供係一個正確嘅口供？

答：願意。

問：你願意將呢份口供作為你嘅呈堂...

答：係，願意。

問：...--呈畀呢個委員會嘅口供？

答：係，願意。

問：唔該。跟住就 37948，呢個係石硤尾邨二期嘅口供，就去到 37962。

答：係，睇到。

問：呢個亦都係有三個附件嘅。

答：係。

問：一樣，你除咗有部分嘅日子諸如此類嘅嘢係會有唔同之外，呢個你都確認呢一份口供嘅內容係正確？

答：係，確認。

問：你係願意將呢份口供呈為作今次研訊你嘅證供嘛？

答：係，願意。

問：唔該。跟住就有個東匯邨，係 37980 至到 37994。

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答：係，睇到。

問：亦都係有三個附件。

答：係。

問：唔。一樣嘞，呢個作為東匯邨嘅口供，除咗有啲日子、人名諸如此類
會有出入之外，同葵聯邨嗰份口供大致上係一致嘅？

答：正確。

問：你願--呢一份口供係一個正確嘅口供嘛？

答：係。

問：咁你願意將呢一份口供呈畀呢個委員會作為你嘅口供？

答：願意。

問：唔該。好，咁就我想你而家就去另外四份口供，就首先我想你去文件
夾第 B15.2，38616。

答：唔好意思，麻煩你講多一次。

問：文件夾嘅 15.2。

答：係。

問：38616 頁。

答：係，睇到。

問：唔。呢份就係紅磡邨二期嘅口供。

答：冇錯。

問：唔。就你個口供一路係去到 38630 嘅，見到嘛？

答：係，睇到。

問：唔。就亦都係有三個附件，見到嘛？

答：正確。

問：去--由 38632 至到 38639 嘅。

答：係，正確。

問：唔。我哋睇到有多少唔同--同我哋頭先讀出葵聯邨二期嗰份口供有多少唔同，就係喺 38620 頁嘅第 10(d) 段，我一陣間會讀番出嚟；同埋喺 38625 頁，嗰個第 30 段至到 35 段，係 under 嗰個“Material Submissions-Fresh Water Plumbing System outside Water Pump Rooms”，嗰一欄底下嗰幾段係有啲唔同嘅。

答：係，正確。

問：唔。咁或者我讀番呢個有少少唔同嘅地方，我再讀一讀番，作為你嗰個證供先。係返番去 38620 頁第 10 段嘅 d。

d. the vetting and approval of plumbing materials installed outside water pump rooms (excluding sanitary appliances) submitted by the Main Contractor under the Main Contract at construction stage.

另外係第 30 段開始，呢幾段就係 under 呢個“Material Submissions-Fresh Water Plumbing System outside Water Pump Rooms”。

30. The plumbing materials used outside water pump rooms were supplied and installed by the Main contractor and were submitted direct by the Main Contractor to the CM for approval. The Building Works Team checked the material submission against specification requirements and gave recommendations to the Project BSE for approval in prescribed forms. The Project BSE then checked the material submission to ensure compliance with specification requirements based on the documents submitted by the Main Contractor, including catalogues, test reports and relevant certificates, etc. as appropriate, and approved the material submission in prescribed forms.

31. The Project BSE also took into consideration job references quoted by the Main Contractor and made

reference to any material quality alerts issued by the central materials teams.

32. The vetting and approval by the Project BSE of plumbing materials used outside water pump rooms did not cover sanitary appliances which were vetted and approved by the Project Architect.

33. Pursuant to the specification for copper pipes and fittings, when soldering alloys are used for jointing copper/copper alloy capillary fittings, only lead-free category solders in compliance with BS EN 1254-1, Table 6 Sections II and III shall be used.

34. In so far as there might be solder or alloys contained within the materials submitted by the Main Contractor, the Project BSE checked the relevant test reports, certificates and WSD's acceptance letter as appropriate to ensure that the materials complied with relevant British Standards/International Standards which were acceptable to the WA.

35. Upon approval of the materials or samples submitted, the Main Contractor was at liberty to proceed to purchase materials of the approved quality.

好，咁除咗呢個第 10 (d) 段、30 至 35 同之前葵聯邨嗰個口供有唔同，同埋其他嗰啲邨名、日子、人士，嗰個 nominated subcontractor 個名嗰類咁樣嘅資料之外，大體上呢個係同葵聯邨都係一致嘅？

答：係，冇錯。

問：咁就你都確認呢一份口供個真確性，係咪？

答：係。

問：咁你願意呢一份口供係作為你呢一次研訊嘅口供嘛？

答：願意。

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問：唔該。咁就呢一個版本就有四份口供，咁我哋頭先睇咗紅磡邨二期。
咁就請你去 38640，呢個係仁(欣?)安邨。38640 就去到 38654。

答：係，睇到。

問：唔。就另外有三個附件。

答：係。

問：唔。呢個係仁(欣?)安邨嘅口供，就亦都一樣，你確認呢個口供就係
即係正確？

答：正確。

問：咁你願意將呢一個口供係呈上嚟作--畀委員會作為你嘅證供？

答：願意。

問：唔該。跟住就有 38665，彩福邨，你嘅口供就係 38665 至到 38679，
見到嘛？

答：見到。

問：亦都同樣有三個附件。

答：正確。

問：咁亦都係你確認呢一個口供係一個正確嘅口供？

答：係，確認。

問：同埋你願意將呢份口供呈上去畀委員會作你嘅證供嘛？

答：願意。

問：唔該。38689，呢一個就係清河邨一期，至到 38703。

答：係，見到。

問：係。就亦都係三個附件。

答：係，正確。

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問：就呢一個口供，你亦都係確認呢個口供係一個正確嘅口供？

答：確認。

問：亦都你願意將呢一份口供呈上去畀委員會作為你嘅口供？

答：願意。

問：好，唔該。你呢九份嘅供詞，有冇需要作出補充或者修改？

答：冇需要補充或者修改。

問：好，唔該。

何先生：主席、委員，我有其他問題。

主席：好呀。

許偉強先生盤問

問：梁先生，首先係就住你作為總屋宇裝備工程師嗰個工作範疇，我想同你即係釐清一下先。

答：好呀。

問：第一，我睇到你個證人口供都講，首先就係對於嗰啲有關水喉工程，包括咗 water pumps，即係你講嘅 up-feed pumps 同埋 booster pumps，兩個 pumps，個泵房；同埋一啲其他嘅水喉工程，你哋都係有負責--對於嗰個 specification 或者 design 制定，都有負責㗎？

答：係。其實成個供水系統，都係由屋宇裝備嘅團隊負責。

問：係，成個系統。至於你話 sample submission，如果我哋講話，即係樣本擺嚟去到審核、審視，或者係最後就作一個批核咁樣嘅過程，咁我都知道就係你哋嘅團隊亦都會就住成個水喉工程嘅整體，除咗啲潔具之外，你哋都會參與？

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C 答：大致上係，但係又唔係完全係。

D 問：係。

E 答：因為先頭即係--我哋即係 go through 我個 witness statement
F 都提到，首先頭個五單，即係第一個 batch 交個五單，就係我哋個
G 團隊就係淨係--如果批物料，我哋淨係做就係喺水泵指定分判合約裏
H 面啲物料，就由我哋屋宇裝備嘅團隊去批核。咁就而其他，即係喺泵
I 房以外啲水喉嘅物料，就由我哋建築師嘅團隊批核。但係之後個四
J 單，之後個四單，即係包括係紅磡二邨、欣安邨、彩福邨同埋清河邨
K 一期，就除咗我先頭講泵房啲物料，even 喺泵房以外嘅物料，如果
L 係喺我哋個規格 PLU1 裏面啲物料，都係由我哋屋宇裝備嘅團隊去
M 批核。

N 問：係。點解會有呢個分別？

O 答：其實以往，其實就係一路都係由我哋建築師嘅團隊喺個 plumbing
P works，即係供水嘅系統度，就由我哋建築師團隊做個所謂
Q contract admin.，咁 contract admin.就係包埋批物料。咁就
R 呢四單，就係因為當其時我哋個建築師團隊同我哋嘅屋宇裝備工程師
S 就商討過，咁就建築師團隊就想搵我哋啲工程師幫手睇埋 PLU1 嘅物
T 料，咁所以個四單，我哋嘅工程師亦都肯行多一步，即係做夜啲去處
U 理埋佢。咁所以我當其時就呢四單嘅工程，就由我哋嘅工程師嘅團隊
V 去處理埋 PLU1 嘅物料嘅批核。

問：你剛才講個四單工程，就係你哋屋宇裝備個團隊就負責埋個批核喇。

答：係，冇錯。

問：咁我想知道當時個原因，就係話即係佢想搵你哋幫手，係咪都係個
個人手調動方面個問題吖，定係就住個四個工程項目有咩嘢特定嘅原
因，係需要你哋去負責埋對於即係水泵以外嘅工程作一個批核嘅樣--
即係樣本？係嘞。

答：其實就有一個特定嘅做法，只不過就係因為成個供水系統嘅設計都係
屋宇裝備嘅團隊做，而 PLU1 個規格，都係我哋屋宇裝備嘅團隊寫
嘅，所以當其時就建築師團隊呢四單就有咁嘅要求。咁喺
professional level，就--即係我哋幾位同事亦都話肯行多一
步，做夜啲，處理埋佢。

問：明白。

答：咁所以就呢四單就我哋係做咗嗰個 PLU1 物料嘅批核。

問：係，唔該。咁如果我哋從物料上嚟睇，因為我哋都知道譬如啲 sample submission，批核嗰陣時都會有文件嚟剔咗一啲--對咗啲文件，或者對咗個 sample 之後，就有個即係批核嘅過程咁。咁我講啱唔啱呢，就係如果係你哋嘅團隊，即係屋宇裝備嘅團隊係直接去批核，咁你哋就會喺嗰個表格上面，即係你哋個團隊會有人即係睇完之後去簽名嘅？

答：正確，正確，啱。

問：咁如果係你哋，就唔係直接去批核，如果你哋，淨係純粹係--好似之前嗰幾個工程，就係淨係畀意見，咁就喺個 form 上面，嗰個簽嗰個就會係建築師嗰邊嗰個職員？

答：冇錯，完全正確。

問：好。咁我想都同你睇一睇，就係關於個 site supervision、sit inspection 嗰方面，就我睇到你個證人口供都講得好清楚，就係嗰個有關水泵嗰啲工程，你哋嘅團隊就會直接去睇或者監督嗰個工程個進度，或者嗰個一路做上嚟，即係嗰個工程妥唔妥當，咁你哋就會直接嘅，直接會有參與。

答：正確。

問：至於你話水泵以外，咁你哋就喺個 site inspection，你哋直情係冇參與嘅，係咪？

答：正確。

問：好。咁我想都同你睇一睇有關嗰啲 specification，你個制定，尤其是我係想睇一睇 PLU1 嗰個制定。

答：好呀。

問：咁我想問一問，就係梁生你本人即係係--當然你係團隊嘅即係一份子，但係你本人對於嗰個--即係真實嗰個制定，即係做嘅時候，有關 PLU1 個 specification 嘅制定，你自己本人都有參與，係咪？

答：因為 PLU1 就係要--係我哋個所謂 Specification Library 嘅部分嚟嘅，咁我哋所謂即係呢個規格嘅 library，其實我哋係有專人做，專人做，即係我哋成日都講叫做 Central Team。

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問：Central Team，係。

答：我哋個 Central Team 做嘅。

問：係。

答：咁就我就有參與喺嗰個 Central Team 嘅工作。

問：明白，明白。但係就即係例如如果啲 specification 需要例如有啲 revision，或者有啲 amendment，咁我哋知道就係四年有一次大改，咁我聽到之前，另外一位總屋宇裝備工程師伍先生都有同我哋提過，就係可能隔半年左右，都有一次小改動嘅咁樣。即係呢個你都同意，一般嘅做法？

答：係。我哋通常就係四年就係出一個新嘅 edition，兩年就一次大嘅 update，咁就亦都可能係即係半年，或者 something like that，就會做一啲小型嘅 update，有需要就。

問：唔。咁即係例如半年，或者係比較短時間啲，一啲小嘅 update，通常我哋知道可能會就住嗰啲 BS，有啲 British Standards 可能唔同咗，咁你哋就會做番啲 update。除咗呢啲有關標準方面，即係規格方面，可能因為世界標準轉咗，咁你哋要即係與時並進咁樣。除咗呢啲之外，你哋個 update 仲會唔會就住某啲嘅方向去睇？

答：我哋都會睇睇即係個實際喺地盤嘅運作，或者市場上啲物料會唔會有轉變，而作出有需要嘅改動。但係我哋通常做改動，都係會諮詢業界。

問：係。

答：嘎，嘎。

問：好。我哋就知道 2002 年嗰陣時，因為伍先生就畀過一份就當時有一個即係 revision 關於個 specification 嘅。咁就我哋都知道，當時亦都係藉住--即係當時嗰個時間，剛剛好就係差唔多係業界同埋你哋房署都係即係鼓勵緊一啲總承建商，等佢哋有個選擇，就係話「啊，用銅喉咁定係繼續用番之前一路沿用開嘅即係 GI pipes」咁。我哋首先停一停，因為我哋講緊個 GI pipes，即係嗰個 Galvanized iron pipes，其實同嗰個 Galvanized steel pipes 係咪講緊同一樣嘢㗎，通常？

答：係，其實正式應該係 Galvanized steel pipes。

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問：正式係應該 steel pipe，不過可能個即係行內個俗稱，就將佢變咗 GI pipe 咁係咪？

答：係呀，係呀，係呀，其實係 steel pipes 嚟嘅。

問：好。咁就我都想問一問，就係當時嗰個 2002 年出嗰個 revision 嘅時候，咁我都知道係由你哋有一個--即係你哋個嘅 Central Team，咁就出咗一個叫做 DC Management Board 嘅 instruction 咁樣。

答：冇錯。

問：咁我想知道就係話，每一次例如作呢啲咁嘅 specification 個 revision，都係咪會有一個咁嘅類似嘅 instruction 㗎？即係畀即係都唔少人士去參考，去讀你哋嗰個 revision 嚟㗎，係咪？

答：係。通常尤其是咁大型嘅 revision，就真係必定要經我哋所謂 DCMB，即係 D & C 嘅 Management Board 批閱，先可以出個 instruction。

問：唔。如果我哋講話例如由 2000 年開始到而家咁講，2002 年做過一個 specification 嗰個 revision，係咪算一個即係都比較大型嘅 revision，嗰個？

答：如果喺 plumbing 嗰個 part，即係供水嗰 part，我相信係。

問：係。如果我哋都其實可以睇一睇嗰個文件。

答：係。

問：咁就喺 B15.3 嘅 39600。我哋都睇到，就係就住呢份文件，咁我哋見到個 heading，都係講緊 "Use of Alternative Piping Materials for Cold Water Supply Installations in HA Buildings"。

答：係，睇到。

問：咁即係呢個我哋亦都係--你亦都同意，係咪？

答：係。

問：就係講緊就話當時因為喺業界，可能係即係鼓吹業界可能會用一啲 alternative 嘅 piping，咁所以就覺得有呢個需要，就住呢一個做法，去做多一 set 呢個咁嘅 revise specification，等大家去

討論下。

答：呢個其實準確啲，就係呢個文件嘅第3段個 background 嗰度。

問：係，係。

答：即係講到就係，其實我哋當其時係即係用緊係 uPVC-lined galvanized steel pipes。

問：係。

答：咁但係因為呢隻喉，就喺啲配件其實喺一般 retail shops 係買唔到，咁如果我哋有部分住戶，佢就會入咗伙之後會改動啲水喉，咁變咗佢較為困難去搞嘅。咁就如果住戶要改動啲室內水喉，其實佢都用咗銅喉，再加以當其時其實銅喉加 solder joint，其實都係喺香港個 building 個市場度其實都係廣泛使用。咁所以我理解，就當其時因為咁嘅考慮，所以就有呢個改動，我哋就將銅喉加 solder joint 就係寫埋落去，係一個即係 alternative material，承建商可以用嘅。

問：明白。咁就如果我哋睇番跟住嗰一頁，39601 嗰度，第7段嗰度。咁嗰度都係講出咗，就話「喂，因為可能有呢個咁嘅即係選擇，咁所以就住呢樣嘢，亦都希望啲 project team 去再制定下即係有關嘅--即係需要嘅 design 嘅唔同，咁就再作出一啲制定，係咪？」

答：係，冇錯。

問：係。咁就我睇番，比較一下呢一個 revise 嘅 specification，咁我見到就係--首先我哋如果睇一睇 39615。

答：係，睇到。

問：39615 我哋就睇到啲--有個係 SUP--即係最後嗰一 part 其實係，SUP 一點--SUP 就 S-U-P，1.M174.N。

答：係。

問：嗰度就講緊“FITTINGS FOR COPPER PIPEWORK”，咁入面都有提到一啲 copper alloy fittings，其中包括咗 end feed capillary、integral solder capillary 等等，咁都講出個 BS 嗰個 1254 嗰個標準。

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答：係，睇到。

問：咁如果我哋比較一下，比較一下 2000 年嗰個版本。2000 年嗰個版本就係 B2，B2 嘅七--先睇下 780 頁。

答：係，睇到，780，係。

問：係。咁就 780 頁，我哋睇到中間上少少嗰度，見唔見有個“JOINTING COPPER PIPES”嗰度？

答：睇到。

問：係。咁嗰度我哋就講緊話“Joint pipes with non-manipulative compression fittings.”

答：係。

問：咁跟住有“Joint pipes with capillary fittings”。我就想睇，就係 2000 年嘅時候，你哋嘅 specification 就係有任何部分係提到個 solder joint 嗰樣嘢嘅，係咪？因為嗰陣時就冇用呢個 solder joint 㗎嘞，當時。

答：冇用銅喉。

問：係咪？冇用銅喉。咁就另外就就住呢一個 Lead based materials，我哋可以睇睇 779 嗰度。779，我哋見到都係“Jointing Pipes and Fittings”嗰一部分，第 2 嗰個小部分“Lead Based Materials”睇唔睇到？

答：睇到。

問：係。咁就話“Do not use jointing materials based on red lead”。我哋呢個講緊嘅 jointing materials，係就係就住當時用嘅 GI，即係嗰啲 galvanized steel pipes 嘅 jointing materials 即係？

答：唔係。

問：唔係嘅。

答：唔係。

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問：呢個係邊一方面嘅 jointing materials，呢個？

答：如果係 galvanized steel pipes，其實佢個 jointing 係得兩款嘅啫，一款就係 screw joints，即係埋牙，扭落去；另外一種就係 flange joint，即係 flange joint。咁呢個照我理解，其實佢係講一般嗰啲所謂 cast iron pipes（生鐵喉）。

問：係--哦，cast iron pipes，cast iron pipes。

答：Cast iron pipes，cast iron pipes。而且 cast iron pipes 呢度就唔會用喺食水度，一般都係去水或者其他嘢。

問：明白。所以由於即係 2000 年嗰陣時有呢啲咁樣嘅特定有關銅喉嘅規格、要求，咁所以即係最主要喺 2002 年嗰陣時，就係就住因為會有比較大量嘅銅喉會使用，所以就做咗呢一個 specification？

答：冇錯。

問：我想問一問，就係除咗有呢啲咁嘅規格嘅改動之外，當時都大家睇到一個比較大嘅轉變，因為要用多啲銅喉，你自己有冇記得，就係話就住呢個咁嘅轉變，房署嗰度有冇做一啲即係話對於啲物料，即係可能對即係身體有影響，即係住客有影響？

主席：當時請問你嘅職位係咩嘢，2002？

答：我當其時係高級屋宇裝備工程師。

主席：請問你有冇參與呢一個咁嘅改動？

答：冇，我嗰陣時係做緊 project，即係做緊個別嘅項目嘅 project。

問：哦，好，得。諗...

黎先生：我可唔可以順便問一問？橫掂我睇開呢一個人士。“Do not use jointing materials based on red lead”，喺當時你個理解，點解係話係唔可以用有 red lead 嘅嘢嚟到做 jointing？當時嘅理

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解係點解？

答：因為呢個 specification 其實都唔--SUP，其實就係以前都係建築師團隊寫嘅。

黎先生：哦。

答：即係好易分嘅啫，SUP 就係建築師團隊寫嘅，咁去到 2002 年，就係我哋屋宇裝備嗰個 Central Team，就因為要用銅喉，所以就出咗一個 DCMBI，就改動咗呢啲--或者加咗銅喉嗰個規格落去。所以而家主席同黎生問嗰樣嘢，就係 Do not works--use red lead 嗰度，其實就係建築師團隊寫落嘅。咁我睇番，因為如果係食水，當其時係都係用 ductile iron pipes，或者係 galvanized steel pipes，都係用呢兩類嘅啫。咁呢兩類都係用 flange joint 或者係 screwed joint，就唔會用 red lead，絕對係唔會。咁我亦都聽過有啲同事講過，即係 red lead 當其時都係用嘅 cast iron pipes (生鐵喉) 度，咁主要都係去水嗰啲地方用，就唔係供水嗰度。

黎先生：就會唔會可以有個理解，就即係當年已經都有個理解呢？就係去接駁水喉，就算係 cast iron pipes，都唔應該用一啲係有含鉛嘅物料呢，應該？

答：呢個我真係唔係太清楚，因為呢啲 spec. 一路一路咁寫落嚟喇，即係我哋就變咗係，如果我哋做到，就係去執行嗰樣嘢。

黎先生：Okay，唔該。

答：所以我唔--我哋背後嗰個理念點解要寫呢句嘢，我都唔係太清楚。但係如果睇番銅喉，solder 嗰度，我理解就係因為嗰個英國標準，即係有個咁嘅要求。即係如果係食水，就唔可以用有鉛嘅 solder。

黎先生：唔該。

問：我哋睇番銅喉，而家。即係睇番 2002 年嗰陣時個轉變，就睇 B15.3，39616 嗰度。

答：係，睇到。

問：係。咁就都睇到中間嗰度寫住“Soldering alloys for copper and copper alloy capillary fittings”。

答：係，睇到。

問：咁呢度就我哋亦都睇過好多次嚟嘞，其實之前都。咁第一項我哋都見到有 BS standard 嗰度，即係 BS 1254。咁 (c) 嗰度，我哋就見到好清楚寫到明係 “Use only lead-free category solders” 咁。咁所以我咁講啱唔啱，就係即係當時你哋個團隊，就住呢一個咁嘅即係市場上面嘅改變，亦都係知道會用開嗰個銅喉咁。你哋亦都係都好清楚，如果用銅喉嘅時候，即係因為用 solder joint，咁就一定係要用嗰啲無鉛嘅焊料，呢樣嘢你好清楚嘅？

答：呢個清楚嘅，其實，大家都係睇番水務法例嘅啫，咁其實水務法例，佢就係有話要求要跟英國標準。

問：唔，係。

答：咁英國標準，其實之前佢啲即係 WWR，嗰度有寫到就係當時係跟 864，864 嗰個標準。

問：明白。

答：咁我理解，當時我哋個團隊做呢個規格，呢個 update，其實就係睇番當其時個--當其時嗰個 864 已經唔適合嚟嘞，所以連新嘅標準，就係 BS 1254 Part 1。

問：係。

答：咁但係如果睇番個舊標準 864，佢都有好清晰講到就係如果銅--如果係用啲食水度，個 solder 就唔可以含--係要用 lead-free 嘅，即係當其時 864 都有呢個標準。

咁就睇番呢個新嘅 BS 1254，其實就係睇番 Table 6。咁 Table 6，佢嗰度就係如果就係講 solder alloy，其實佢都有三隻。即係如果係睇番 Table 6，係有三隻嘅，咁 Section 2 and 3，就係其實就係無鉛；而 Section 1，就有鉛。咁就 table 6 下面都有 footnote，亦都講清楚，就係如果啲食水，就係要用無鉛嘅。

咁我理解同事即係將呢個要求係啲個 spec. 度寫清楚，其實係一個穩重嘅做法。

問：係一個...

答：穩重嘅做法。

問：穩重嘅做法，係。

答：因為變咗就承建商同埋我哋嘅同事，因為就算佢唔喺--喺個 Central Team 度，譬如我咁，我唔喺 Central Team 度，咁我睇住呢個規格，就有咁易會用輓。因為有時你可能即係會睇漏嘅，如果唔寫。即係如果佢唔寫清楚係 lead-free，就要真係睇番個 BS 個 table 6，你先睇到佢係 lead-free。咁如果即係有時--因為其實我哋做嘅範疇好多，個個同事都做，非常非常忙碌嘅，咁變咗佢如果真係唔去睇個 BS，而用咗輓，就有問題，咁所以--其實承建商都係。所以我覺得即係同事而家寫到清清楚楚，係一個穩重、實事求是嘅做法。

同埋其實我哋如果睇番 ArchSD，即係建築署喺 1993 年嘅規格，其實佢都係--雖然當其時係用 864，用 BS 864，但係其實佢個規格文件亦都寫到非常清楚，如果係食水用銅喉，用 solder joint，佢都係話用無鉛嘅 solder joint。其實呢樣嘢係相對係清楚嘅。

問：係。咁剛才你都講得好清楚，當時其實即係...

主席：我想問一問。

答：係。

主席：相對清楚咩，864，1988 年已經寫咗出嚟。咁去到 1998--跟住 1254，1998，就再--又係一樣啫，基本上就係再重複。咁由 1988、1998 去到 2002，你哋引進呢個銅喉，其實換句話嚟講，即係雖然你哋 2002 年先至引進，但係我哋聽到嘅證供，就係話其實出面已經用咗好耐嘞。

答：冇錯。

主席：咁其實換句話嚟，你同唔同意？就因為 88 年已經開始有呢一個 British Standard 寫到明就話唔准用 lead solder，去到 2002 年嘅時候，其實咁長嘅日子裏面，如果你係喺出面做水喉，用銅喉嘅話，根本呢一個焊料係要用不含鉛嘅焊料，其實都係一個好--即係常識嚟個囉嗚，對於啲水務工人嚟講？

答：我同意主席呢個說話，但係因為呢個規格其實係畀我哋嘅同事，即係包括係 professional 嘅同事，同埋喺前線地盤嘅同事睇嘅，咁同埋畀承建商。

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主席：啱呀，我明，係呀。

答：咁所以我諗我哋同事--即係我相信我哋同事寫落去，就係第一，要 make sure 我哋個自己個團隊喺執行呢個合約嗰陣時，就唔會因為冇睇到--直接睇番 BS 個 table 6，而漏咗招。

主席：即係如果講清楚啲，就住你哋屋宇裝備工程師，就住你哋屋宇裝備嗰方面--即係我哋知道起樓有好多唔同嘅專業，就住你哋屋宇裝備，呢一樣嘢係完全冇含糊嘅？即係用銅喉駁食水銅喉，就一定要用無鉛焊料，係完全唔需要--冇爭辯嘅餘地㗎嘞，係清清楚楚，你哋全部都知嘅？

答：如果同事睇番呢個規格，咪清楚。

主席：我知。如果唔睇呢個規格呢？

答：唔睇呢個規格都有機會，因為屋宇裝備其實就範疇好闊嘅，因為我相信有同事提過。

主席：得。

答：咁水其中我哋一瓣，其實係相對係細瓣㗎。

主席：係呀。

答：咁同埋我哋啲同事可能嚟自唔同嘅 background，咁佢可能即係電好熟，水未必熟。調番轉，可能有少部分水熟，其他冷氣、電、消防就唔熟。咁變咗我哋都要寫得清楚，等啲同事冇咁易--因為佢呢個範疇唔係太熟悉，而漏咗招。

主席：唔，得，繼續。

黎先生：我想問問，對於你嚟講，梁生，喺 02 年出咗呢個新嘅指引嗰陣時，P25-02 嗰陣時，你當時係做緊係高級工程師？

答：冇錯。

黎先生：咁你都係知道咗呢一份文件，你亦都清楚--當時知道呢份文件㗎嘞？

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答：知。

黎先生：咁因為呢份文件其他嘅工程師亦都收到？所有裝備工程師都收到，係咪？

答：係，佢應該有--佢可以睇到嘅。

黎先生：咁你覺唔覺得當時，02年出咗呢份咁嘅指引之後，喺部門入面，你哋譬如話係裝備工程師嚟講，有冇話特別嘅討論係關於呢份文件？

答：我記得就有。

黎先生：係。

答：因為只係用銅喉。因為銅喉其實我哋02年開始採用，其實喺香港嘅業界，就八零年代都開始採用，即係其實都好 common 嘅。

黎先生：Okay，唔該。

許偉強先生：咁主席問咗我本來要問嗰幾個問題，係呀。

問：啊，係，我補充一下先<就係剛才你講話呢個好清楚，同埋都係好穩重嘅做法，就將呢個 lead-free 直情講到明係無鉛嘅呢樣嘢。咁睇下你同唔同意我咁講法，就係即係你本人又好，或者你個團隊都好，喺屋宇署嘅團隊，即係屋宇裝備嘅團隊，即係對於佢話要用呢個 lead-free solder，其實係都係想避免即係含鉛嘅物料，即係有害--因為大家知道含鉛係有害喇，嘅物料，如果係擺咗嚟做水喉工程，會有機會影響個水質呢樣嘢，你都係知道？

答：我諗即係我哋嘅一般常識都會話畀我哋聽，鉛因為對人體係有害嘅，呢個我知道，我相信我哋個團隊--我估計，大部分同事都應該知道，即係呢個係一般常識。

問：係。

答：咁就我亦都理解即係同事，即係我哋個 Central Team 同事寫落去㗎喇，即係寫要 lead-free 呢樣嘢，其實就係來自就係個 British Standard。因為水務條例話要跟 British Standard，咁而家個

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British Standard，或者之前 864 都有呢個要求，咁佢亦都係為咗穩重，寫咗落去，咁我哋係知道。但係就我--即係我講番我自己，我就唔知道如果嗰個 solder 含鉛，會引致到水管裏面嘅水會含鉛，呢個 point 我哋係唔知嘅。咁再下一個就係話，我亦都唔知道如果嘅水含鉛，佢究竟會點樣影響人體，咁我都係唔知道。

問：唔。

答：直至今年 7 月，即係鉛水事件曝光之後，咁我哋就即係會再清楚。

問：係。噏，...

主席：再講多次，對唔住。鉛有毒，你就知道，...

答：係。

主席：... 跟住下一個係咩嘢話？

答：鉛有毒，就我哋知道--即係我知道，咁但係如果係因為個--我哋用咗銅喉，亦都用咗 solder joint，如果個 solder 有含鉛，而佢會有個風險影響到水管裏面嘅水而含鉛嘅，呢個風險我哋就--我就唔知道。

主席：Okay。

答：咁另外一樣，就係當嘅水含鉛，佢點樣影響...

主席：得，得，得，等陣，好，第二個先。你就話唔知道如果嗰啲焊料係用咗有含鉛嘅焊料，就點樣樣影響到食水呢一度，你就唔知道，係咪咁嘅意思？

答：係，冇錯。

主席：不過如果嗰個 British Standard 寫到明，係咁樣樣寫，就話焊料就一定唔可以用含鉛嘅，咁我相信即係一加一都可以推斷到出嚟，就係話「啊，一定係有害喇」，係咪？

答：因為其實呢啲咁嘅國際標準，都係一大班嘅專家經過好多年時間寫出嚟嘅，咁而佢寫出嚟嗰啲標準，亦都唔會交代點解會有呢個 requirement，...

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C 主席：唔係，...

D 答：...佢純粹講個 requirement 要點做。咁變咗即係其實亦都係即係
E 成個建築業界，或者係 Building Service 嚟講，有好多個國際標
F 準係適用。咁變咗我哋個...

G 主席：唔係，我明白，我明白有好多標準，我淨係即係好針對性咁樣樣問。
H 因為你 1254(1) 裏面，其實有好多嘅--其實佢講好多嘅嘢，係咪？
I 有講到--譬如我之前提過，有講到嗰啲 wall thickness, 1254,
J 我哋講緊嗰啲銅喉。

K 答：係。

L 主席：又講緊啲 temperature, 又講過 pressure, 又--總之講好多嘢
M 喇，係咪？有 nominal diameters 諸如此類，好多、好多、好多
N 樣嘢嘅，嗰啲 ball, 嗰啲 dimensions 嗰啲咁樣。但係就你嗰啲同
O --即係當時我哋知道嗰個 CBSE--咩嘢話？即係
P Standard--Design and Standard, D & S, 你所講嘅 Central
Q Team 就係呢位人士，CBSE D & S, 咁我哋當然可能仲有啲人。佢
R 哋就乜嘢都唔寫落去，佢哋唔講 wall thickness, 唔講乜嘢
S diameters, 唔講 pressure, 乜都唔講。

T 跟住 160, 或者 150--150 或者 160 諸如此類，我講緊你哋個
U specification, 就乜都唔講嘅，淨係係講一樣嘢嘅啫，基本上，
V 就係講呢啲如果係用 solder, 就唔可以用 lead; 如果你要做
brazing, 就唔可以用 cadmium。你明唔明？

O 答：明。噏，...

P 主席：即係我--當然喇，我尊重你嘅證據、證供，就係話「啊，我當時唔
Q 知。」不過我想問嘅意思，就即係你如果咁樣樣睇，「啊，嗰個呀唔
R 准 cadmium, 呢個呀唔准 lead」，咁唔使講，梗係因為有事喇，如
S 果唔係，點解會唔准呢咁嘅意思。

T 答：主席，我都想補充，就係雖然我有 involve 喺個--即係呢個--一個
U 制定，2002 年。但係我睇番，就係因為你先頭講嗰啲，譬如嗰啲
V dimension, 乜嘢 diameters、thickness, 其他所有嘢，其實係
全部一樣，係有一--係就係嗰個尺寸，嗰個 composition。唯一有
變，就係 solder, 佢有三隻。個 table 6 有三隻 solder, 有 1、
2、3; 咁然後 brazing, 有 4、5、6, 係。咁變咗就係同事而家咁
寫法，其實係我覺得都合--係應該係合適同埋穩重。因為...

主席：我絕對同意佢抽咗出嚟，okay？我有問題嘅，呢樣嘢我要抽出嚟要講。但係即係我個意思，就係話「啊，你抽咗出嚟講呢一樣嘢」，...

答：咁唔係，因為如果佢唔寫出嚟，因為裏面有--我先頭講，即係 solder 會有三隻嘍嘛。

主席：係呀。

答：咁所以佢寫清楚係 2、3，寫清楚 2、3，然後亦都係寫清--即係寫埋個 table 6 footnote 嗰句嘢落去，即係要無鉛或者唔可以有 cadmium。

主席：係吖，係吖。

答：咁我覺得係唔--我唔知喇，因為，但係我估計佢都未必--同我一樣，都未必知個內裏原因。

主席：唔係，譬如你 table 6，2、3，咁跟住下低就有個 footnote，就話「啊，potable waters 呢，你就唔可以咁樣用，而--就要唔好用--即係要用無鉛。」一，因為我哋知道銅喉其實有好多用途，唔係淨係愛嚟裝水，佢可以裝 gas，可以裝油，可以裝其他嘅嘢。咁所以其他嗰啲嘢就可以唔理你，你鍾意點用就點用喇，係咪先？咁即係如果你將呢啲咁樣嘅原因加埋一齊，咁即係我會唔會同意，即係可能你--可能有直接寫到出嚟話「啊，鉛係會有機會從呢啲 solder 裏面係 leak 咗出嚟入去食水。」咁但係你將呢啲咁樣嘅因素一加二、加三，就你會知道個結果嘍喇。

答：我諗--我相信當其時個團隊做呢個--2002 年做呢個 spec. 嗰陣時，...

主席：我哋到時，唔，再...

答：...佢都真係睇番個--當其時個 British Standard，同埋睇番譬如可能有參考過 ArchSD 嘅 spec.。咁當其時業界如果一寫銅喉，solder joint，其實政府嗰啲 spec. 其實都有寫住要用 lead-free，咁我諗都--即係如果我自己做，假設即係我...

主席：政府啲 spec. 話要用--哦，你講 Architecture 嗰度？

答：係嘞，係嘞。咁我哋做 spec.，其實好多時都會參考番即係其他政府部門類似嘅 specification 嚟做一個參考文件，咁所以即係我估

計，當其時同事即係除咗佢睇咗 British Standard 之外，亦都睇番之前嘅 864，亦都睇番 ArchSD 建築署嘅 spec.，咁所以佢用--即係佢--我相信佢因為咁嘅原因寫落去。就未必話同佢認知「啊，個 solder 有鉛，會令致到即係食水含鉛，再引致到即係人飲咗之後有問題」嗰樣嘢。

主席：唔緊要，我哋會問一問你當時處理嘅同事自己。不過我想--其實你嘅同事，唔單只--我覺得，唔單只純粹係話因為睇咗政府嘅 spec.，因為睇咗 British Standard，佢唔係個嗎，因為點解呢？因為第四項係講 flux，從來冇人提過 flux 你睇乜嘢 standard 都有講，但係佢又加咗落去。

答：因為我哋有啲--主席，我哋其實以前有啲痛苦經驗，就係我哋好多年前，應該係八幾年，就開始用 PVC 嘅 conduit，conduit 即係話啲管嚟，好似銅喉咁，不過係 PVC 做，就愛嚟穿線嘅，就係--embed 咗啲石屎裏面，然後就穿電線入去。咁呢啲 PVC conduit 個 jointing 就用膠水，用膠水糰。咁我哋試過就係--以往有啲即係較為唔係咁老實嘅承建商就冇用到原廠嘅膠水糰，咁我哋覺得有問題，咁所以就--我唔知係咪當其時個同事做呢個文件嗰陣時，就會諗起即係以前啲 incident，咁所以就將呢樣都寫埋。

因為好多時同一個工--一個生產商，佢除咗出銅喉、出配件，咁佢出--即係或者出 solder，佢都有類似嘅 product 一齊出，咁變咗係成套服務一齊賣畀你咁樣。咁所以而家--即係睇番而家個文件，佢寫埋 non-corrosive 嘅 flux，其實我覺--我只可以覺得，即係佢做得好全面，好實際，就同佢係咪認知個 solder 含鉛令致到有健康問題，就未必一定有關係。

主席：得，好。得，唔該。

問：咁我想補充問你一度，就係有關嗰個認知嗰方面。

答：係。

問：即係當時，如果講緊 2002 年，就即係你剛才都講，即係差唔多可以話即係畫公仔畫出腸，即係個 footnote 嗰樣嘢將佢寫得更加白，更加係即係穩重嘅做法，係咪？

答：係。

問：咁就當時，你知唔知道例如嗰個就住 copper pipes 所用嘅 solder 嚟講，係有 lead 同埋--即係 lead-free--即係有啲係含鉛，有啲唔含，呢個分別，你知唔知？

答：當然有，就係 table 6 嗰度都講咗。

問：都知道？好。

我想去另外一個題目，就係有關呢個 PLU1 同埋 PLU2，喺個 sample submission 嗰陣時，嗰個即係唔同嘅地方。咁我哋都聽咗有唔少證人嘅證供都講，就係話 PLU1，如果我哋睇番 contract，睇番 specification，即係都知道 PLU1 同 PLU2 嘅分別，就 PLU2 就一定要攞嗰個--即係嗰個物料個實際嘅樣本，...

答：樣辦。

問：... 嚟到即係做作一個測試，一個審視。PLU1 就除咗有幾個 exception，有啲 pipes bracket，或者一系列我哋講緊一啲 valves 喺即係 washing machine 入面用啲 draw-off valves 嗰啲咁。除咗呢啲咁嘅情況，就一般嚟講我哋睇文件。就但係可能有時按住需要，或者按住即係你個實務嘅做法，就可能有時都會睇到嗰個即係樣本個實物。

就住 solder material，我哋知道其實個做法就係你哋係會有機會睇到嗰個 material 嗰個物料本身嗰個實物。咁呢一方面，我想問一問，就係之前伍達群先生，咁佢畀口供嗰陣時，就有講過話--好似例如中央嗰方面，即係你哋房署中央嗰方面，都可能有的嘅即係指引，就係講出例如邊一啲 PLU1 嘅物料可能係需要總承建商係攞嗰個物料嘅實物畀你哋做檢測。你有--對呢方面，你知唔知呀？

答：有。我就有見過或者睇過呢啲文件，但係我而家睇番 PLU1 同 PLU2，先頭即係許生講咗，就係 PLU2 就全部都要攞 sample 睇；PLU1，其實我哋個批閱，主要就係睇文件。咁就睇文件，其實 Building Services 即係屋宇裝備，我哋自己都好多物料要批閱。咁其實我哋大部分要批核嘅物料，我哋都係用文件，就好少要攞 sample。

咁我哋文件，點解我哋咁重要睇文件，文件包括個商品個目錄，咁個商品目錄會講清楚佢呢個物料佢個規格、佢個 composition、construction、dimension，同埋佢係跟到乜嘢英國標準類似嘅嘢。跟住就係一個測試文件，即係佢點--佢有個測試報告，證明到佢呢個物料係跟到需要嘅國際標準。咁另外就係有可能係規範部門嘅批

文，譬如水喉咁樣，佢就可能要擺咗水務署嘅批文。咁就即係起碼有呢三樣嘢。

咁就我哋點解要睇文件，原因就係因為我哋要睇佢個 technical composition，即係 technical performance，因為睇個 sample 就係睇唔到佢個功能，就係睇到個樣，睇到顏色，睇到佢個質感，咁呢啲嘢正正就係 PLU2 嘅材料要睇嘅，亦都係我哋則師團隊要睇。譬如洗手盆、坐廁，類似咁嘅嘢，咁我一定要睇樣嘢，就除咗睇文件。

咁但係喺 PLU1 嗰度，其實主要都係功能上嘅嘢，咁功能上嘅嘢，就係譬如佢可以受到幾大壓力，或者佢係裏面啲部件嗰個 material composition 係點樣，咁一定係要睇文件同埋測試報告，反而係睇辦對我哋都有意思。咁我而家睇番--即係睇番成個 PLU1 同 PLU2 嗰個分布，其實我會有個--我先頭講過我哋冇--即係我睇，我唔 aware 有一個中央文件，即係點樣分，但係我自己睇番 PLU1 同 PLU2 而家嗰個分布，其實主要就係話如果嗰啲物料係喺房口裏面用或者公眾地方用，咁我點解...

主席：「房口」即係咩嘢意思？

答：「房口」意思係個單位裏面，個 inside of flat 裏面。

主席：唔。

答：咁我哋而家就會睇--多數會睇埋個 sample，因為我哋要睇樣，因為尤其是建築師團隊，佢哋好--都好著重個樣、顏色同佢成個設計係咪吻合咁樣。除咗水喉，因為水喉梗係水喉一條嚟，任何牌子，即係任何都係擺個隻，即係譬如你銅喉一定係銅咁嘅色，以前嘅 galvanised iron pipe 一定係銀色，ductile pipe 一定係深色。咁即係--唔係，ductile pipe 都係同 GI pipe 差唔多色，即係變咗就我睇到就係咁嘅分野。

咁同埋其實我哋批料，而家係咩，即係一般我哋而家批個 solder，承建商佢都除咗上 document 之外，有--因為佢係其實我哋嘅總承建商大部分嘅物料，都係畀建築--即係建築師團隊批閱，咁所以佢就慣性咗，其實佢哋都擺埋個 sample 上嚟。反而即係--因為 PLU1 嘅 spec 就係我哋屋宇裝備同事寫，咁所以佢嘅寫法就跟番我

咁以往做開屋宇裝備工程嗰個規格嗰個方式寫，咁我哋就係較為少要擺即係 sample。

咁我哋邊啲會擺 sample，譬如個屋宇裝備嗰啲，譬如個燈飾，因為燈飾--因為見光，個樣我哋要睇，燈掣、插蘇或者係喺個--嗰個單位裏面嗰啲對講機嗰啲，即係嗰啲即係可以露光，同埋係個樣都緊要，咁我哋又會擺 sample，其他嗰啲我哋都唔會擺 sample。譬如一個大嘅 valve，或者一個大水泵，根本冇可能整個--即係水泵冇可能畀個 sample 你，咁我哋係睇文件。

咁我哋確信睇文件係足夠，因為文件裏面有相，就算--即係就算總承建商唔畀個 solder joint --唔係，唔畀個 solder material 我哋個樣本我哋睇，其實個 catalogue 係彩色，係清清楚楚係睇到嗰件嘢係點樣。咁就已經係足夠去即係等我哋啲同事可以等日收貨，就可以揸住嚟睇。

主席：我明。即係 functional 嗰啲嘢就唔需要交個實物，即係外觀影--同外觀有關嗰啲就需要嘞，即係？

答：大致上係咁分。

主席：大致上係咁分，唔。好，我哋休息二十分鐘先。

上午 11 時 31 分聆訊押後

上午 11 時 49 分恢復聆訊

出席人士如前。

主席：繼續。

香港房屋委員會第十四證人：梁之光（房屋署（葵聯邨第二期、榮昌邨、牛頭角下邨第一期、石硤尾邨第二期、東匯邨、紅磡邨第二期、欣安邨、彩福邨、清河邨第一期總屋宇裝備工程師））宣誓繼續作供

許偉強先生繼續盤問

問：係，啱啱休息之前，你都好詳細咁同我哋講咗嗰個 PLU1、PLU2，即係對於需唔需要嗰個樣辦嘅實物嗰個分別。咁即係總結一下，都係 PLU2 因為要睇樣，咁至於功能上好多野，就 PLU1 嗰啲，咁就因為可能睇啲文件有時都足夠？

答：係。

問：咁但係就住 solder material 咁嚟講，咁我哋都知道其實一個沿用嘅一個做法，咁嗰個總承建商，都其實佢哋都係覺得需要要交啲即係實物畀你哋嚟到檢測，即係其實我哋都知道係一個 practice 嚟當時？

答：佢係我--因為大家都知，PLU1 喺我嗰個部分，就有要求佢畀樣辦，咁但係總承建商，因為我先頭提過，其實佢大部分物料畀總建築師團隊批閱其實都係有 sample，所以佢慣性咗...

問：慣性？

答：...佢一入上嚟就包括個 sample。咁我哋不論係建築師團隊或者我哋屋宇裝備團隊，如果收到佢呢個 submission 都會睇埋，就唔會話「啊，你多咗個，我唔睇」，唔會，我哋都會睇埋。

問：係。但係你哋去睇嘅時候，即係話就住攞嚟嗰啲物料嘅即係樣辦，你哋或者係可能建築師嗰邊嘅同事，即係覺得有冇需要去睇呢咁，咁都要睇嗰個物料即係嗰個性質。即係我點解咁講，就係例如，因為我哋聽其他有幾位證人都講，就話嗰個焊料就當作為一種 sundry item，即係啲小五金咁樣講，即係比方說，就係一啲好似螺絲、螺絲帽，或者好似啲 tying wires 嘅物料咁樣。咁但係例如如果我咁講啱唔啱，就係好似我啱啱講嗰啲螺絲、螺絲帽、tying wires 嗰啲，咁即係你哋就唔覺得會有需要要做啲 sample submission 嘅 approval 㗎？

答：因為你先頭講嗰啲嘢都係真係建築嘅物料嚟，即係我哋屋宇裝備同事或者團隊，就唔會 involve 到。咁但係如果純粹當係一個即係我都係業界嘅一分子嚟睇，如果啲咁細微嘅嘢，就一般嗰陣係 contractor 都唔會上，我哋都唔會叫佢上。

問：明白，所以如果...

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答：因為嗰啲唔影響大局嘅嘢嚟。

問：係。所以如果你話就住一個 sample submission 咁嚟講，業界嘅睇法或者你哋房署嘅睇法，都會覺得「喂，solder material 嗰啲咁細微細眼嘅物料都會有唔同」，即係 solder material 係有個--即係起碼有個需要要做一啲咁嘅檢測？

答：即係如果睇番嗰個規格，其實佢一定要上--即係上文件畀我哋批。而家我講係咪需要即係樣辦嘅啫，咁就文件就有寫要，但係一般總承建商都會上。咁就我相信我哋而家個做法都係如果佢上，我哋就睇，佢唔上，我哋就唔會叫佢上。

問：係，但係...

答：如果睇咗，我哋就擺喺辦房。

問：係。我想問一問，就如果喺呢一個今年嘅七月之前，即係鉛水事件即係曝光之前，你對於錫條同埋錫線有冇分別即係呢兩樣嘢，即係錫條、錫線呢兩種嘅焊料，你知唔知有兩種焊料嘅存在？

答：我唔知，其實即係鉛水事件發生之前，其實我哋都有聽過咩嘢錫條、錫線，亦都就咁聽個名，亦都分唔到佢乜嘢。我淨係知道即係有鉛嘅 solder 同無鉛嘅 solder，喺我哋如果食水要用，我哋就要用無鉛嘅 solder，即係我淨係知道咁樣。

問：呈交咗上嚟嗰啲物料，又或者係即係真係喺地盤用緊嗰啲咁嘅 solder material 嚟講，即係焊料，你喺今年 7 月之前，你有冇見過，即係係咩嘢樣，你有冇見過？

答：我係喺即係 catalogue 度見過，即係因為其實--因為我個--我而家個職位就係即係總屋宇裝備工程師，咁變咗喺即係呢啲嘢，通常係我啲前線嘅同事，即係包括嗰啲工程師，同埋喺前線嘅工地，駐喺工地嘅人員就會睇到，就好少會嚟到我度。咁當然如果有問題會嚟到我度，但係我以往都見過下呢啲咁嘅 catalogue。

問：唔。即係就對實物就有乜嘢印象？

答：實物就有見過，直至出咗事之後，啲同事話番上嚟，「喂，我哋批咗呢隻個喎」。

問：係，明白。咁我都想問下你，就係啱啱我哋睇過例如 specification，

關於好清楚咁寫咗 lead-free solder 呢樣嘢，咁亦都我亦都知道例如就 sample submission，你哋都有睇即係 solder 嘅咁樣。咁但係我哋而家從其他證人嘅口供都知道，就真係喺嗰個建築過程入面，當嗰啲 solder material 運嚟嘅時候，或者係即係做緊個過程就係唔需要驗，因為呢樣嘢我哋知道唔係你個範疇，呢個咁樣個制定，即係話需唔需要驗邊一種物料，嚟到現場需唔需要驗呢樣嘢，就係即係嗰個建築師嗰一邊嗰個範疇嚟？

答：係，冇錯。

問：咁我想問你同唔同意我咁講，就係例如我哋知道有一個好清楚嘅制定，關於 solder material，你要係無鉛，你哋亦都係就住 sample 呈交，係作咗審視。但係到最後嗰啲物料上到嚟嘅時候，就有話要再作進一步嘅檢測。你覺唔覺得咁樣嘅制度底下，係有一個--即係係有一個唔銜接嘅地方，一個 disconnect，我哋英文所講，你覺唔覺得有咁嘅情況？

答：如果即係 with high sight，而家睇番轉頭，即係呢件事都即係大家即係喺媒介度都睇到好多，咁就睇到即係似乎就係因為我哋係對嗰個有鉛嘅 solder 個帶嚟嘅影響係即係認知不足。咁所以睇番我哋建築師團隊佢而家--即係之前，講 7 月之前，即係對呢啲物料進入地盤，就有一個好較為嚴謹啲，即係嚴謹嘅規管，就可能係應該係有啲改善嘅空間。咁亦都我知道可能同事上嚟作供亦都講過，其實我哋 7 月之後，我哋 DCMB 亦都出咗就係新嘅 instruction。

問：係，知道。

答：咁亦都喺呢方面係加強咗，即係係 incoming material 方面，包括 solder，我哋都加強咗嗰個 supervision。

問：明白。就我有一樣嘢想問一問，就係我哋睇到某啲其他呢個--例如 contractors 又好，或者係一啲嘅 licensed plumber，即係持牌水喉匠，佢有啲口供有提過就係話即係曾經有見過就有啲水喉工人，就喺地盤，尤其是喺嗰個樣辦房裏面，就係示範一啲水喉燒焊嘅工程。我想問下，你本人有冇話聽過或者睇過有呢件事...

主席：分開兩樣，唔該。

許偉強先生：吓？

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主席：分開兩樣。

許偉強先生：好呀。

問：係，首先你本身有冇睇過，有冇見過有水喉工人係喺呢個地盤嘅某一個地方係做有關燒焊工程嘅事幹？

答：冇，我完全冇，冇見過。

問：你有冇聽過人哋講過，就話曾經有啲水喉工人喺地盤做呢方面示範，有冇聽過呢啲咁嘅情況？

答：7月之前我都有聽過。

問：都有聽過？

答：但係最近就有聽過。就係因為有一啲 witness statement，即係有啲水喉匠或者水喉承建商，佢嘅 statement 裏面有，咁我啲同事就即係講番。

問：好，唔。

答：我就聽過。

問：好。另外--可能最後一個問題。就係有關啲申請去水務署嗰啲水紙，咁我哋都知道其實 WWO 46，咁個持牌水喉匠同埋個 AP，即係 AP 喺而家即係房署嘅情況嚟講，就係講緊個 architect，咁佢哋亦都要簽一份文件，...

答：冇錯。

問：...就係申請，就係話你用嗰啲水喉嘅喉管或者配件嘅時候，咁就要呈交畀水務署一個列表，就係話你用啲咩嘢嘅物料咁樣。咁我想知道就係話可能喺成個建築個過程之中，有時可能持牌水喉匠用咗一啲唔係當時最初呈交去水務署嗰啲物料嘅咁，咁持牌水喉匠就可能佢自己就要向水務署及後就係即係再通知番佢哋，有啲咩嘢 revise 嘅物料用咗，咁要畀番張 revise 嘅清單咁樣。

答：係。

問：我就想知道，其實如果有啲咁嘅情況，喺個做法，例如持牌水喉匠，佢會唔會同房署任何人士，即係首先要通知房署任何士，就住有關即係改動咗嘅配件，係對你哋係即係要申報先？

答：應該就唔使，我哋嘅做法就咁樣，首先就係喺佢接咗呢個合約之後，咁就開工之--即係正式個水喉工程要開工之前，就要入 WWO 46 part I，咁佢就要入。咁就因為以往因為佢要呈交啲所謂物料啲清單，咁我哋批，其實因為好多隻，要亦都唔會短時間做到，咁好多時佢哋自己就本身因為做開啲工程，亦都知我哋用開啲乜嘢規格嘅物料，水務署亦都收開啲咩嘢物料，咁所以其實每間公司其實可能自己佢都有個--自己有個名單，即係你可以當係一個 wish list，即係佢要擠落去 WWO 46 part I，嗰個附件啲名單，佢哋自己本身有自己一套。

咁佢睇一睇，佢諗住如果大致上都係用呢個名單嘅物料，咁可能裏面有二十隻咁樣，咁可能有十隻，當其時已經畀我哋嘅團隊批准咗，咁嗰十隻就係照寫，好清楚。咁另外嗰十隻就我哋未批，咁佢哋可能就自己諗住第日會用乜嘢，然後相信呢隻嘢係啱規格，我哋會批，咁佢就用埋呢十隻，total 二十隻，就係入嗰張 form。咁因為張 form 唔可以太遲入，因為要開工之前，做水喉之前要入，咁所以佢就入。

咁入咗之後，可能有個情況就係話，之前未批嗰十隻，最後我哋項目團隊批閱就可能有一--假設有兩隻係同佢最初嗰十隻係唔同，咁佢係因為我哋喺地盤，一定會睇住佢，我哋建築師團隊或者我哋屋宇裝備嘅團隊批閱啲，佢一定要裝啲，咁所以喺地盤一定係裝番我哋批嗰隻。

咁理論上就係或者喺個水務署嘅通函，其實喺 04 年，我好似係 No.1/04，就係亦都有個指出咗，就係話如果係有啲 minor changes，咁就個持牌水喉匠就係應該就喺個 annex 度簽番名，然後 fax 或者係 e-mail 畀水務署，即係登記番呢個改動。咁呢個做法就應該係要求水記，水務署嚟做 inspection 之前，要做好佢，要做好佢。

咁就一般其實我哋佢就係--我哋做法就係總之佢批咩嘢，佢畀咩嘢料我哋就批咗，咁我哋就有特別去--以前就可能真係有特別去睇番個持牌水喉匠最初入嗰個 annex 同我哋最後批嗰二十個係唔係有啲唔同，咁如果有，就如果要做嗰個 update，咁我哋可能真係有某啲項目，因為當其時完工嗰陣時其實好多樣嘢要睇。

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問：所以以前做法嚟講，就係話直至到持牌水喉匠真係通知番水務署邊啲部件或者有啲材料有更改，就你就唔知道？

答：唔知。除非--因為佢又有主動話我哋聽。

問：唔。咁最後我就想畀你睇一睇其中有一位持牌水喉匠嘅口供，就林德深先生嘅口供，就喺 Q1, 17 頁。

答：睇到。

問：係。第 4 段或者你睇一睇。

答：睇到。

問：係。佢呢度最主要都係話係曾經--即係佢嘅認知，起碼就係，咁就話即係如果有修改嘅話，就佢就唔需要再向水務署修改，就同你哋房署有關嘅人士溝通就可以。咁呢個講法你同唔同意？

答：我唔同意，...

問：你都...

答：...但係我想喺呢度都補充，就係我哋屋宇裝備工程師，如果房署嚟講，我哋係有駐地盤嘅屋宇裝備工程師，我哋只有駐地盤嘅屋宇裝備督察。咁就反而而家就係總建承商，我哋係要求佢要有駐地盤嘅屋宇裝備工程師。

咁第二樣嘢，就係其實我哋呢個--佢--即係對李德深呢個我叫做指控，咁就其實我都--因為葵聯邨係我做，咁所以我都見到呢個 witness statement，其實我都問過幫我手做呢單葵聯邨工程嘅屋宇裝備工程師，有幾位同事，我哋係問過佢「有冇接觸過林德深先生，有冇同佢講過啲啲嘢」，咁佢亦都係二口同聲同我講係冇嘅。

咁同埋睇番個內容，就係其實真係唔會發生，因為好明顯就係話如果係有物料、部件係唔同，即係同入嗰個附件係唔同，跟水記嘅要求，即係水務署嘅要求，其實一定係要做咗呢個更新。咁而且呢個更新係水務署批，唔係我哋房署批，咁我哋有可能我哋同事會叫佢唔做，我哋亦都唔會同水務署去傾呢啲咁嘅嘢，因為唔應該，佢係要更新，你要個名單係清楚顯示晒所有裝嘅物料。所以我哋係--我唔相信我哋同事會咁做，亦都我問過啲同事，係冇做過，冇同佢傾過。

許偉強先生：好，唔該。冇其他問題。

主席：好，請坐。

黎先生：我有兩條問題。梁生，我記得你有啲建議，就話係第日防止係食水含鉛超標，其中一個方法就係話唔好用一啲--唔需要用焊，燒焊嘅方式，用一啲就係即係接駁嘅方式，譬如好似係--或者 built-in 嘅 solder material，或者係 press-fit 或者 push-fit 等等呢啲咁嘅方法。我想問一問，喺你嗰個經驗嚟講，完全唔用燒焊嘅方式嚟到去接駁呢啲水喉係可行，係咪，成個工程唔用？

答：其實市面上係有先頭黎生講嘅嘢，亦都我寫咗落個我嗰一個文件度，係有 press-fit 同埋 push-fit 嘅配件，咁但係呢啲配件其實相對引入香港都係新，即係相對係新。咁我諗嗰個對即係用呢種接駁方式個可靠性同埋耐用性，我哋要時間去睇。因為如果嗰一個 joint 一爆，就係浸，即係如果喺嗰個單位裏面爆就浸單位，如果喺走廊爆，即係公眾地方爆，就浸走廊加埋浸升降機，咁個後果都相對嚴重。

咁我理解，點解 2002 年我哋嘅同事銅喉揀用 solder joint 咁樣，咁因為當其時都有個--即係較為 common 有兩隻，一隻就係 solder joint，一後就係 compression joint，咁點解揀 solder joint，我都而家睇番，我覺得我認同即係同事嘅選擇。因為 solder joint 就係個穩定性好高，佢一做好，做埋壓力測試，佢唔漏水就唔漏水。咁就佢亦都好 durable，唔使維修、保護，咁就相對容易做。

同埋我哋一個--譬如一個一房單位咁樣，其實我哋有超過六十個 joint 要做，咁我哋一座公屋譬如八百伙咁樣，係講淨係單位裏面都有幾萬個呢啲 joint，咁變咗即係做 solder joint，我哋要肯定佢個耐用性同埋個 integrity，所以我覺得當其時個選擇係正確。

咁但係我先頭回番--返番去黎生先頭個問題，就係其實係有市面上係有一啲 joint 係真係唔使用 solder，就係先頭講嗰啲 press-fit 同埋 push-fit，但係我覺得，即係其實我喺個文件度都寫，其實我哋會 explore 下，嗰樣--呢啲咁嘅接駁方法，睇下第日係咪可以適用於我哋嘅工程度，咁呢樣就可以即係免除咗用 solder，即係驚--因為 solder 就咁睇，燒好晒之後係睇唔到佢有冇咩嘢。咁就當然我哋可以做好多樣嘢，喺前期做啲嘢，incoming material 做啲嘢，或者 in-process 做啲測試咁樣，其實都可以處理到，因為而家件事曝晒光。

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黎先生：照你嘅認知，價錢上面有冇好大嘅問題？

答：對唔住，聽唔清楚。

黎先生：價錢上面有冇好大嘅分別？

答：我未--我唔掌握到個價錢，但係我相信就係用 press-fit 或者係 push-fit，比起 solder joint 應該係貴啲。但係另外一樣要考慮就係市面上有冇咁多即係物料供應到，因為其實係用好多，即係我哋需要用嘅量係好多。

黎先生：Okay，唔該。

主席：我想問下，嗰個你提到嗰個 1993 年嗰個 General Specification，就係呢個 Architectural Services Department 呢一個你頭先剛才提到呢個。呢個因為我見到，就係 General Specification for Building，係咪即係換句話嚟講係 ASD 出全香港所有嘅樓宇，都要跟呢一個咁樣嘅做法去做？

答：唔係。

主席：係淨係...

答：係建築署名下嘅 project。

主席：即係淨係政府嗰啲？

答：係。

主席：得。

答：而且仲係建築署嗰啲 project。

主席：同埋淨--得，好，唔該。

邊個想問先？

王先生：水務署冇嘢問，我哋冇嘢問。

主席：你哋冇嘢問。

MR PENNICOTT 盤問

問：Mr Leung, I represent China State, the main contractors for Kai Ching and Hung Hom. I just have a few questions for you. Could you be taken back, please, to a document we were looking at earlier, at B15.3/39600. That's the development and construction board management instruction 25/02.

答：係，見到。

問：If I understood the answer to some questions earlier, Mr Leung, in 2002 you were a senior building services engineer; is that right?

答：正確。

問：In answer to a question from Commissioner Lai, you said that you were aware of this document. Is that correct?

答：冇錯，正確。

問：Were you actually given a copy of it?

主席：幾時，你講緊？

問：In 2002, were you given a copy of this document?

答：因為你如果睇番呢個文件嘅 39605，個文件嘅分派，distribution 嗰度，就有--去到第五行，就有 CBSE/1。咁當其時我就係 under CBSE/1，咁所以我 CBSE/1 收到呢份文件，佢就會派出嚟。咁同埋呢啲文件發出，係會--我如果我有記錯，當其時都有啲 e-mail 通

告，有 e-mail 嘅，去到我哋所有嘅同事度。咁喺個 e-mail 度就會講番呢個 DCMBI 出咗，咁我哋可以走番入去我哋個有個 e-Housing portal 裏面，有啲 folder 會睇得番。

問：I see further down the page, where you see "cc" and you travel down four lines, there's a reference to this document being copied to SBSE/C1 and SBSE/C7. So that does suggest very much, doesn't it, that you, as a senior building services engineer, would have had this document given to you at the time?

答：唔係。因為我嗰陣時唔係 SBSE/1，亦都唔係 SBSE/7，所以我收到呢個文件，唔係靠呢個 cc copy 收。

問：You did receive it nonetheless?

答：我應--我係睇過。因為呢啲 instruction 我哋一定要好留意，因為我哋每一次出新 tender，我都要睇番。或者我哋就算做緊個 tender，我哋都會睇--或者做緊嘅工程，我都要睇睇呢啲 instruction 裏面嘅指引，會唔會適用於我哋而家做緊嘅工程呢咁，咁如果係，我哋都會做嘢。咁所以所有 instruction 我哋都會睇。

問：Okay. If we go back to page 39604, you will see that...

答：Sorry，你講--麻煩你講多次個 number。

問：39604。

答：Yes，睇到。

問：You will see that the instruction was signed by Mr Daniel HM Lee; do you see that?

答：睇到。

問：Who was, it appears, an assistant director in the Development Department at the time; do you see that?

答：正確。

問：Did you know Mr Lee?

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答：我識佢。

問：I understand he retired, he has retired from the Housing Authority. Is that correct?

答：正確。

問：I understand he retired in about 2009. Does that accord with your recollection?

答：我記唔清楚佢幾時，但係我相信都係 09、10 嗰一段時間。

問：Okay. Thank you very much. Could I then move on to something slightly different. In all of your nine witness statements, Mr Leung, you say that you became the chief building services engineer for the nine affected estates on 8 September 2011. Is that correct?

答：正確。嗰陣時我開始處任即係總屋宇裝備工程師。

問：That being the case for those nine affected estates, Mr Leung, would you accept this, that you were not personally involved in the design stage of any of those nine projects?

答：我相信係。

問：Sorry, as CBSE。

答：我相信係。因為最嗰單都係應該係葵聯或者榮昌，咁嗰啲我做 CBSE 嗰陣時已經係過咗 design stage。

問：Yes. Would this be right, that in relation to the nine affected estates, you were also not involved in the tender stage of any of the projects?

答：我同意呢句 statement。

問：Would you also agree that in relation to the process of sampling -- materials sampling, you were also not directly involved in that process, for any of the nine

estates?

答：應該講，就係話我有直接參與，但係我個團隊就係直接參與，咁我個團隊係 under 我 direct supervision，即係好似我啲 witness statement 咁講，我個工作嘅範疇。

問：Can I ask you please to look at paragraph 17 of your witness statement in relation to Hung Hom. That's bundle 15.2/38621.

答：睇到。

問：You say there at paragraph 17: "The [contract manager's] site inspection team conducted periodic and sample checks on materials and workmanship for conformance to specifications and the progress of the main contractor's works." Mr Leung, you have no personal knowledge of that, have you, so far as Hung Hom is concerned, because you weren't there at the time that that happened?

答：唔可以咁講，因為我--其實我哋做嗰個供水嘅設計，其實大同小異，佢係每座樓都唔會睇得好遠，咁我一定係知道即係成個供水系統嗰個設計同埋個走向嗰啲咁嘅嘢。咁就而我亦都派咗我哋嘅工程師同埋我哋嘅駐地盤人員喺度，咁佢都係 report to 我。咁同埋啲 project 好多時都會有啲調動，有時我會接啲新 project 返嚟，咁一接返嚟已經可能係開緊工，咁我哋都應該係對嗰個項目有一定嘅認知，同埋去處理佢。

問：Mr Leung, when you joined as CBSE the Hung Hom project, two of the blocks had already been certified as substantially complete, and one was two months off being substantially complete.

答：冇錯，正確。

問：You have no personal knowledge of what happened on the Hung Hom site at all before September 2011, do you?

答：可以咁講。但係因為我--因為之前嘅 CESE 就因為退休，所以就我就接咗佢個位嚟處理佢嘅工程，咁就變咗嗰陣時我紅磡，即係旗下所有

項目，包括紅磡二邨，都係我名下處理。咁我當其時其中一座，即係第三座就未完工。最後 certify 完工，即係屋宇裝備嗰個完工都係由我 certify。

問：All right. Can I just take you to a different point now. As well as the nine affected estates that you deal with in your witness statements, am I right in thinking that you were also the CBSE between September 2011 and July 2012 on the two estates that you don't deal with, that is on Kai Ching and Un Chau?

答：正確。

問：I would like to ask you some questions about Kai Ching. Now, could I ask you please to be given bundle F2. Could you please go to page 1370.

答：睇到。

問：This should be a memo from China State to two of the project clerks of works on the Kai Ching project. Do you see that?

答：睇到。

問：It is dated 14 June 2012; do you see that?

答：睇到。

問：So that's one month before you ceased to be the CBSE for Kai Ching; do you understand?

答：又唔係。啟晴就係--我係 11 年 9 月開始處任 CBSE。咁就當其時啟晴就其實我應該係 11 年 9 月初開始，我就係做 CBSE，直至到 12 年 7 月，咁因為呢份嘢就係 12 年 6 月 14 號，咁所以我應該嗰陣時我都係呢單項目嘅 CBSE。

問：I thought that's what I put to you, that this is one month before you stopped being CBSE or ceased to be the CBSE. Do you understand?

答：知道。

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問：Thank you. This is a memo which says: "We would like to submit herewith the material delivery note during the period from 1 June to 15 June 2012 ..." We see at the foot of the page it's copied to Mr Henry Luk, who I understand was the project architect on Kai Ching. Can you confirm that?

答：正確。

問：And also to the senior clerk of works, Mr CH Wong; do you see that?

答：睇到。

問：And also to the project quantity surveyor, Ms Cynthia Szeto, who I understand works for an outside consultant, Davis Langdon & Seah?

答：係，正確。

問：Although we note that they don't seem to have been copied with the attachments, that is it says "(w/o)", without enclosures; do you see that?

答：睇到。

問：The only reason for showing you this, Mr Leung, is this. If you go over the page, please, to page 1373 --

答：睇到。

問：-- you should see a delivery note, which has caused some interest in the Commission of Inquiry so far, and also, if you go over another couple of pages to 1375 --

答：睇到。

問：-- you will see another delivery note from Prosperity. So those delivery notes are going to certainly two representatives at least of the Housing Authority. Could I ask you then just to go to page 1394.

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答：睇到。

問：That's another memo, slightly later, 23 June 2012; do you see that?

答：睇到。

問：What it says here is that what's being submitted, at 1: "Table 1: Summary of material delivery on site checked under form 6210." And secondly: "Delivery notes of the material which is not covered in table 1." Do you see that?

答：睇到。

問：The memo is copied again to the same people, with the addition of Ms Elaine Wong, another project architect.

答：睇到。

問：As it happens, amongst many other things, if you go page 1415...

答：係，睇到。

問：...the same delivery note we were looking at just a moment ago was sent again, and if you go to page 1417, you will see the other delivery note we were looking at just a moment ago.

答：睇到。

問：What I want to ask you, Mr Leung, is this. Obviously I can't ask you whether Mr Sheung and Mr Woo looked at these documents. I have no idea. But can you tell us, the project clerk of works having received this memo with the attachments, what would have happened to them? Where would they have gone within the Housing Authority?

答：因為建築師嗰個駐地盤個團隊，就唔係 under 我嘅 supervision。咁同埋供水系統嗰個 contract admin 都係建築師團隊做，咁變咗

呢樣嘢我真係冇資料。

問：So there's no set procedure that you are aware of, as a senior member of the Housing Authority, as to what should happen if memos are given by contractors to site staff on site?

主席：呢個唔使答，佢答你唔到，答你唔到，Mr Pennicott。即係你問我 judiciary，第二啲嘢我都唔知點答，係。

MR PENNICOTT: All right. I will leave it there. Thank you very much.

主席：Thank you。仲有冇人？冇人，係踴躍啲，快啲，後面有人問，係，快啲，Mr Chung。

鍾先生：我姓鍾，代表保華。其中一個項目就係個榮昌，榮昌屋邨，係想跟進兩個關於嗰個風險，risk 嗰個問題。

鍾先生盤問

問：剛才黎專員嗰陣時間，就舉--見到你嗰個證人口供裏面，嗰個 recommendation，其中有一個提議，就係將來嘅 project 就可以用一啲 compression 或者 push-fit 或者一啲嘅 press-fit。咁你剛才嗰個答案，就係你覺得嗰個有啲解決咗或者減少咗個鉛嗰個問題，但係你就唔係好肯定，對嗰個功能上，或者尤其是你提到，就喺嗰啲單位裏面，如果佢唔夠 strong 嗰陣時，佢會漏水嘅問題，係咪？咁我有個問題想--想有一個 paper 想同你提一提。房委會就有一個獨立嘅 Review Committee，佢喺 10 月 6 號嗰陣時出咗一個 interim report，你有冇睇過嗰個 report？

答：有，有睇過。

問：你有，okay，好。咁我想睇睇嗰個文件係同呢個有關係。呢個文件就係文件夾 B3.1/38，嗰個頁數係 1164 頁，唔該。

答：睇到。

問：裏面提到--第 12 段，唔該。裏面提到就第七次嘅會議裏面，就同你哋嘅 Estate Management 嘅同事嗰度，就有傾過關於呢個鉛水問題，就係特別就提到保護同埋佢哋嗰面嗰嘅經驗。咁第 12 段，或者你用少少時間睇一睇，12 段，好冇？

答：好呀。睇完，唔該。

問：呢個當然就係佢哋嘅意見，我只係想問一問就係做 Chief Building Services Engineer。佢哋就好可能就係亦都事實上掌握嘅資料、問嘅資料可能多過你今日，不過佢裏面大概個意思，你就睇下同唔同意，就係話即是係其實喺 maintenance 嗰方面嚟講，佢哋係一路都係用緊一啲 compression joint，咁發覺嘅問題係比較少，咁呢個就係佢哋嗰個感覺。同埋嘅 members，即係佢講緊佢哋嗰個 Review Committee，都同意係少啲 risk，係關於呢個鉛水。咁我哋睇睇佢點解會講呢一個係有個咁嘅結論，或者有個咁嘅綜合，其實佢後面房署就畀咗一個 paper 佢，嗰個文件就係 RC 29/2015，嗰個文件夾係 B3.2/26，唔該。

答：係，睇到。

問：個 screen 嗰度，請去第一頁先，唔該。下低一啲，唔該，應該係第 2 段同埋第 3 段，有一個表。

答：第 3 段？

問：係，第 3 段。我哋睇到簡單有一個--啲數字喺度，如果係右手面下低睇，我哋睇到 1,188，係 block，係相當大量。

答：睇到。

問：如果左手面我哋睇到有啲 copper 同埋 non-copper。咁佢中間就分咗一啲就係你哋--你用--經常用就係駁口，就同埋一啲嘅可能走廊、大堂嘅地方。我哋大致上睇到，可以望一望有 soldering 嗰啲，最先最高嗰面就 151 個，跟住 compression 嗰度有 503 個，下低 mechanical 就視乎--如果你睇番嗰度，mechanical 喺個 common area 度有 163，咁 in flat 嗰度下低都有，咁大體上佢嘅主力都係用 compression joint。咁我哋想去睇一睇第 5 頁，sorry，第 5 個 paragraph，第 2388 個頁。

答：睇到。

問：第5段，或者你望一望。

答：睇咗。

問：麻煩你睇埋個 footnote 1。

答：睇到。

問：兩個加埋嘅理解，就係你哋嗰個 Estate Management 嗰面啲同事，我哋講緊係幾百棟樓，有啲情況就係小型嘅維修，但係如果你睇嗰個 footnote 1 嗰度，其實係有啲可能好舊嘅屋邨，唔係因為呢個鉛水嘅問題，佢好舊，佢係全個屋邨需要 re-plumbing，嗰個理解即是話全棟屋邨要再做過啲水喉，其實同新造嗰個量係一樣，不過住緊裏面嗰--我想問一問你個程序，如果全座樓都要做 re-plumbing，嗰種情況係搬--嗰種咁大型，嗰啲住客係搬咗出去，然後至一次過當一個項目咁做，定係一個分段嗰段時間，住緊係做...

主席：同我哋有咩嘢關？同我個 terms of reference，同我嘅 recommendation，同佢任何一個 terms of reference 有咩嘢關係，啲住客點樣搬出去？

鍾先生：或者我想講一個 point，就係房署喺通過呢一個全個 board 裏面再去做 re-plumbing 嗰陣時候，佢都係用 press-fit 或者係 compression joint，都似乎有漏水嘅問題。同埋我哋上一次問過你一個總嘅 property manager，佢個理解都係有漏水問題。

主席：我就係想知道，因為佢--其實所有嘅人都係話建議我哋可以 explore 下第二啲方法啫，呢個係其中一個 recommendation。咁我唔需要去到咁 details，分析每一個 compression、mechanical、press-fit、push-fit 嘅 advantage、disadvantage、cost、cost implications、inconvenience to 啲 residents，我諗我唔需要去到咁詳細啫？

鍾先生：咁我或者我 move on 去下一個問題。

主席：吓？

鍾先生：或者我 move on。

主席。係。

鍾先生：Okay。

問：另外就關於正話--主席之前都問過你，就當時係用緊個 context 係個 BS 1254，其中個 table 6。裏面就提到有三樣嘅 risk，即係我哋--當時你提到就係第一個，你就知道 in general common sense，鉛係對人體有害。

答：冇錯。

問：第二個、第三個就係鉛走咗落啲水嗰度，嗰個你當時就係--當時嚟講係冇認知，之後就點樣再影響人體嗰個，我哋冇 touch 落去。咁就講番嗰度，我記得你提到 BS 嗰個 1254 或者之前 864 嗰陣時，你係特別提到係知道嗰啲 solder 唔應該有鉛嗰陣時，你係用咗啲水係 for human consumption?

答：佢--即係 864 同埋 1254 都係清楚寫明，即係如果係 for human consumption，就唔可以用有鉛嘅 solder。

問：所以就差少少，即係剛才亦都睇過。咁如果係啲水嗰個銅喉係 for human consumption，而個銅喉裏面係一個 solder joint，solder joint 係唔可以有鉛嘅話，咁其實係咪好容易理解，擔心個有害係影響啲 human consumption 嘅水，你覺得咁樣有冇認知，咁樣 put 就?

答：因為如果睇番 02 年，當其時同事寫呢個規格落去，就因為工程師做嘅嘢就好 strict 真係，即係佢真係睇啲 rules，睇啲 guidebook 嚟做。咁如果嗰本 British Standard 係有個咁嘅要求，之前又有，而家又有，而水務法例亦都--水務條例亦都話要跟英國標準，咁我哋好--即係好 straight forward 諗就係有咁嘅要求啲，雖然喺 footnote，梗係寫埋落去。

咁就但係未必係會有聯想到，我雖然知--大家都即係一般有個認知，就係話鉛對人體係有害，即係呢個我相信大部分人都會有呢個認知。但係就未必會諗到，solder 如有有鉛，佢係會走咗落啲水，即係其實我哋未必諗到呢樣嘢。因為就算 British Standard 有寫到呢樣嘢落去，我哋都唔知，我哋都唔理解到佢點解要寫呢個要求落去。

所以我唔覺得--第一，我自己唔知，我都相信即係當其時寫呢個規格嘅同事，嗰組同事都應該係唔知。即係我相信佢嘅諗法同我諗法

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應該都係差唔多，因為我哋係做工程，就較為 strict 啲，即係我哋冇諗得兜嚟兜去。

問：我諗我唔會再跟進呢個問題同呢個答案。我第三個問題轉一轉，就係發生咗呢個鉛水事件之後，你哋喺 8 月中，嗰個 DCMB 就已經出咗一個嘅 instruction。

答：冇錯。

問：嗰個內容主要就去改動現有嘅 specification library，同埋就仲有其他嘅資料。咁我想去一去呢個文件，係 B15.1/337。

答：麻煩你講多一次邊頁？

問：B15.1/337。B15.1/337。Page number 37590。

答：睇到。

問：呢個文件想問一問，後面有個 distribution 嗰度就有兩位嘅 chief building services engineer，一個係 1，一個係 2 嚟，其中係咪有一位係你嚟？

答：1 係我。

問：Okay。咁你有留意呢個文件？

答：當然。

問：呢個文件我都唔 go to 嗰啲 detail，因為都經過晒。不過我有一個有興趣睇睇嘅就係有個 annex 3，annex 3 係 37615。

答：睇到。

問：37615 係一個 budget estimate 嚟，裏面提到如果新嘅合約，每一棟有兩個部分，一個叫 building contract 個 additional cost，就係我哋睇到係七萬釐。後面就係有一啲嘅 material testing，後面嗰頁。

答：係，睇到。

問：咁兩個加埋就係十二萬一個 block。咁好明顯就加強咗嗰個測試同埋人手，咁就喺房署裏面就要 incur 呢個 cost？

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答：冇錯。

問：咁相對上落標嗰個時間，就係你哋會理解，承建商或者落標嗰啲，佢哋亦都會因應嚟講，就有需要人手，話要加多啲嘅 test，係會佢哋落價嗰陣時包咗，係咪？

答：係，佢應該反映番即係佢使多啲嘅錢落個標價度。

問：係。咁裏面睇個 footnote，如果你睇 37615，裏面講到就係 “Estimates for budgeting purpose are only applicable to new building contracts to be tendered, ie not applicable to post-contract variation works.” 我正話睇過你 witness statement，關於 building service 嗰面，個 contract manager delegate 畀你，作為佢嗰個 contract manager 嘅 representative。

答：係。

問：咁裏面我哋之前就喺早期少少嘅 Inquiry 裏面提到，如果有測試，喺 post-contract 嗰陣時，增加啲測試嗰陣時候，contract manager 會通過佢嗰個機制，GCC 裏面就出個 instruction，呢個你經常都會發生，係咪，如果有 additional work 就？

答：如果我哋出 variation 就當--就經常會發生。

問：係，咁...

答：但係如果出 variation work 係 order 個 testing 就相對唔多，通常我哋係對...

問：係，唔多。咁但係--呢度有提到，就係個 note 1 就有提，呢個就係如果--正話提嗰啲 cost 就唔包括，唔 applicable to 嗰個 post-contract variation。

答：唔係，佢意思即係話而家譬如 page 137615，七萬釐一座，就意思就係呢個估價就係喺 tender 度，每一座估計就係會承建商有機會就係 price 多七萬釐每一座。但係如果係 post-contract variation，即係要同佢傾嘅，...

問：係，冇錯。

答：...呢啲全部係... (聽不清)，咁就未必係七萬釐，...

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問：諗...

答：……即係可以多--可以即係有一個合理啲嘅 range 啲啲。

問：呢個你答得好清楚，我哋唔去研究幾多錢，我哋想知道個機制係咁樣運作，咁呢個 topic 完咗。我最後問一個 topic，就係關於你有冇留意到 HKIE 呢個 professional body，佢出咗一個嘅 report，係關於呢個鉛水事件嘅？

答：我知道。

問：你知道，係咪？我哋唔好 going into detail 嘅，我只係想提出有一、兩點，嗰個可能你 common sense，或者你知道，係佢哋會員可能會知道。呢個文件係 U1.3。

答：唔該。睇到。

問：第 6 頁，唔該。

答：睇到。

問：我哋簡單啲，其實係唔需要睇啲啲細節嘅，但係我哋睇睇佢哋嗰個 task force，我哋大概睇到佢哋個 task force 主要都係--因為 HKIE 就好多 disciplines 嘅，有土木工程師、結構工程師，咁有你哋嗰個專項。大部分都係 building services engineer 嗰個背景，我哋大致睇到係。

答：冇錯。

問：咁細節唔使睇，我哋睇第 9 頁。

答：你講係 bundle 嘅頁數，定係個 report 嘅頁數？

問：正話嗰個係 bundle U1.3，page number 嗰個文件個 report，而家就你睇番佢嗰個 paginated 嗰個，第 9 頁，如果佢嗰頁應該係第 2 頁，第 5、6 段嗰度--第 6、第 7 段。

答：睇到。

問：裏面提到就係個 task force，主要佢嘅成員就係 building services 嗰面嘅 engineer，佢包括咗佢哋自己嘅 Building Services 嘅 Division，同埋英國嘅 Chartered Institution of

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Building Services Engineers，仲有另外嘅代表就係你哋個會裏面係 Australian、Canadian 同埋 UK Chapter。

答：睇到。

問：呢個主要就講講佢哋個組成。咁我哋 go to 一個比較直接有關嘅問題，我哋去 go to page 31，COI 嗰度 31 嘅，你個個 page number 係 24 嘅。

答：睇到。

問：我哋聽咗好耐講，就係你哋 2002 年引用或者准許銅喉作為一個 alternative 嗰個時間，之前係嗰個業界已經有用銅喉用咗一段時間嘅？

答：業界當其時其實八零年代開始用嘅，即係銅喉加 solder joint。

問：係。咁我哋其中一個好有關嘅問題，就係嗰個業界有冇類似嘅問題？咁有一樣我提出嘅，就係話第 96 段，佢話其實喺大部分嘅私人嘅發展項目裏面，我哋唔見到啲銅喉嘅，通常啲銅喉係 conceal 咗，有時喺天花，有時喺啲裝修嘅後面嘅，呢個 in general 你同意嘅，係咪？

答：如果私人嘅物業會，因為佢哋注重個樣。

問：係。我相信你哋係維修保養嚟講，所以你哋啲喉多數係外露嘅，係咪？

答：外露，我哋全部外露。

問：呢個我哋明白點解係要咁樣做。咁但係如果我哋睇後面嗰段--我哋睇番 96 段。

答：對唔住，聽唔清楚。

問：係，96 段。因為佢哋嘅私人項目，因為佢哋係收埋咗，係 conceal，如果萬一漏水，佢哋嗰個維修成本係更加高，正正就係因為咁嘅原因，你哋就外露。咁佢哋因為咁嘅 concern，佢好多時嚟講，即使係貴啲嘅話，我哋睇後面嗰頁，佢哋係用 silver brazing 嘅。咁我繼續再睇，帶你睇一睇先，麻煩睇 96--98，對唔住，98 段。

答：睇到。

問：係。裏面大致講就係啲工人就係唔係好 comfortable 係用嗰個 silver brazing 嘅，個原因如果睇 99，就係 silver brazing 所需要嘅溫度高好多，同埋用嘅 equipment 係唔同，如果係 tin solder，即係我哋講緊而家嗰個 solder 有鉛，唔應該有鉛嗰隻係 200 度嘅啫。咁 98 裏面亦都提到，有時係講緊可能純粹講嗰個焊嗰方面係貴三位倍，但係你整項嚟講可能係唔係咁緊要。咁睇番 96，最高嗰度，所以有啲 developers 係只係准許用 silver brazing，呢個如果純粹係比較數據，好明顯就係如果冇用鉛嘅，出事咪少啲。咁你哋嗰陣時你理解，冇理解到用銅喉嗰陣時，除咗用銅喉，有其他嘅考慮，例如用其他嘅方法，就唔會有呢個含鉛嘅問題，你哋當時你理解冇，或者而家都有嘅呢？

答：因為我需要有參與嗰個中央，即係 central team 去 02 年改動嗰個規格，但係如果睇番而家寫落嘅規格，我哋嘅寫銅喉加 solder joint，咁就當然即係可以用，其實我哋個規格都容許 brazing，我哋兩樣都接受，咁就由承建商自己去選擇，究竟佢用 solder 定用 brazing，但係好明顯，因為做 brazing 就會貴啲，而且咁所以一般承建商佢都係會用 solder。咁個問題就係其實我就對呢個文件有啲數字，譬如第 99 段，佢話燒銀焊係 400 度至 450°C，其實我有啲保留嘅，一段係去到 800°C 嘅，佢要燒到成條銅喉係通紅，先至落得銀焊嘅；第二，銀焊其實都有問題，都有個 concern，即係如果睇番話關於即係衛生或者健康嘅問題，因為銅--因為 brazing 有啲如果你睇番 1254 嗰個英國嘅標準，table 6，有六樣嘢嘅，頭三樣就 solder，尾三樣就係 brazing。咁 brazing 亦都係有啲種類係有 cadmium 嘅，咁 cadmium 都係一個重金屬，亦都即係鉛水事件發生之後，水務署出嘅通函話而家要驗多四隻重金屬，亦都包括 cadmium 嘅。

咁其實如果即係 with hindsight 睇番轉頭，即係 either 用 solder 或者用 brazing，其實都可能有個風險喺度，即係如果有承建商或者工人係偷雞的話。咁我睇唔到即係有咩嘢絕對優勢要用 brazing，因為 brazing 點解我覺得即係就咁睇番，即係純粹用技術角度去睇，brazing 要燒風煤，風煤即係有兩支氣，一支就係 oxygen，一支就我唔記得清楚係 potassium 定乜嘢，咁佢要出到嗰個火，因為 energy 係好犀利嘅，如果唔係佢唔會 attend 到 800°C 嘅，咁燒嘅時間係好長，同埋你咁多--即係我先頭提供我哋一座樓有幾萬個 joint，咁係要幾多工人帶住晒呢啲咁嘅 gas，即係喺我哋成個樓宇度周圍去做，咁就我睇唔到有咁嘅需要。

問：或者我--你會唔會咁覺得，因為私人屋宇其實都好多個單位嘅，佢哋

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都係要咁樣燒？

答：唔係，私人屋宇一座就有幾多個單位，即係佢一層可能八伙，四十層，咁咪三百二十個單位，已經好大。但係我哋嗰啲係八百至千幾，即係我哋--單位數目我哋應該係多過即係私人大廈好多。

問：跟進下正話個問題，正話出現咗 lead 嗰個問題，水務局嗰陣時再新加嗰四個指標，其實都包咗個 cadmium 嘅？

答：係呀，包咗。

問：咁你理解之後，出咗呢個指標，無論你哋去驗水，同埋水務局，其實有冇驗 cadmium 有冇過量呢？

答：因為我自從水務署出咗呢個新指引，就我哋即係近期完成嘅樓宇都相對唔多，即係我哋多數係即係三--即係我哋每年嗰個所謂 financial year 係計三月，咁所以我哋大部分好多時啲樓宇都係近我哋嘅 financial year 尾嗰季就較為相對高，所以呢段時間就相對唔多，但係我哋都有驗過嘅。咁就嗰四個重金屬，即係驗過嗰啲都全部係 okay 嘅。

問：即係主要嘅問題係暫時嚟講就係鉛？

答：如果我哋驗到 okay，嗰啲鉛都有事㗎嘞。

問：係。

鍾先生：我有其他問題，唔該。

主席：唔該。

譚先生盤問

問：其實我得一條問題。頭先都講過下啲穩定性等等，其實我想知呢個 soldering joints 同埋同 compression joints, soldering joints 係咪即係接駁嗰個員工個時間係咪快好多？

答：其實時間上唔係睇好遠。

問：唔係睇好遠？

答：唔係睇好遠，但係即係你講 compression joint 同 soldering joint？

問：係。

答：係呀，其實要做一個 joint 唔係睇好遠，但係要用嘅勞力，即係工人要用嘅力就 compression joint 要高，因為我哋啲水喉全部係高位，喺高位，佢要揸住兩個即係喉鉗或者士巴拿，就相反方向扭，去扭實佢，咁變咗就如果講嗰個生產力嚟講，同一個工人，咁就可能喺計埋生產嚟講，可能做 compression joint 佢做唔到咁多，但係做 solder joint 就會做得多添，同埋 solder joint 嗰陣時做好嘅，又試過壓力測試，就係好穩陣，十幾、廿年都有事。

但係 compression joint，第一，佢個扭嗰度力有幾大咁樣，係咪好妥當，就算佢最初，initially 即係你試壓力測試冇事，但係因為 run 時嘅水喉有水行，我哋將啲水喉個水龍頭開門，其實啲水喉裏面會有輕微震盪，因為我哋叫做水錘 (water hammer)，有個 water hammer 嘅喉個嗰，咁啲水喉會震，咁經過一段時間嘅震盪同埋天氣嘅熱漲冷縮，其實 compression joint 幾年之後，少少鬆就即係都唔係唔常見，咁所以最妥當嘅方法，即係我哋當其時認為 soldering 係一個即係合乎成本嘅效益，亦都係好妥當、好穩重嘅做法。

譚先生：好，我有嘢問。

主席：冇嘢問？

何先生：咁呀有。

主席：你要問幾耐？

何先生：應該唔使太耐。委員會係咪諗住想如果我譬如十五分鐘我問完...

主席：你有十五分鐘咁耐？

何先生：我...

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主席：你有十五鐘，咁呀食完飯先至問，如果你話五分鐘問完，咁呀晏晝唔使返嚟。

何先生：咁呀？

主席：係呀，你自己決定。

何先生：我不如問試下五分鐘，咁就唔返嚟。

主席：係，因為我嘅經驗，其實你嗰啲複問好多都唔需要複問嘅，係。

何先生：唔緊要，試下。

主席：唔，係。

何先生：好呀。

何先生補問

問：我想同你即係討論番一、兩個問題。就你頭先答黎先生嗰個問題，就係嗰啲 press-fit 同埋嗰個...

答：Push-fit。

問：...push-fit 嗰個，而家係研究緊可用嘅階段？

答：係呀，而家係研究緊㗎咋。

問：即係未有定案嘅？

答：未嘅，未嘅，未可以定案，都要一個長嘅時間。

問：係。咁就關於嗰個你亦都曾經頭先同鍾律師提問嘅時候，亦都講過話即係 silver brazing 唔係一定係好啲嘅，即係佢都有佢嘅局限，所以到底嗰個 joints 係用 solder joints...

主席：答咗，答咗，係。

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問：...都唔係一定有個問題？

答：我覺得冇絕對優勢。

問：唔。你所謂嘅就係話如果冇乜--如果唔係啲承建商偷雞，就應該 solder joints 亦都唔係個問題？

答：絕對係一個好嘅選擇。

問：絕對係一個好嘅選擇，唔。好呀，咁我想同你講，就係睇番 2000 年 B2 嗰個 specification, 779。淨係呢個係講嗰個 red lead 嗰度，只係想澄清番一點，就係頭先黎生亦都有問過你呢個 red lead...

答：係 page 係...

問：779。

答：779。係，睇到。

問：係咪？即係你頭先就講話呢個據你而家諗番轉頭，可能呢個都係講緊嗰啲係 cast iron pipe？

答：冇錯。

問：係咪呀？

答：唔係銅喉。

問：咁而且係講緊係去水位嘅？

答：係呀，唔係供應食水嗰啲嚟嘅。

問：唔係供應食水。所以如果係講緊去水嘅就一定係同衛生、health 嗰啲唔係有直接嘅關係，係咪？

答：同衛生都有關。

問：同衛生有關，但係講話飲落肚嗰啲。

答：係，就唔係飲落肚嗰啲。

問：係，okay，冇錯，冇錯。okay。銅喉，我哋--你頭先就話銅喉，同埋用 soldering joints 嗰呢個 construction industry 都八

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十年代開始用？

答：係。

問：唔。去到二零...

答：我講係香港嘅 context，即係喺 local，香港。

問：香港，香港，冇錯，冇錯。咁去到 2002 年，你哋轉即係話有可能畀大家用銅喉嗰個時候，有冇啲乜嘢嘅衛生方面或者 health 方面個 concern 係當時你哋會 aware？

主席：生鏽。

何先生：除咗生鏽--生鏽因佢係有個 iron pipes...

主席：咪係，咪舊嗰個生鏽個囉，就係。

何生生：但係講緊用銅喉嗰個問題。

主席：佢都未用過。

問：唔係，你當時有冇話因為我--你冇用啫，市場有用，其他嗰啲 developer...

答：唔係，因為我就唔係喺個 central team 度處理呢樣嘢，但係我都冇聽聞過有呢個 concern，因為最緊要就係用嗰陣時，呢個銅喉加 solder joint 喺香港已經用咗超過二十年。

問：係嘞，即係...

答：咁就呢二十年過往即係都有乜嘢事件發生過係關於即係衛生，或者...

問：用銅喉會唔會產生一個衛生問題，嗰個...

答：冇聽過。

問：因為如果你話 2002 年你可以即係容許啲 contractor 去揀嘅時候，如果真係有個衛生 concern，當時係應該會睇得到㗎喇？

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答：冇錯，冇錯。

問：係咪？

答：係，正確。

問：當時係冇乜特別個 concern？

答：絕對冇，絕對冇。

問：所以就容許佢哋去即係自己選擇，係咪？

答：係，冇錯。

問：係咪？

答：正確。

問：我唔係聽得好清楚，可能有一個小問題，我唔知我有冇聽錯咗。就係頭先阿許律師問你關於何標記嗰個 statement，咁你就話喺而家--即係以前你就話冇聽過話嗰啲工人會喺個 sample room 做一個燒焊示範？

答：係，我 7 月之前冇聽過，...

問：7 月之前就冇。

答：...但係最近就聽過。

問：而家係聽過嘅意思，係咪因為何標記入咗張 statement，咁所以你就係咁樣就係聽到...

答：唔係，我記得好似唔係何標記，係另外一間嘅。

問：對唔住，係明合，頭先問嗰張 statement 搵出嚟嘅時候，明合。

答：好似係，有利嘅好似係。

問：係。你係話咩嘢情況有--即係你而家 7 月之後係咩嘢情況？

主席：我哋知道，唔使問，係。

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答：唔係，即係我意思即係話最近我哋見過有張 statement...

問：一張咁嘅 statement，佢咁講嘅？

答：佢提到佢有喺 site 做 demonstration 畀我啲同事睇，咁我喺嗰個原因之下我知道呢件嘢，但係我自己就未見過。

問：亦都未聽過？

答：未聽過。

問：Okay，唔。

主席：冇嘢問？係。

何先生：冇嘞。

主席：實際上其實即係只要問一樣嘢就夠㗎嘞其實。不過唔緊要。

何先生：咁我諗有啲嘢澄清番。

主席：係。冇人有嘢問？冇人有嘢問，好。

唔該晒，梁先生，多謝你嚟畀證供，可以走得。

答：好，多謝主席同委員。

主席：嘎。

許偉強先先：時間表，就因為尋日我哋冇嚟到，咁有利嗰邊大律師團隊就話會返去傾一傾，咁就我想都睇一睇會唔會有啲嘢跟進嘅。

主席：唔係，首先第一樣嘢，我哋就處理咗 Mr Ho 嗰個--Mr Hui 嗰個問題，咁佢就話希望如果咩嘢方便呀？

許仕賓先生：我哋有考慮過，主席，我哋暫時無需要... (聽不清) 嚟模仿聆訊委員會代表大狀嘅模式。

主席：得，咁即係你請坐。係，Mr Li，咁你又點？

李先生：主席，因為我今朝聽到好似話房委員仲有證人仲會出席嘅係...

主席：冇嘍，暫時冇嘍。

李先生：...完全--有一個姓梁嘅員工係...

主席：唔會係喺而家呢個階段。

李先生：我哋個情況係咁，因為能夠了解，畀少少背景資料，我哋係十月二十一號先至擺第一批嘅碟係關於呢個聆訊。

主席：幾時話？

李先生：十月二十一號。

主席：係。

李先生：大家已經好急趕去做，法官知道我哋代表三個 parties、六條邨。

主席：係。

李先生：當然計數要乘十八倍就唔係幾啱嘅咁講，咁但係都不比其他嘅代表係咪少過準備工夫，嚟緊如果真係要開，譬如話 you mean contractors，當然我哋另外一個關法，就係因為我哋永興同恆利有咗 Mr Khaw，就...

主席：聽唔到，再講多...

李先生：即係昨日許大律師就話關於永興同埋恆利嘅口供紙就呢兩日內會處理到，可以畀到我哋，咁我希望就係我哋得到呢啲口供紙之後，亦都有一啲時間去同我嘅當事人，即係將會畀證供嘅其餘人都會係再擺啲指示準備一下，先至好讓佢哋上嚟去畀口供。咁好視乎我哋--因為我哋係好需要，我哋先至可以準備得充足嚟到去畀口供，所以其實我哋個準備，當然唔單只個大律師嗰個時間表可能會有少少問題，呢個可以將就到，但係喺嗰個準備嘅時間同工夫上，我哋想要啲時間，如果畀到大概係一星期，咁如果一星期唔得，但係都好想要得多幾日嘅時間去準備我哋嗰個作供。

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主席：我唔會畀一星期你個喎。

李先生：係。

主席：如果你話要一日，我可以畀你。

許偉強先生：或者我補充一下。

主席：係。

許偉強先生：同埋我講話莫先生同埋蕭先生個口供，咁呀我哋應該兩份口供都應該喺今晚係 ready。

主席：係。

許偉強先生：咁就所以我哋可能有一個週末，李大律師佢可能如果下個禮拜，如果星期一佢想再同佢嘅客戶擺啲指示嘅，咁我相信即係以公平起見，我就冇乜特別嘅反對。不過就如果至於資料嚟講，除咗莫先生同埋蕭先生嘅口供，咁其他都已經齊備。

主席：係喇。

李先生：係，今晚嗰度嗰一個都畀啲時間我哋，我哋都可以講話禮拜一我哋約咗啲當事人開會，因為而家最早...

主席：聽唔到呀我。

李先生：禮拜一我哋係最早先可以約到時間去開會去準備，咁嘅情況下，當然有機會閣下--聽到閣下剛才個講法，就係當然唔會畀一星期我哋，但係如果係咁，我哋禮拜三去展開，因為禮拜一我哋係有大律師係可以處理到，咁禮拜三有啲--因為禮拜一我哋會開會...

主席：咁我哋做咩嘢，呢兩日？

李先生：我明，我明。

主席：係呀。

李先生：當然個不方便之處，但係咁我哋有我哋嘅難處，咁遲先擺到文件，仲要咁多嘅屋邨要準備，幾千頁嘅文件要同啲客人去再準備，再去睇。當然今晚我哋擺到啲其他再新嘅文件之後，我哋都要時間。

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主席：星期--我最--我只會畀一日你嚟咋，係呀。

李先生：係。咁...

主席：因為你有星期六、星期日，你個當事人係一間大公司嚟㗎嘛，唔使一定要搵個大公司最大嘅個，最大個個老老實實好多時都唔知，都唔係佢做嘅。

李先生：當然，閣下，我咁講，唔代表我哋禮拜六、日唔工作，其實我哋天天晚晚做到好夜添，即係...

主席：我知，我明。

李先生：如果係嘅話...

主席：係咪？其實你唔係你出--唔使一定你做，你有律師團隊，即係你有律師樓。

李先生：大家都好密鑼緊鼓嘅。

主席：我知，律師樓咁你唔做得，律師做得㗎嘛，...

李先生：係。

主席：...係唔係？咁你老老實實，我都望過，咁你搵個--你有利咩嘛，係咪？最高級個個呀？

李先生：係，係。

主席：Chairman 呀？

李先生：佢係...

主席：CEO 呀？

李先生：佢係最高級個個，係。

主席：係囉，係囉，咁佢其實實際上有冇做㗎，呢啲邨？

李先生：呢個等佢作供先問。

主席：吓？我諗唔會啱，係咪呀？

李先生：係。

主席：CEO 同埋 Chairman 落手落腳喺呢六條屋邨嗰度做嘢？

李先生，咁如果係咁...

主席：有利係咪上市公司嚟㗎，有利？

李先生：我唔知，我有買佢啲股票，我真係唔知道。

主席：唔知㗎，係咪呀？係喇，係喇。

李先生：如果咁嘅情況，聽到閣下個時間上嘅關注，咁我都明白，如果係咁，我哋都係禮拜二。

主席：係呀，最--畀一日你，就人--真係我覺得就--其實我就唔想，好老實。

李先生：係。

主席：最多一日。

李先生，多謝，閣下。

主席：最多一日。

MR PENNICOTT: Mr Chairman, can I make my usual Friday request for information. I made the same point last Friday. Could we be told what the latest position is on Prof Bellinger's report, and could we please be told what the latest position is on whether or not a plumbing expert is to be called?

Can I also make this enquiry from the Housing Authority: we understood that Mr TT Cheung, chairman of the Review Committee, is to be called. We wondered what the Housing Authority's position was on that.

許偉強先生：Prof Bellinger 嘅 report，咁我哋而家睇個進度，一定係可以喺 12 月頭係畀到大家嘅。咁就至於個 plumbing expert 個 report，咁其實我哋都已經出咗信，即係搵有關人士係畀我哋一啲進一步資料，咁我相信喺下個禮拜我哋開庭嘅時候，我就可以確實個

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個大概個資料係幾時攞到。

主席：咁星期二個囉嗰，咁 Mr Khaw 即係你都可以星期二，你星期一可以休息。

許偉強律師：補充多一點，就係原先房署嗰度，或者房委員佢哋另外應該仲有五位證人係有關 EMD 嗰個 department，即係 estate management，咁我哋睇過啲證供，就即係我本人就有乜嘢要問佢哋嘅，咁除非主席、委員或者其他嘅牽涉嘅人士，如果有需要問佢哋，我哋就唔打算--連讀佢哋啲證供都唔需要讀出嚟。

主席：我相信唔需要。

許偉強律師：唔。

主席：咁我哋星期二朝頭早 10 點鐘再繼續。咁有利行先個囉嗰？

李先生：係。

主席：你會叫幾多個證人？請問。

李先生：一名。

主席：係喇，一個證人，咪係囉？

李先生：六條邨。

主席：咁如果你話你哋個 chairman 可以答到晒嘅，咁咪一個囉，係咪？不過我有少少保留，是但你。

何先生：法官閣下，亦都我想知道而家嗰個諗法係唔係即係做晒啲 contractors，每一條--每一個 contractor 佢...

主席：Contractors、subcontractors 加 plumbers。

何先生：Contractor、plumber？

主席：係嘞。

何先生：Contractor、plumber 咁樣一路做晒？

主席：係嘞，係嘞，係嘞。

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何先生：咁當然我哋都仲係準備緊一啲資料去提供番，咁我哋亦都會有進一步嘅證人口供，咁因為委員會亦都畀咗 Salmon letters 畀某一啲現時或者之前佢嘅房委會嘅同事。

主席：係，係，係。

何先生：咁我相--我唔知我嘅諗法即係係咪就係你會做晒啲 contractors，...

主席：基本上。

何先生：...然之後就返轉頭做啲--再做番即係你話就...

主席：基本上，我哋會做晒所有啲 contractors 同埋啲 plumbers，咁跟住就會返番去再做房委會、房署啲啲退咗，譬如好似黃比先生，或者嗰個副署--助理署長。

何先生：係，係，我明，咁即係我就係想知道嗰個安排會大概係點樣。

主席：係嘞，就跟住話埋畀全部人聽，跟住就完咗呢一批證人之後，就下一批證人可能係水務署，...

何先生：多謝，法官。

主席：...水務署完咗之後，就會係我哋啲兩個...

何先生：專家。

主席：...專家，呢個就係我哋個次序，好唔好？

何先生：多謝。

主席：好，唔該晒。

2015年11月27日

下午1時10分聆訊押後

A *Annex: Realtime English Transcription based on floor / Simultaneous Interpretation* A

B Commission of Inquiry into Excess Lead Found in Drinking Water Day 17 B

C Friday, 27 November 2015 C

D (10.02 am) D

E (Transcript of simultaneous interpretation E

F except where otherwise specified) F

G CHAIRMAN: The next witness, please. G

H MR HO: The next witness is Mr Leung Chi Kwong, Eric. H

I MR ERIC LEUNG CHI KWONG (affirmed) I

J CHAIRMAN: Please take a seat, Mr Leung. J

K Examination-in-chief by MR HO K

L MR HO: Chairman, Mr Leung has nine witness statements. The L

M first five, other than the difference in the names of M

N the estate and the workers, the number of workers, and N

O also the nominated subcontractors, the names would be O

P different there. P

Q I propose that I read out one of them, and that Q

R would be enough to cover first five housing estates. R

S Other than some of the minor details, the versions are S

T basically the same. For the remaining four, there are T

U some differences, so I will be reading out the U

V differences. So, for the remaining four, though I won't V

be reading out the statements one by one, like fire

services subcontractors, there will be differences.

The first one I would like to read out is Kwai Luen

Estate Phase 2. That's at page 37851, in B15.1.

(Paragraphs 1 to 45 were read in English)

- 1 -

Transcript by DTI Corporation Asia, Limited

C Let me try it like this. Mr Leung, I read out the
witness statement, your witness statement, in relation
D to Kwai Luen Estate Phase 2. Do you have any
E amendments?

C

D

E

A. No.

F Q. Would you adopt this statement as your witness statement
G for the hearing?

F

G

A. Yes.

H Q. The witness statements similar to this version, there
I are five copies, and I would like you to have a look at
J page 37883, also 15.1.

H

I

J

A. Yes.

K Q. Through to page 37897.

K

L A. Yes.

L

Q. And the three annexes. Have you got that?

M A. Yes.

M

N Q. Don't just nod your head. You have to say, "yes".

N

A. Yes, I do.

O Q. This is in relation to Wing Cheong Estate, your witness
P statement. Would you confirm this as a true statement?

O

P

A. Yes.

Q Q. Other than the names, the dates, the FSWPs and nominated
R subcontractors' names -- other than those details, in
S relation to Wing Cheong Estate, basically this version
T is similar or basically the same as the previous version

Q

R

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A *Annex: Realtime English Transcription based on floor / Simultaneous Interpretation* A

B Commission of Inquiry into Excess Lead Found in Drinking Water Day 17 B

C that I read out? C

D A. Yes. D

E Q. For this Wing Cheong Estate witness statement, would you E submit this to the Commission as your witness statement?

F A. Yes. F

G Q. Also, page 37916 through to page 37930, and the three G annexes attached?

H A. Yes, I've got it. H

I Q. This is your witness statement in relation to Lower I Ngau Tau Kok Estate Phase 1.

J A. Yes. J

K Q. This statement is essentially the same -- with the K exception of some of the dates, this is the same as the

L Kwai Luen Estate statement. L

M A. Yes. M

N Q. Would you confirm that this is a true statement? N

O A. Yes. O

P Q. Would you submit this as your witness statement to the P Commission?

Q A. Yes. Q

R Q. Moving on to page 37948. This is Mr Leung's witness R statement for Shek Kip Mei Estate Phase 2, through

S to 37962. S

T A. Yes, I've got it. T

U Q. Again, there are three annexes? U

V

A *Annex: Realtime English Transcription based on floor / Simultaneous Interpretation* **A**

B Commission of Inquiry into Excess Lead Found in Drinking Water Day 17 **B**

C A. Yes. **C**

D Q. Again, with the exception of some of the dates that are different, would you confirm that this statement is **D**

E a true statement? **E**

F A. Yes, I do. **F**

G Q. Would you submit this statement as your witness statement for this hearing? **G**

H A. Yes. **H**

I Q. Thank you. Moving on to Tung Wui Estate, page 37980 through to page 37994. **I**

J A. Yes, I've got it. **J**

K Q. Again, there are three annexes? **K**

L A. Yes. **L**

M Q. Once again, this is your statement for Tung Wui Estate. Other than the dates and the names that are different from the previous version for Kwai Luen Estate, it is **M**

N basically the same? **N**

O A. Correct. **O**

P Q. Would you accept that this is a true statement? **P**

Q A. Yes. **Q**

R Q. Would you be prepared to submit this statement to the Commission as your evidence? **R**

S A. Yes, I do. **S**

T Q. All right. Please move on to the other four statements. The first one is bundle B15.2, page 38616. **T**

U **U**

V **V**

A *Annex: Realtime English Transcription based on floor / Simultaneous Interpretation* **A**

B Commission of Inquiry into Excess Lead Found in Drinking Water Day 17 **B**

C A. Sorry, I didn't get it. **C**

Q. Bundle B15.2, page 38616.

D A. Yes, I've got it. **D**

E Q. This is your witness statement for Hung Hom Estate Phase 2? **E**

F A. Yes. **F**

G Q. Your statement goes on to page 38630; can you see that? **G**

H A. Yes. **H**

Q. Again, there are three annexes?

I A. Correct. **I**

J Q. Page 38632 to 38639. **J**

K A. Yes. **K**

Q. There is a bit of difference to the Kwai Luen Estate statement, in that on page 38620, 10d -- I'm going to read that out in a moment -- and page 38625, paragraph 30 to paragraph 35, "Material submissions -- fresh water plumbing system outside water pump rooms" -- those are the paragraphs that are different?

L **L**

M **M**

N **N**

O A. Yes, correct. **O**

P Q. Let me read out the paragraphs that are different, for the record. Page 38620, paragraph 10d: **P**

Q **Q**

"(In English) the vetting and approval of plumbing materials installed outside water pump rooms (excluding sanitary appliances) submitted by the main contractor under the main contract at construction stage."

R **R**

S **S**

T **T**

U **U**

V **V**

Also, paragraph 30. These are under "Material submissions -- fresh water plumbing system outside water pump rooms".

(Paragraphs 30 to 35 were read in English)

Other than 10d and paragraphs 30 to 35 being different from the Kwai Luen Estate witness statement, and other than the difference in names and dates and the nominated subcontractors' names -- other than those that are different, essentially this statement is the same as the Kwai Luen one. Would you confirm that this is a true statement?

A. Yes.

Q. Are you prepared to submit this witness evidence to the hearing, to the Commission, as evidence?

A. Yes.

Q. There are four witness statements for this category. We are done with Hung Hom Estate.

Please refer to page 38640 for Yan On Estate. This takes us through to page 38654.

A. Yes, I've got it.

Q. There are three annexes attached. This is the witness statement for Yan On Estate. Would you confirm that this is a true statement?

A. Yes, I can confirm that.

Q. Are you prepared to submit this to the Commission as

C evidence?

C

A. Yes.

D Q. Thank you.

D

E Page 38665, Choi Fook Estate. Your witness
F statement runs from page 38665 to page 38679; do you see
that?

E

F

G A. Yes.

G

H Q. Again, there are three annexes?

H

A. Correct.

I Q. Do you confirm that this witness statement is a true
J witness statement?

I

J

A. Yes, I do.

K Q. Are you prepared to submit this witness statement to the
L Commission?

K

L

A. Yes, I do.

M Q. Then from page 38689 to page 38703, that's for Ching Ho
N Estate Phase 1; do you see that?

M

N

A. Yes, I do.

O Q. Again, there are three annexes?

O

P A. Correct.

P

Q Q. Do you confirm that this is a true witness statement?
Do you confirm that?

Q

R A. Yes, I do.

R

S Q. And you will submit this witness statement to the
T Commission; is that right?

S

T

U

U

V

V

A. Yes.

Q. Do you have anything to add on top of these nine pieces of witness statements?

A. No supplement and no revision.

MR HO: Chairman, I don't have any further questions.

Cross-examination by MR KHAW

MR KHAW: Mr Leung, you are the CBSE. I would like to clarify with you in relation to your responsibilities.

From your witness statement, you said, in relation to plumbing works, including up-feed pumps, booster pumps, inside the pump rooms and also plumbing works, you are responsible for coming up with the design and specifications; right?

A. Well, the entire plumbing system is being undertaken by the BS team.

Q. Now, in relation to sample submission and the approval of sample, I know that your team will take part in the work for the entire plumbing system, apart from the sanitaryware?

A. Yes and no. As I said in my witness statement, for the first five projects, the team, in relation to approval of samples, we were working on the materials in relation to the FSWP nominated subcontract. But for plumbing works outside the pump rooms, that is the responsibility of the architect's team. But for the last four estates,

Hung Hom Estate Phase 2, Yan On Estate, Choi Fook Estate and Ching Ho Estate Phase 1, apart from the materials used for the pump rooms, for materials outside the pump room, as long as they are within PLU1 then the BS team is approving those materials as well.

Q. Why is there such a difference?

A. In the past, the architect's team used to be the party which is doing the contract admin, including approving the materials, but for these four other projects, at that time the architect's team discussed with the BS team and the architect's team said that they would like to seek help from us to also take on the responsibility of looking at items, materials under PLU1. And the BS team was willing to do that. We were prepared to work extra-hard to accommodate that.

So, at that time, for these four projects, the BS team was also responsible for approving the items under PLU1 under these four projects.

Q. You said that the BS team was responsible for the approval for the other four projects. Is it because there were issues with manpower deployment or there were some special characteristics in relation to these four projects that warranted the BS team's involvement?

A. Well, there is no sort of set pattern of doing it or established procedure. For PLU1 specifications, the BS

team was responsible for writing up the specifications. That's why the architect's team had that request. Then my several colleagues said they were willing to go the extra mile to accommodate that. So, for these other four projects, we were responsible for approving the material submission under PLU1.

Q. And documents would be checked when you did the approval, and you would also be checking on the samples. Am I right in saying that the BS team was directly responsible for approving the materials, and then it would be your team, the BS team, who signed off the documents? But then, if you were not responsible for approving the materials, just like the former five projects, you were just giving advice, so the one who signed the form would be someone from the architect's team; is that right?

A. Yes, absolutely correct.

Q. Now I would like to look at the site supervision and site assessment. In your witness statement, you have made it very clear that in relation to water pumps works, your team would be the ones directly supervising the progress of works and whether the works were in order.

A. Yes.

Q. In relation to works outside the water pump rooms, you

were not involved in the site inspection works?

A. Yes.

Q. Now I would like to take you through the formulation of the specifications, especially PLU1. I would like to ask, Mr Leung, you were part of the team, were you involved in the compilation of specification PLU1?

A. PLU1 is part of the Specification Library, and for this library, there was a dedicated team working on it. This is what we call the central team, which was working on it. I was not involved in the work of the central team.

Q. Yes, I understand. But then, for the specifications, if the revision is required and then it is required -- we know there is major revision once every four years, and earlier another chief building services engineer, Mr Ng, told us that there might be some minor revisions once every half-year. Is this the usual practice?

A. Yes. There would be a new edition issued once every year, then major updates once every two years, and then minor revisions once every six months, if needed.

Q. Now, if minor updates are required, say, in a half-year interval -- I know there might be some updating of British Standards, so you might have to do revisions -- now, apart from such standards, international standards which might have been revised and you have to update your specs accordingly -- apart from those, would you be

updating them considering other factors?

A. We would also be looking at the actual operation of the site and also whether there are any changes of materials in the market, and then revise the specs accordingly. But then, usually, we would consult the trade before we do that.

Q. All right. In 2002, Mr Ng actually gave us a revision on specifications in 2002, and we know that at that time the trade and the HA were encouraging the main contractors to use copper pipes. Actually, there was a choice for the main contractors, as to whether they can use GI pipes or copper pipes.

On the subject of GI pipes and galvanised pipes -- well, are galvanised iron pipes the same as galvanised steel pipes?

A. The official name should be galvanised steel pipes. They are actually steel pipes.

Q. I would also like to ask: in 2002, there was a revision, revised version issued, and the central team was issuing it. There was a DC Management Board Instruction.

I would like to know whenever specification revisions were issued, was there something similar issued, the DCMB instruction, for reference by the relevant parties?

A. Well, especially for major revisions, that must go through the DCMB, before the instruction could be

issued.

Q. Now, from 2000 up to now, there was a revision of specifications in 2002. Was that exercise considered a major one?

A. In relation to plumbing works, yes, I believe so.

Q. Okay. Let's look at the document itself. B15.3, page 39600. The heading, "(In English) Use of alternative piping materials for cold water supply installations in HA buildings" -- can you see that?

A. Yes.

Q. You agree that, at that time, you were encouraging the trade to use alternative pipings, so that's why you thought that there was a need to revise the specifications?

A. To put it more accurately, can we look at paragraph 3 which has a little bit of background? At that time, we were using uPVC-lined galvanised steel pipes, but then, for this kind of pipe, the relevant parts could not be purchased at retail shops, and some households might change their pipes after they move into the flats and it's difficult for them to buy such pipes in the market. So instead they will use copper pipes.

Then, at that time, copper pipes with solder joints were widely used in the market at that time. So because of this consideration, there was such a revision, so we

are offering another option of copper pipings with solder joints as an alternative which could be used by main contractors.

Q. Let's look at the next page, paragraph 7. It also sets out that because of this choice of alternative piping materials, it is said that the project team will prepare different designs; is that right?

A. Yes.

Q. Let us compare the revised specification to the original ones. I can see that -- well, let's turn to page 39615.

A. Yes, I can see that.

Q. Page 39615, the last part, SUP 1.M174.N, "Fittings for copper pipework", and it sets out:

"(In English) ... copper alloy fittings ... end feed capillary, integral solder capillary ..."

Et cetera. And BS EN 1254 was also mentioned.

So let's do a comparison with the 2000 version.

That version is in B2. Let's look at page 780.

A. Yes, I can see that.

Q. On this page, "Jointing copper pipes" -- can you see that, in the middle?

"(In English) Joint pipes with non-manipulative compression fittings.

Joint pipes with capillary fittings."

In the year 2000, the specifications did not contain

C any mention of solder joints because they were not
used -- copper pipes were not used?

C

D A. Yes.

D

E Q. Lead-based materials -- let's have a look at page 779.
"Jointing pipes and fittings", the second part of it,
F "Lead-based materials".

E

F

G A. Yes, I've got it.

G

H Q. "(In English) Do not use jointing materials based on red
lead."

H

I Jointing materials here are in relation to the
J GI pipes?

I

J

K A. No.

K

L Q. What sort of jointing materials are we talking about?

K

M A. For galvanised steel pipes -- sorry, there are only two
L types. One is screw joints, the other one is flange
M joint. I think we are talking about cast iron pipes
N here.

L

M

O Q. Yes, cast iron pipes.

N

O

P A. Cast iron pipes would not be used for potable water; it
would be used for drainage.

P

Q Q. In the year 2000, there were no specifications for
R copper pipes, so in that year, since quite a lot of
R copper pipes would be used, and hence this
S specification?

Q

R

T A. Yes.

S

T

T

U

U

V

V

Q. Other than these changes in the specifications, there was quite a major change for more copper pipes to be used. Do you remember, with regard to this change, whether the Housing Department has conducted any assessment on the implications on human health?

CHAIRMAN: What was your post?

A. I was the senior BSE.

CHAIRMAN: Were you involved in this work?

A. I was responsible for specific projects.

COMMISSIONER LAI: Let me put a question. I am reading this:

"(In English) Do not use jointing materials based on red lead."

What is your interpretation? Why is it that jointing materials based on red lead should not be used -- what is your understanding?

A. This SUP was drafted by the architect's team. In 2002, the central team of the BS discipline published or promulgated this PI. We added the specifications for copper pipes. So Mr Lai, and the chairman, the question you put, "Do not use jointing materials based on red lead", that was drafted by the architect's team. For drinking water, we used DI pipes or GI pipes. For these two types we used flange joints. We didn't use red lead at all. I heard that red lead was only used for cast

iron pipes for drainage purposes.

COMMISSIONER LAI: At that time, was there an understanding that for connecting pipes, even cast iron pipes, materials containing lead should not be used?

A. That I'm not sure. These specifications are revised time and again, so we were only executing the guidelines. I don't understand, I don't know about the rationale behind it.

As regards copper pipes and the solder, there was the British Standard requirements that leaded solders should not be used for jointing pipes for drinking water.

MR KHAW: Let's have a look at 2002, B15.3, page 39616.

A. Yes, I've got it.

Q. In the middle, "(In English) Soldering alloys for copper and copper alloy capillary fittings". We have read them many times. The first one is BS 1254, and in (c) it is specified, "(In English) Use only lead-free category solders".

Am I right in saying this: your team at that time, because of these changes in the market that more copper pipes would be used, you understood that for solder joints, jointing copper pipes, lead-free category solder should be used?

A. Yes, we are clear about that. We all go by the WWO.

The WWO provides that we have to follow the UK standard. In the WWR, it is stipulated that we follow 864 standard.

When our team updated the specifications, they had regard to the fact that 864 was no longer applicable, so the new standard was BS 1254 part I. But in 864, it was clearly stipulated that for drinking water, the solder must be lead-free. There was such a standard in 864.

It is BS 1254, it is in fact in table 6. For solder alloy, there are three types. If you look at table 6, sections 2 and 3 are lead-free. Section 1 is leaded. Under table 6, there is a footnote that says that for potable water, it should be lead-free.

My understanding is that this is reflected in the specifications and it is a prudent approach, it was a prudent approach. Because the contractors and myself are not on the central team. If we look at the specifications, it is less likely to fall apart because it is likely to have some omissions if it is not specified lead-free, because we have to go back to the BS before we know the specifications. Colleagues are very busy; they cover so many different areas. If they do not follow the BS and if they fall down on the job, then there will be problems.

So, in these specifications, it is a prudent

approach, it is a pragmatic approach, to make it sufficiently clear. If you look at the ASD 1993 specifications, they use 864 at the time, BS 864 but it is made very clear that for solder joints, for copper pipes, we have to use lead-free category.

Q. Right.

CHAIRMAN: Let me get a question in here. It was sufficiently clear -- 864, it was 1998, it was stipulated that in 1998, 1254, basically they are the same -- this is a repetition.

From 1998 and 2002, you introduced copper pipes. In other words, despite the fact that you introduced copper pipes in 2002, but from the evidence we heard the copper pipes have been around for some considerable time.

A. Yes.

CHAIRMAN: Would you agree that since the British Standard in 1988, it stipulates that no leaded solder should be used.

From that time to 2002, if you used or if you installed the copper pipes in the private sector, it was very clear that lead-free solder should be used, and that was a common understanding on the part of the plumbers; is that right?

A. I agree with you on that, Chairman. These specifications are there for the professionals and also

for the frontline workers, and they are also meant for the contractors. So the way it is drafted is to make sure that people don't have to go back to the BS table and they should be aware of the requirements.

CHAIRMAN: So, for BSE, building services engineers, discipline -- we know there are so many different disciplines in building works, but as far as BSE discipline is concerned, there was no ambiguity at all that for piping work for drinking water, lead-free solder has to be used, and there was no controversy, there was no misunderstanding; everything was very clear. Is that correct?

A. If they refer to the specifications, it would be clear.

CHAIRMAN: What if they don't refer to the specifications?

A. Well, the BS discipline covers a broad spectrum of things. Water is of a minor, of a small category. They may come from many different areas. They may be familiar with electrical work but not water, or the other way around, and they may be familiar with water but not so much with electricity. But this is drafted because they want to make sure that everybody would be on the same page.

COMMISSIONER LAI: Mr Leung, in 2002, with this P25-02, you were the senior building services engineer and you knew about this document, didn't you?

A. Yes.

COMMISSIONER LAI: For other engineers, presumably they would also have access to this document?

A. Yes.

COMMISSIONER LAI: Do you think, back in 2002, with these guidelines being promulgated in your department, for the BSE, for instance, were there any discussions of this particular document?

A. Not that I recollect. We used copper pipes starting from 2002 in Hong Kong. It started in the 1980s. It is a common approach, to use copper pipes.

MR KHAW: Chairman, I lost track of my questioning.

CHAIRMAN: Yes.

MR KHAW: You said it was very clear and it was a prudent approach to specify lead-free solder. I am not sure whether you agree with me on this. As far as you are concerned or your team is concerned, the BS team, to use lead-free solder, it is intended to make sure that lead might compromise the water quality. Are you aware of that?

A. Common sense would tell us that lead is harmful to human health. That much I know. I am sure that my team -- I presume my team is aware of that, because this is common sense.

We understand that central team drafted the

specifications this way, and this was derived from the British Standard because under the WWO, we have to follow the British Standard, and 864 also has specifications. For prudent reasons, they put it in the specifications.

If the solder contains lead, we are not sure, we didn't know that it would cause lead to be present in the water. We didn't know the implications of lead in the water on human health, until July this year, after the revelation of the lead incident.

CHAIRMAN: Can you say that again? You know that lead is harmful. What is the next thing to say?

A. Yes. We know, I know at least, lead is harmful. If a solder joint is used for copper pipes and if the solder is lead-containing, and there is a risk that it might affect the water, we're not aware of the risk there.

CHAIRMAN: Hang on a second. You said you didn't know that if leaded solder is used, you don't know how it would impact on the water?

A. Yes.

CHAIRMAN: But if the British Standards set out categorically that solder materials should be lead-free, then one plus one, you can easily derive that it might be harmful.

A. Well, these international standards were drawn up by a number of experts over the years, and for whatever standards they put, they would not give the reasons behind. They just set out the requirement, that's it.

So, for the building services sector, there are so many applicable international standards.

CHAIRMAN: I understand that. I know that there are many different standards. I will just be more focused in my question. In 1254 part I, many requirements are stipulated. As I said earlier, wall thickness is one item, and also temperature, pressure -- so many items are included -- diameters, and so on. So many items are included. Dimensions of ball valves, and so on.

The central team is in the D&S section. Well, they didn't put down a lot. They didn't mention about diameter, wall thickness and pressure.

160, 150 -- well, I was referring to your specifications. They were silent on many things. But then there is one item which was highlighted, and that is there should be lead-free solder used and there should not be any cadmium in brazing materials. Do you get that?

A. Yes.

CHAIRMAN: Of course, I respect your witness statement and your evidence saying that you were not aware of this.

But my question really is: now, this cadmium is not allowed in this and lead not allowed in solders, so it goes without saying that there must be problems with these materials, or else you wouldn't have that kind of requirement.

A. I was not involved in the 2002 revision exercise. But then you mentioned about dimensions, diameters, thickness, and so on and so forth. There are really consistent standards. Well, there are three types of solders in table 6, instead 1, 2, 3, and then for brazing there are types 4, 5 and 6.

So the way it is worded here is appropriate and prudent.

CHAIRMAN: I fully agree with you. Now, they extract this particular item out and then put it in here; I don't have any problem with that. But my question is: you are highlighting this for what?

A. As I said, there are three types of solders, though they put it clearly that it's types 2 and 3, and also they include the footnote of table 6, which sets out the restrictions on the lead and cadmium. I am not very sure, but my guess is they might not be very certain about the rationale behind.

CHAIRMAN: Now, table 6, sections 2 and 3, there is a footnote saying that potable water, for potable water,

lead-free solders should be used for the pipes. We know that copper pipes can be used for many purposes: they can be used for transmission of gas and for accommodating oil, and so on.

If you add all these points or reasons together, would you agree that though it is not categorically said that lead may leach into the water, but then, if you add in all these factors, numbers 1, 2 and 3, then you would be able to arrive at a conclusion?

A. When the team did the 2002 revision, I think they were referring to the British Standards and also the Arch SD specs. For government specifications, it is also said that lead-free solders should be used.

CHAIRMAN: You talk about the Architectural Services Department; correct?

A. Yes. When we work on specifications, usually we will take reference from similar specifications of other government departments. So my guess is at that time the colleagues had taken a look at the British Standards, they also took reference from 864, and also the Architectural Services Department's specifications. So I believe these are the reasons for writing that in, and that might not have anything to do with their awareness that leaded solders might lead to lead in water and then that would be hazardous to health.

CHAIRMAN: I will pose a question to the relevant colleague who worked on it at that time. My suspicion is that they were not just looking at the government departments and specifications on the British Standards. Why I said so, because in item (d) there was mentioning of flux. This was not mentioned by anybody else. It was not mentioned in any other standards and that was added in.

A. Chairman, we did have some hard lessons to learn in the past. In the 1980s, we started using PVC conduits, which is like copper pipes but made of PVC. It was embedded in the concrete and then it was used for accommodating the electrical cables, and then the PVC conduits were adhered together by glue. But then some unscrupulous main contractors were not using the proprietary glue to connect the conduits and there were problems with that. I don't know whether it's because that experience was very vivid to colleague who worked on this specification, that's why the flux was also mentioned here.

Now, the same manufacturer might be producing copper pipes, flux, solders and so on; it would supply all the products you needed. So, on this document, the non-corrosive type of flux was also mentioned. So I would say that the colleague was very comprehensive in his job in drawing up the specifications, but that might

not have anything to do with his awareness of whether leaded solders might lead to lead in drinking water and then might be hazardous to health.

MR KHAW: Thank you. I would like to ask a question about awareness. In 2002 -- well, as you said just now, the footnote was written out clearly in the specifications. Do you know, in relation to solder used in copper pipes, there were different types of leaded and lead-free?

A. Of course I know about it. That was set out in table 6.

Q. Can I move now on to another subject, in relation to sample submission under PLU1 and PLU2. Many witnesses have told us that if we go by PLU2 in the contract -- the difference between the two is that for PLU2, samples of materials have to be submitted. For PLU1, apart from several exceptions, like valves, draw-off valves of washing machines -- apart from these items, generally speaking, documentary check should suffice. But then, based on needs also, and also the actual situation, samples might have also to be submitted.

Now, for soldering materials in particular, you might get the opportunity to really look at the samples themselves. So I would like to ask you this. Mr Ng Tat Kwan, in his witness statement, said that at the central level the HA might issue guidelines on what PLU1 want items to be where samples should be submitted by

the main contractors; are you aware of that?

A. I haven't seen such documents. Now, concerning the difference between PLU 1 and PLU2, as what you said, Mr Khaw, for PLU2 items, samples are required, but for PLU1, we would go mainly by documentary check.

Well, there are so many materials to be approved by the BS team apart from PLU1 items. For the materials to be approved by the BS, most of them come with documents only and not samples.

Now, why are documents so important? That would include the catalogues of the products. The catalogues would set out all the specifications and materials, composition, construction, dimension and also the British Standards that they are complying with; and then also test reports showing that the materials comply with the international standards; and also the approved documents of the regulatory bodies, for example, plumbing works, then the WSD's approval documents have to be submitted as well.

So at least these three types of documents have to be submitted. Why do we have to check the documents? Because we have to look at the technical composition and technical performance. If you just look at the samples, you would not be able to tell the functions. You can only look at the appearance, the coloration and the

texture of the components.

For PLU2 items, these are the things that we have to look at, by us and also the architect's team. For example, the wash basins, the WC closets, and so on.

For PLU1, only documents have to be checked, whilst the pressure the materials can withstand, the material composition and things like those will have to be checked through the documents. I mean, it isn't able -- we can't check those characteristics through samples.

So, looking at the different items, at the PLU1 and PLU2, I was not aware of any documents at the corporate level which tells categorically the difference. But if materials are used within a household, the common areas -- inside the flat in the common areas, we would normally look at the samples too, and the appearance -- well, especially the architect's team, they are attaching a lot of importance to the design, the coloration, and so on, apart from water pipes, of course.

If we talk about copper pipes, they all look the same. Galvanised pipes are similar in colour; ductile iron pipes have deep colours, and so on. So this is the only difference among the different types of pipes.

Generally speaking, when we approve the soldering materials, the main contractors -- apart from submitting

the documents, we will also submit the samples and the main contractor, as a usual practice, will also submit samples of materials, including soldering materials.

The PLU1 specification is drawn up by the BS team, and the way it was written was in line with the approach adopted by the BS team in checking the materials.

We seldom look at samples, apart, say, from lighting, because lighting can be seen by everyone so we have to look at the experience; the sockets of lights; and also the items in the household which can be seen by everyone. So we will look at the samples of these.

But then for, say, large-scale pipes and water pumps, then we would not look at samples. In any case, it is impossible really to submit samples. We think that documents should suffice.

The documents come with photos. Even if the main contractors don't give us the samples of the solder materials, the catalogue is in colour; we can see what the actual stuff really is, and that would be sufficient for us to have the record.

CHAIRMAN: So, for functional stuff, there is no need for samples? Things that have to do with the outlook.

A. There is a difference there.

(11.32 am)

(A short adjournment)

(11.50 am)

CHAIRMAN: Please continue.

MR KHAW: Before the break, you were giving us details about
PLU1 and PLU2 and whether samples were required.

So, in summary, for PLU2 items, you have to look at
the samples, and for PLU1, the items are the functional
items, so you will look at the documents and that should
be sufficient.

For soldering materials, as a usual practice, the
main contractors are still submitting samples of
soldering materials for your checking. We know that
this is the kind of practice all along.

A. As we know, for PLU1, no sample is required for
soldering material, but then the main contractors, as
I mentioned, will be submitting the majority of the
materials for the architect's team for approval. So, as
a matter of practice, they also include samples of
soldering materials in their load of materials
submitted, and the architect's team and also the BS
team, upon receipt of such soldering material samples,
will also take a look as well.

Q. In relation to the samples of materials submitted, you
and the architect's team will decide whether there was
a need to check the samples. I think it has to do with
the nature of the materials; right? As we heard some

other witnesses, soldering materials is considered a sundry item. It's just like small hardware parts, such as like screws, bolts and nuts and also tying wires.

Am I correct in saying this: for screws, tying wires and bolts and nuts, you don't think there is a need for sample submission and approval; is that right?

A. The parts that you talk about are construction materials. BS team is not involved in those parts. But I am a member of the trade and I would say that for small parts like those, I don't think the main contractors would submit samples and we won't require them to submit samples either, because they are insignificant.

Q. Now, with regard to sample submission, the HA and the trade would consider soldering materials similar to these small hardware, or you think that they are not similar and that there is a need for sample submission for soldering materials?

A. Well, according to the specifications, documents have to be submitted for approval. Now, we are discussing whether samples are needed. That's not required on paper. But then, as a practice, main contractors would submit the samples. Our approach is that we will look at them when they are submitted, but then we will not

C require that they should submit the samples as
a mandatory practice.

C

D Q. Before July this year, before the lead in water

D

E incident, in relation to tin wires and tin strips -- you
know that there are these two materials?

E

F A. Before the incident, we have not heard about these

F

G materials. Well, going by their names, we can't tell
H the distinction. We only know about lead-free solders
and leaded solders, and for our fresh water plumbing
I works, lead-free solders should be used.

G

H

I

J Q. For materials submitted or solder materials used
on site, before July this year have you actually seen
K such materials yourself, how they look?

J

K

L A. I have seen such materials in the catalogue. My
position is a CBSE now, and the frontline staff,
M including the engineers and also site resident staff,
N will see these materials. These materials are seldom
O submitted to me. But then I have seen the relevant
catalogues.

L

M

N

O

P Q. So you haven't seen the actual materials?

P

Q A. Well, until the incident. Then I was shown the
materials by colleagues.

Q

R Q. Just now, we mentioned about the specifications, about
S lead-free category solders, and there was sample
T submission of solder materials. But from the witness

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statements of other witnesses, during the course of construction, when soldering materials were delivered and when they were installed, those would not be tested; right? I understand that this is not part of your responsibility. It would be the architect's team who would be determining whether tests should be conducted on such materials?

A. Correct.

Q. And there are clear specifications on soldering materials, that they should be lead-free. You have checked the samples of soldering materials. But ultimately, when the materials were delivered, there was no further checking. So do you think that there is a sort of disconnection within the system, among these different procedures?

A. With hindsight, the incident has been extensively reported in the media, and it seems that we lack awareness of the impact or implications of leaded solders. So, before July, the architect's team haven't put in place stringent checking procedures, for checking materials upon their delivery on site. I am sure some colleagues have also told you as witnesses that after July, the DCMB has issued new instructions, and we have strengthened our procedures on checking incoming materials, including solders, we have stepped up the

supervision.

Q. I would also like to ask -- some contractors and licensed plumbers have given us witness statements saying that they have seen plumbers have done demonstrations within the sample rooms on soldering of pipeworks. Have you seen such demonstrations?

CHAIRMAN: Please try to separate your questions into two.

MR KHAW: First of all, have you seen plumbers on site somewhere did soldering works on pipes?

A. No.

Q. And have you heard other people saying that some plumbers have demonstrated such works in the site?

A. Not before July, but then recently I have heard that some witnesses have said in their statement that there were such things being done, and I have heard from my colleagues that this was being done.

Q. All right. The last question, perhaps, here. With the application to the WSD in relation to WWO form 46, the AP and the licensed plumber should sign a document -- and the HA is the architect, who is the AP -- when they use certain plumbing materials, they should submit a list of the plumbing materials to be used to the WSD.

In the course of construction, the LP might have used materials which are different from those first submitted to the WSD, and the LP must update their

records with the WSD and submit a revised checklist?

A. Yes.

Q. Now, if this happens, would the LP first notify someone in the HD that they have revised the materials to be used? Would they do that?

A. Well, they are not required to do so, I believe. My approach is this. After they have been awarded the tender and before the plumbing works started, they have to submit WWO46 part I. The list of materials has to be submitted for our approval. There are many items in the list, and the submission may not be done within a short time. They have been working on previous projects with us, so they have a certain fixed list of materials, or what you call a wish list, which should be included in annex 1 of WWO46 part I. They do have their own list. There may be 20 items on the list. They may have given us 10 for approval. For the other 10, approval has not been given. They would decide what material they are going to be using and they would use a total of 20 materials and they put them all in the form. The form has to be put in before commencement of work.

There may be a situation where for the 10 items that have not been approved, let's say there are two that are different from the original ones, we would keep an eye on the situation on the site. The architect's team or

the BS team would keep an eye on the situation. They have to install the item that we have approved.

In the circular letter of the WSD in 2004, I think it was No. 1/2004, there was a guideline to say that for minor changes the licensed plumber has to sign on the annex, and then email or fax the information to the WSD, for record.

So, before inspection by the WSD, this has to be done. So we would approve the items that are submitted. We would not look back on the annex to see whether there is any deviation. If in fact there is a deviation, they have to update it. There are certain things to cover at the end of the contract.

Q. When the LP informs the WSD of the materials, were you aware of that?

A. No, we were not aware of that, because they don't tell us directly.

Q. Let's have a look at one of the LPs, Mr Lam Tak Sum. This is Q1, page 17.

A. Yes, I've got it.

Q. Paragraph 4, please have a look.

A. Yes, I've got it.

Q. Basically, he's saying -- this is his understanding anyway -- if there are any changes, there is no need to amend this and notify the WSD; all they need to do is to

talk with the HD. Would you agree?

A. No. I must supplement that for the HD BSE, we don't have any resident BSE. We only have resident BS inspectors. However, the main contractors do have resident BSEs.

As regards this allegation against Mr Lam Tak Sum, Kwai Luen Estate was under me. When I read this statement, I did ask a couple of BSEs responsible for Kwai Luen Estate whether they got in touch with Mr Lam or whether they talked to him, and they said in unison that they didn't.

This shouldn't have happened, because if there is any deviation, in terms of the components, under the WSD requirement they have to be updated, and this is approved by the WSD and not the HD. So it's impossible that my colleagues would tell him not to do it. We would not be talking about this with the WSD. The list has to be updated, it has to show all the installed materials. I don't believe my colleagues would ever do that. I did ask my colleagues and never talked to Mr Lam.

MR KHAW: Thank you. I have no further questions.

COMMISSIONER LAI: Yes, please sit down. I have two questions for Mr Leung.

There are regulations that prevent the occurrence of

excess lead in water, and one of the recommendations is to use the type with pressed built-in solder material or the press-fit, push-fit compression types of jointing.

In the light of your experience, if we join the pipes without using solder, would it be likely? Would it be feasible?

A. Yes, in fact what Mr Lai said is in my statement. We do have push-fit and press-fit components. But they are relatively new in Hong Kong.

As to the reliability and durability of these types, we have to find out, because if there is any bursting, it would cause flooding. If it happens in the unit, it would cause flooding in the unit. If it happens in the common area, it would be flooding the lifts and the corridors, and it would have very, very serious consequences.

In 2002, it was common to use solder joints and compression joints. Now, why soldering joints was picked -- I agree with the selection, because all the joints can be pretty reliable. Once this is done, this can be subject to pressure test and it is durable. It doesn't cause a lot of maintenance and repair and it is simple to achieve.

Let's say a one-person household unit, there can be 60 joints. For a 800-unit public housing block, we are

talking about tens of thousands of joints of this nature. So we have to make sure that the joints are durable and they must have integrity. The joints at that time was correct.

Coming back to Mr Lai's question, in the market out there, there are some jointing that doesn't need any soldering, like the press-fit and push-fit types of joints. We would explore these jointing methods and see how applicable they are to our projects. That would remove the need of using solder.

With solder, of course we can do so many things. At the stage of incoming materials, we can conduct in-process testing.

COMMISSIONER LAI: What about pricing, in terms of costs?

A. I didn't hear you.

COMMISSIONER LAI: In terms of cost, would there be any major difference?

A. I'm not sure about the pricing, but I am sure with press-fit and push-fit types, they are more expensive than solder joints.

The thing we have to consider is whether there is such an availability in the market, because we need to use a lot of jointing.

CHAIRMAN: You mentioned the 1993 General Specification, that's an Architectural Services Department

specification that you alluded to a moment ago. This is General Specification for buildings. Does it mean that the ASD promulgates these specifications for all buildings in Hong Kong?

A. No, it is for projects under the ASD, only the ASD projects.

CHAIRMAN: Thank you.

Any questions? Who would like to take the floor?

DR WONG: WSD doesn't have any questions.

Cross-examination by MR PENNICOTT

(All questions from Mr Pennicott were in English)

MR PENNICOTT: Mr Leung, I represent China State, the main contractors for Kai Ching and Hung Hom. I just have a few questions for you.

Could you be taken back, please, to a document we were looking at earlier, at B15.3/39600. That's the development and construction board management instruction 25/02.

A. Yes, I've got it.

Q. If I understood the answer to some questions earlier, Mr Leung, in 2002 you were a senior building services engineer; is that right?

A. Correct.

Q. In answer to a question from Commissioner Lai, you said that you were aware of this document. Is that correct?

A. Yes.

Q. Were you actually given a copy of it?

CHAIRMAN: When are you talking about?

MR PENNICOTT: In 2002, were you given a copy of this document?

A. If you look at this document, 39605, the distribution covers, line 5, CBSE/1. At that time, I was under CBSE/1. So CBSE/1 received the paper, he would distribute it. If I remember correctly, we had this through email. All the colleagues had this through email, and in the email we were told about this document and we had the e-Housing portal, we could get access to the folder.

Q. I see further down the page, where you see "cc" and you travel down four lines, there's a reference to this document being copied to SBSE/C1 and SBSE/C7. So that does suggest very much, doesn't it, that you, as a senior building services engineer, would have had this document given to you at the time?

A. No. I wasn't SBSE/1. I was SBSE/7. So when I received the paper, I didn't receive it through this cc copy.

Q. You did receive it nonetheless?

A. I read it myself, yes. These instructions, we have to be alive to them, because with new tenders we have to be aware of these documents. For existing projects, we

A *Annex: Realtime English Transcription based on floor / Simultaneous Interpretation* A

B Commission of Inquiry into Excess Lead Found in Drinking Water Day 17 B

C have to look at these instructions and see whether they C

D apply to the existing projects. So all these D

E instructions, we would read them. E

F Q. Okay. If we go back to page 39604, you will see that -- F

G A. Can you say that again, the number? G

H Q. 39604. H

I A. (In English) Yes, I've got it. I

J Q. You will see that the instruction was signed by J

K Mr Daniel HM Lee; do you see that? K

L A. Yes. L

M Q. Who was, it appears, an assistant director in the M

N Development Department at the time; do you see that? N

O A. Correct. O

P Q. Did you know Mr Lee? P

Q A. Yes, I do. Q

R Q. I understand he retired, he has retired from the Housing R

S Authority. Is that correct? S

T A. Correct. T

U Q. I understand he retired in about 2009. Does that accord U

V with your recollection? V

A. I don't remember exactly when, but I believe that it was

Q in 2009 or 2010.

R Q. Okay. Thank you very much.

S Could I then move on to something slightly

T different. In all of your nine witness statements,

U

V

Mr Leung, you say that you became the chief building services engineer for the nine affected estates on 8 September 2011. Is that correct?

A. Yes. I was acting as the CBSE.

Q. That being the case for those nine affected estates, Mr Leung, would you accept this, that you were not personally involved in the design stage of any of those nine projects, as CBSE?

A. Yes. Yes. The latest one is Kwai Luen Estate or Wing Cheong Estate. When I was the CBSE, the design stage had already lapsed.

Q. Yes. Would this be right, that in relation to the nine affected estates, you were also not involved in the tender stage of any of the projects?

A. I agree with your statement.

Q. Would you also agree that in relation to the process of sampling -- materials sampling, you were also not directly involved in that process, for any of the nine estates?

A. Well, let me say this. I was not directly involved, but my team was directly involved, and my team was under my direct supervision.

As I said in my witness statement, that was part of my work portfolio.

Q. Can I ask you please to look at paragraph 17 of your

witness statement in relation to Hung Hom. That's
bundle 15.2/38621.

A. Yes, I see that.

Q. You say there at paragraph 17:

"The [contract manager's] site inspection team
conducted periodic and sample checks on materials and
workmanship for conformance to specifications and the
progress of the main contractor's works."

Mr Leung, you have no personal knowledge of that,
have you, so far as Hung Hom is concerned, because you
weren't there at the time that that happened?

A. Well, you cannot say that. When we did the design of
the plumbing works, the design was similar across all
estates, so I was very well aware of the design of the
plumbing systems, and I also sent my engineer there, and
the resident site staff also reported to me, and there
might be some sort of redeployment of manpower among the
different projects. I should have certain knowledge of
new projects.

Q. Mr Leung, when you joined as CBSE the Hung Hom project,
two of the blocks had already been certified as
substantially complete, and one was two months off being
substantially complete.

A. Yes, correct.

Q. You have no personal knowledge of what happened on the

Hung Hom site at all before September 2011, do you?

A. Yes, that's true. But then the former CBSE retired and I replaced him and I took over the project. So all projects under him, including Hung Hom Estate Phase 2, was under my work portfolio, and one of the estates, block 3, was not certified completed yet.

For the BS installation, the last part of the BS installation, it was I who certified the completion.

Q. All right. Can I just take you to a different point now. As well as the nine affected estates that you deal with in your witness statements, am I right in thinking that you were also the CBSE between September 2011 and July 2012 on the two estates that you don't deal with, that is on Kai Ching and Un Chau?

A. Correct.

Q. I would like to ask you some questions about Kai Ching. Now, could I ask you please to be given bundle F2. Could you please go to page 1370.

A. Yes, I see that.

Q. This should be a memo from China State to two of the project clerks of works on the Kai Ching project. Do you see that?

A. Yes, I see that.

Q. It is dated 14 June 2012; do you see that?

A. Yes, I do.

Q. So that's one month before you ceased to be the CBSE for Kai Ching; do you understand?

A. No, that's not correct. For Kai Ching Estate, I started to be the acting CBSE starting from September 2011. At that time, in early September 2011, I was the CBSE for Kai Ching, until July 2012, and then this was dated 14 June 2012. So I was still the CBSE for this project.

Q. I thought that's what I put to you, that this is one month before you stopped being CBSE or ceased to be the CBSE. Do you understand?

A. Yes, yes. I now understand.

Q. Thank you. This is a memo which says:

"We would like to submit herewith the material delivery note during the period from 1 June to 15 June 2012 ..."

We see at the foot of the page it's copied to Mr Henry Luk, who I understand was the project architect on Kai Ching. Can you confirm that?

A. Correct.

Q. And also to the senior clerk of works, Mr CH Wong; do you see that?

A. Yes.

Q. And also to the project quantity surveyor, Ms Cynthia Szeto, who I understand works for an outside consultant, Davis Langdon & Seah?

A. Yes, correct.

Q. Although we note that they don't seem to have been copied with the attachments, that is it says "(w/o)", without enclosures; do you see that?

A. Yes.

Q. The only reason for showing you this, Mr Leung, is this.

If you go over the page, please, to page 1373 --

A. Yes, I see that.

Q. -- you should see a delivery note, which has caused some interest in the Commission of Inquiry so far, and also, if you go over another couple of pages to 1375 --

A. Yes, I see that.

Q. -- you will see another delivery note from Prosperity.

So those delivery notes are going to certainly two representatives at least of the Housing Authority.

Could I ask you then just to go to page 1394.

That's another memo, slightly later, 23 June 2012; do you see that?

A. Yes, I see that.

Q. What it says here is that what's being submitted, at 1:

"Table 1: Summary of material delivery on site checked under form 6210."

And secondly:

"Delivery notes of the material which is not covered in table 1."

Do you see that?

A. Yes.

Q. The memo is copied again to the same people, with the addition of Ms Elaine Wong, another project architect.

A. I see that.

Q. As it happens, amongst many other things, if you go page 1415 --

A. Yes, I see that.

Q. -- the same delivery note we were looking at just a moment ago was sent again, and if you go to page 1417, you will see the other delivery note we were looking at just a moment ago.

A. I see that.

Q. What I want to ask you, Mr Leung, is this. Obviously I can't ask you whether Mr Sheung and Mr Woo looked at these documents. I have no idea. But can you tell us, the project clerk of works having received this memo with the attachments, what would have happened to them? Where would they have gone within the Housing Authority?

A. The architect's team resident on site is not under my supervision. The contract administration for the plumbing system was also the responsibility of the architect's team, so I don't have information for your answer.

Q. So there's no set procedure that you are aware of, as

a senior member of the Housing Authority, as to what should happen if memos are given by contractors to site staff on site?

CHAIRMAN: I don't think he can give you any answer on that question. Even if you ask me, memos coming into the judiciary, where they are put, I wouldn't be able to give you an answer either.

MR PENNICOTT: All right. I will leave it there. Thank you very much.

CHAIRMAN: (In English) Thank you.

Any other questions? Please be more forthcoming in asking questions. Mr Chung?

MR E CHUNG: I represent Paul Y. The project they worked on is Wing Cheong Estate. I have two follow-up questions on risk.

Cross-examination by MR E CHUNG

Q. Mr Alan Lai, the Commissioner, asked that in relation to your recommendation in the witness statement, one is that for future projects, compression joints, press-fit and push-fit joints should be used. In your answer just now, you said that this approach can alleviate the lead in water problem, but you said you were not sure about the functions of these joints; if they are not strong enough, there may be leakage of water.

Now, I would like to discuss with you this paper.

The Housing Authority has sent up an independent Review Committee, and an interim report was issued on 6 October. Have you seen that report?

A. Yes.

Q. Let's look at that report which is related to our discussion. Bundle B3.1/38, page 1164.

A. Yes, I see that.

Q. Paragraph 12, please. It says that at the seventh meeting, the HD discussed with the colleagues from the Estate Management Division, especially on maintenance and repair works.

Please spend some time to go through paragraph 12 first.

A. Yes, I have finished reading through it.

Q. Of course, this is their comment or opinion. But I would like to pose this question to you as a CBSE: the information they collected might be more than what you have on hand, but I would like to ask you this. In relation to maintenance works, they have been using compression joints alone and there aren't any problems in this approach, and this is the impression they have got, and the members of the Review Committee also agree that there is a lesser risk in doing that. Why they have this conclusion? The HD has given them a paper, and the paper number is RC 29/2015. That's B3.2/26.

A	<i>Annex: Realtime English Transcription based on floor / Simultaneous Interpretation</i>	A
B	Commission of Inquiry into Excess Lead Found in Drinking Water	B
	Day 17	
C	A. Yes, I've got it.	C
D	Q. Turn to page 1, please. Further down, paragraph 2, please. There is a table there. Paragraph 3.	D
E	A. Yes.	E
F	Q. We can see that there are some numbers there: 1,188, a pretty large number, and we have copper and	F
G	non-copper, and also it covers the corridor, and so on.	G
H	For soldering, 151, and then compression, 503; mechanical, common area, 163. So basically, they are	H
I	using compression joints.	I
J	If I may refer you to paragraph 5, on page 2388.	J
K	A. Yes.	K
L	Q. Paragraph 5, please have a look.	L
M	A. Yes.	M
N	Q. Please have a look at footnote 1 as well, please.	N
O	A. Yes.	O
P	Q. Taken together, it means that estate management staff, there are a few hundred of them, some would carry out minor improvement. In footnote 1, there may be some older housing estates where they need re-plumbing.	P
Q	Re-plumbing has to take place for the entire housing estate. The amount of work would be the same as the new	Q
R	ones.	R
S	So if I may put this to you: when re-plumbing is	S
T	undertaken for the entire block, would the residents	T
U		U
V		V

move out first, before work will take place or will you be carrying it out in phases?

CHAIRMAN: I can't see how this is relevant to the terms of reference. I don't think it has anything to do with any of the recommendations, whether the residents move out or not.

MR E CHUNG: When the Housing Department carries out re-plumbing for these types of estates and the use of press-fit and push-fit type, and there is no leakage problem, we asked one of the property managers.

CHAIRMAN: I would just like to know -- all of them are suggesting alternative methods and this is one of the recommendations. I don't think we need to go into such minute detail about mechanical or press-fit, push-fit or compression, or the advantages or disadvantages, cost implications, convenience to the residents, and so on. I don't think we need to go into that kind of details.

MR E CHUNG: All right. Perhaps I will move on to the next one.

CHAIRMAN: Yes.

MR E CHUNG: The chairman put this question to you, that you used BS 1254, table 6, there are three risks there. The first is that in general, you said by common sense lead is harmful to human health; second, the lead that might leach into the water, you said you weren't aware of that

and how this would impact on human beings, and so on.

I remember when you mentioned BS 1254 or the
previous, 864, you said that you knew lead was --

A. Yes, 864 and 1254 said that for human consumption, no
leaded solder could be used.

Q. If the copper pipes are conveying water for human
consumption, and if there is a solder joint and if lead
cannot be allowed, presumably there is a worry that the
lead might affect human health?

A. If you look at 2002, when the specifications were
drafted -- engineers are very strict with matters; they
follow the rules and guidebooks -- if there is no
requirement in the British Standard, then and now, and
under the WWO, we have to follow the British Standard,
then in a very straightforward way we would include this
into the specifications.

We may have the common sense that lead is harmful to
human health. I am sure most of the people would have
this understanding. But they wouldn't think of the fact
that the leaded solder would leach into the water.

It may be in the BS standard, but we are not sure
why there is such a requirement. First, I don't know
myself, and at that time those who drafted the
specifications, I don't think they knew. I think their
thinking would be the same as my thinking. We are

strict, very strict, with the rules. We don't beat about the bush.

Q. I don't think I will follow up the question.

The third question, if I may turn to a different area. After the lead in water incident in mid-August, the DCMB promulgated an instruction to change the existing Specification Library and also some other information. If I may take you to B15.1/337.

A. Please say again. What page?

Q. B15.1/337. Page 37590.

A. Yes, I've got it.

Q. Let me put this to you. Distribution, there are two CBSEs, 1 and 2. Is one of them you?

A. One is me.

Q. You notice this paper?

A. Yes, of course.

Q. Without going into detail, I would like to look at annex 3. Page 37615.

A. Yes.

Q. On this page, it is a budget estimate. For new contracts, there are two parts: building contract additional cost, that's 70,000 cost, and there is also material testing on the next page. Taken together, it is 120,000 per block.

Apparently, the testing would be strengthened, the

manpower would be beefed up, and this is the cost that would be incurred on behalf of the Housing Department?

A. Yes.

Q. When tendering takes place, the contractor would have to increase the manpower and this cost would be reflected?

A. Yes, the tendering price would be reflecting this.

Q. If we look at the footnote at page 37615:

"The estimates for budgeting purpose are only applicable to new building contracts to be tendered, ie not applicable to post-contract variation works."

I read your statement earlier. Regarding building services, the contract manager delegates you the power as the CMR. Earlier in the Inquiry, we said that if there are any testings at the post-contract stage, the contract manager would issue an instruction under the GCC if there is any additional work.

A. It often happens that there is variation. It is not often that there is a variation to order the testing.

Q. The costs I mention are not applicable to the proposed contract variation.

A. The \$70,000 per block -- in the tender, this is the additional \$70,000 per block priced by the contractor for post-contract variation -- this has to be negotiable. It may not be \$70,000; it may be a more reasonable range.

A *Annex: Realtime English Transcription based on floor / Simultaneous Interpretation* A

B Commission of Inquiry into Excess Lead Found in Drinking Water Day 17 B

C Q. I think you have made it very clear. We don't go into C
D the detail about the pricing. We are just talking about D
E the mechanism. E

F Let me turn to something else here. HKIE is F
G a professional body. It has published a report G
H regarding the lead in water incident. H

I A. I know about it. I

J Q. Yes, you know about that. Without going into detail, J
K there are a couple of points I would like to highlight. K
L Maybe this is common sense. This is U1/3. L
M A. Yes. M

N Q. Page 6. N

O A. Yes. O

P Q. We don't have to go into detail, but mainly the HKIE has P
Q many disciplines and has structural engineering BS and Q
R so on. Most of them are building services engineers. R

S A. Yes. S

T Q. I don't go into detail, but let's have a look at page 9. T
U A. The bundle number or the report number? U

V Q. U1/3 was the bundle. The page, if you look at the V
W paginated number, page 9, paragraphs 6 and 7 -- it W
X mentions the task force from the building services X
Y engineers. Y

Z "It was also a joint effort of the building services Z
AA division of the HKIE and the Hong Kong branch of the AA

A *Annex: Realtime English Transcription based on floor / Simultaneous Interpretation* A

B Commission of Inquiry into Excess Lead Found in Drinking Water Day 17 B

C Chartered Institution of Building Services Engineers, C

D UK. In addition, the Australian chapter, the Canadian D

E chapter and the UK chapter ... had assisted in E

F clarifying ... measures ..."

F Let me put a relevant question here. F

F Let's go to page 31. Your page number is 24. F

G A. Yes, I've got it. G

H Q. In 2002, you allow copper pipes as an alternative, and H

I in fact copper pipes have been used for some time in the I

I trade? I

J A. Yes. They started using them in the 1980s, copper pipes J

J and solder joints. J

K Q. In the trade, are there similar problems? Paragraph 96: K

L "For private developments, all copper pipes are L

L concealed: behind building finishes, above decorative L

M ceiling, behind kitchen cabinets ..." M

N Do you agree with that? N

O A. For private developments, yes, because they attach O

O importance to the look. O

P Q. For maintenance and repair -- for ease of maintenance P

P and repair, a lot of your piping is exposed. P

Q A. Yes. Q

R Q. We appreciate that. But paragraph 96: R

S "For private developments, all copper pipes are S

S concealed ..." S

T T

U U

V V

So if there is leakage of water, the maintenance may be more costly, and yours are exposed.

Let's look at the next page. They use a silver brazing, even though it's more costly.

Now let's take a look at paragraph 98. It says that workers are not comfortable with silver brazing, and the reason is set out in paragraph 99, because the temperature required is higher for silver brazing and the equipment used is different. If we are talking about tin solder, the temperature requirement is 200 degrees centigrade. In paragraph 98 it is said that the cost can be three times more.

So, in paragraph 96, the developers only allow the use of silver brazing.

If we just do a comparison among the statistics, there is less risk of -- the risk of non-leaded soldering materials is lower.

Have you considered using other types of connection or jointing?

A. I was not involved in the work of the central team in revising the specifications, but looking at the present specifications, it says copper pipes with solder joints, and brazing is allowed under our specifications, and it is up to the developers or the contractors to choose whether to use solder or brazing. Brazing, of course,

is more costly, and generally contractors will resort to solder.

In paragraph 99, it is said that 400 to 450 centigrade is required for silver brazing, but normally we have to use 800.

So there is also a concern with silver brazing in terms of health and hygiene. If you look at BS 1254, table 6, there are six items. The first three items are solder and the last three items are brazing.

Some brazings may come with cadmium, which is a heavy metal too, and after the lead in water incident, the WSD's circular has asked for four more heavy metals to be tested and one of them is cadmium.

So, with hindsight, using solder or brazing carries a risk. So if some workers or main contractors are trying to take advantage of the situation, they can do that using either brazing or solder. For brazing, from a technical point of view, we have to use two cylinders. One is oxygen and the other potassium or what. So great energy has to be created and a temperature of 800 centigrade has to be achieved, and you have to braze it for a long time.

Now, I mentioned that there are tens of thousands of joints for a single block, and many workers are required to do brazing. So I don't think that's the right way to

go.

Q. So, Mr Leung, would you consider this: there are so many flats in private development properties.

A. But for a block in a private development property, there might be only, say, eight flats on one floor, and then 40 floors, and 320 units altogether. But for us, there are as many as 800 to 1,000 units within one single block.

Q. I would like to follow up on this question: the WSD has asked for four extra heavy metals to be tested, including cadmium, after the incident. After the guidelines have been issued, have you tested for cadmium in water?

A. Since after the WSD has issued the news circular, actually, not many projects have been completed recently. The financial year ends in March every year, and relatively more projects are completed towards the last quarter of the financial year, so not many new projects have been completed recently.

Now, we have tested for the four heavy metals in the new projects and the results are satisfactory; no problem with the lead either.

MR E CHUNG: All right. I don't have any further questions.

Cross-examination by MR TAM

MR TAM: You discussed stability. For solder joints, the

C soldering work can be completed more quickly; is that
right?

C

D A. No, there isn't a great difference in the time of works.

D

E You are talking about compression joints and soldering
F joints. In terms of time required, there isn't much
difference, but if you have to work on compression
G joints, then it's harder for the worker, because the
H worker has to grab two spanners and then they have to
work with two spanners in both hands.

E

F

G

H

I So, for the worker, he may have worked on more
J solder joints and compression joints within the same
period. And for solder joints, the pressure test, the
K result is always satisfactory; but for compression
L joints, whether they are durable depends on the strength
exercised by the worker. Now, water flows through the
M pipes then sometimes there may be some sort of water
N hammering of the water taps and the water taps may
vibrate a bit. Because of this and also because of the
O changes in the weather, the compression joints may get
P loose a few years after they are completed. This is
something rather common.

I

J

K

L

M

N

O

P

Q

R So, at that time, we think that soldering was
cost-effective, it was durable; this is the prudent
S approach to take.

R

S

T MR TAM: No questions.

T

T

U

U

V

V

C CHAIRMAN: Any further questions?

C

MR HO: Yes.

D CHAIRMAN: How long will you take with your questioning?

D

E MR HO: Not too long. I can complete it in 15 minutes.

E

F CHAIRMAN: If you will take 15 minutes, let's proceed after
the lunch break.

F

G MR HO: So I will try to finish my questioning within five
minutes.

G

H CHAIRMAN: Going by my experience, some of your questions
I are really quite superfluous. You don't have to ask
J them.

H

I

J

Re-examination by MR HO

K MR HO: Let me discuss with you one or two issues. In your
L answer to Mr Lai, you talked about press-fit, push-fit.
M You were exploring the feasibility; right?

K

L

M

A. Yes. The study may take a long time.

N Q. In your reply to Mr Chung, you also said that silver
O brazing may not be necessarily better; it has its own
constraints as well.

N

O

P CHAIRMAN: He's already answered that.

P

Q A. There's no advantage of using brazing than soldering
joint.

Q

R MR HO: Your answer is that if not for the contractors
S trying to take advantage of the works, then solder
T joints could be a good option; right?

R

S

T

U

U

V

V

A *Annex: Realtime English Transcription based on floor / Simultaneous Interpretation* A

B Commission of Inquiry into Excess Lead Found in Drinking Water Day 17 B

C A. Yes. C

D Q. Let's take a look at the B2 specification of 2002, D

E page 779. This is on red lead. I would like to clarify E

F one point. Mr Lai has asked you about the red lead. F

G A. Page 779. Yes, I've got that. G

H Q. With hindsight, you said that this is for cast iron H

I pipe. I

J A. Yes. J

K Q. This is for drainage? K

L A. And not for water supply. L

M Q. So if you are talking about drainage pipes, that might M

N not have to do with hygiene and health? N

O A. That might have something to do with hygiene but not O

P health. This is not for drinking. P

Q Q. Okay. Copper pipes. You said that copper pipes and Q

R soldering joints have been used in the construction R

S industry in Hong Kong for eight years. S

T A. I was talking about the Hong Kong context. T

U Q. In 2002, you switched to allowing the contractors to use U

V copper pipes. Were there any hygiene and health V

concerns that you were aware of?

CHAIRMAN: The rusting, the issue of rusting.

MR HO: The problem of rusting -- what about the copper pipes?

CHAIRMAN: Well, they've not used them.

MR HO: At that time, you were not using it, but the market and the property developers were using it.

A. I was not in the central team dealing with this, but I've never heard that there were such concerns. What's most important is copper joints and soldering have been in use in Hong Kong for 20 years and there has not been any major incident in relation to hygiene or health issues. I've never heard of that.

Q. Now, you said that in 2002 you were beginning to allow the contractors to make a choice. If there had been a health concern, you would have already raised it?

A. Absolutely no concern.

Q. So the main contractors were given a choice?

A. Correct.

Q. There is one issue which I might not have heard clearly.

Mr Khaw asked you about the statement of Ho Biu Kee.

You said that you have not heard that the workers were doing a demonstration within the sample room.

A. Not before July, but I have recently heard about it.

Q. You have heard it recently? Is it because Ho Biu Kee has submitted a statement and then you read it?

A. It's not Ho Biu Kee, it's Ming Hop.

Q. But the statement was for Ming Hop, instead of Ho Biu Kee.

A. Well, that's related to Yau Lee.

Q. So under what circumstance, after July?

A. We read or saw this statement mentioning that there was a site demonstration for our colleagues, and because of this I learned about it. But for myself, I have not watched such demonstration before. I have not heard about it either.

CHAIRMAN: Any other further question? You are actually asking one thing here.

MR HO: That doesn't matter.

CHAIRMAN: No further question?

Then thank you, Mr Leung, for coming to give your evidence. You may now leave.

WITNESS: Thank you, Chairman and members.

(The witness withdrew)

MR KHAW: Timetable. Yesterday, the counsel team said they would discuss among themselves on the timetable of the hearing.

CHAIRMAN: First of all, let's deal with Mr Hui's question.

He said that if it is at all possible --

MR HUI: (Chinese spoken).

INTERPRETER: Sorry, the speaker is not coming through so the interpreter can't interpret.

CHAIRMAN: Please take a seat.

Mr Li, what about you?

MR LI: (Chinese spoken).

C INTERPRETER: Sorry, the speaker is not coming through.

C

CHAIRMAN: Not at this stage.

D MR LI: (Chinese spoken).

D

E INTERPRETER: Mr Li is not coming through.

E

CHAIRMAN: When?

F MR LI: (Chinese spoken).

F

G INTERPRETER: Mr Li is not coming through.

G

MR LI: (Chinese spoken).

H CHAIRMAN: I can't hear you. Say again? I can't hear you.

H

I MR LI: (Chinese spoken).

I

J INTERPRETER: Mr Li is not coming through.

K MR LI: (Chinese spoken). We need some time to make

J

preparation before we testify, so we do need the time to

K

make proper preparation. I hope we can be accommodated.

L We would like to have a bit of time, maybe a week, for

L

M us to be fully prepared.

M

N CHAIRMAN: I wouldn't allow one week. One day, yes.

N

MR LI: (Chinese spoken).

O MR KHAW: Let me add, Mr Siu's statement should be ready by

O

P today, so we might need the weekend. If Mr Li would

P

Q like to have some time, we don't have any in-principle
objection, to be fair. Other than Mr Mok and Mr Siu's

Q

R statement, everything is ready.

R

S MR LI: (Chinese spoken).

S

T INTERPRETER: Mr Li is not coming through.

T

U

V

C Can somebody give him a mic, please?

C

MR LI: (Chinese spoken).

D INTERPRETER: I can't hear Mr Li.

D

E MR LI: Of course we would like to have one week but
otherwise we can get started on Wednesday.

E

F CHAIRMAN: What are we going to do in these two days?

F

G MR LI: It may cause some inconvenience but we do have some
difficulties. We got the papers so late. There are so
H many housing estates to cope with. We have thousands of
I pages to put together. And we need some time.

G

H

I

J CHAIRMAN: I do allow you one day. That's as much as I can
allow. You have the weekend. Your client is a large
K company. You don't have to approach the top guy. The
L top guy doesn't normally know about it because he
doesn't do it.

J

K

L

M MR LI: It's not only the weekend, we work until very late
N at night these days.

M

N

O CHAIRMAN: I appreciate that. You don't have to do it
yourself. You have the legal team. You have the law
P firm. If you can't do it, your lawyers can do it.

O

P

Q Honestly, Yau Lee, do you approach the chairman,
CEO? He's the top one.

Q

R MR LI: Yes.

R

S CHAIRMAN: But was he involved in these housing estates?

S

T MR LI: I think you have to wait for him to testify.

T

U

U

V

V

CHAIRMAN: No, I don't think so. CEO and the chairman rolling up their sleeves and doing the work for these housing estates?

Is Yau Lee a listed company? I don't know.

MR LI: I don't know. I appreciate that. Perhaps Tuesday then.

CHAIRMAN: I allow you one day and that's as much as I can allow, although I don't really want to do it, frankly. One day, no more.

MR LI: Thank you.

MR PENNICOTT: Mr Chairman, can I make my usual Friday request for information. I made the same point last Friday. Could we be told what the latest position is on Prof Bellinger's report, and could we please be told what the latest position is on whether or not a plumbing expert is to be called?

Can I also make this enquiry from the Housing Authority: we understood that Mr TT Cheung, chairman of the Review Committee, is to be called. We wondered what the Housing Authority's position was on that.

MR KHAW: Prof Bellinger's report, it can be available by early December. As to the plumbing expert's report, we are seeking further information. I think next week, when we meet again, we can confirm the availability time.

CHAIRMAN: So Tuesday then?

Mr Khaw, you can take a break on Monday.

MR KHAW: One more point. For the Housing Department or Housing Authority, there are five more witnesses about the EMD, we have seen the statements. I have nothing much to ask, unless chairman and other counsel would like to put questions. We are not going to read out their statements.

CHAIRMAN: I don't see the need for that.

So let's meet again at 10.00 on Tuesday morning.

Yau Lee will go first.

How many witnesses will be called?

MR LI: Only one.

CHAIRMAN: If you say your chairman can answer all the questions, then so be it.

MR LI: Just one.

CHAIRMAN: But I do have reservations.

It is up to you.

MR HO: What is the thinking right now? Are we going to cover all the contractors --

CHAIRMAN: Contractors, subcontractors and plumbers.

MR HO: Contractor/plumber, contractor/plumber. We are preparing some more information. We will have further witness statements to be made available.

I am not sure whether my thinking is right. Are you

C going to cover all the contractors first before you come
back --

C

D CHAIRMAN: Yes, basically we will cover all the contractors
E and the plumbers, and then we will come back to the
F Housing Authority and the Housing Department, like
Mr Wong Bay and the assistant director.

D

E

F

G MR HO: Yes, I've got that, Chairman. I would just like to
H find out about the arrangement.

G

H

I CHAIRMAN: And then we will let everybody know. With this
J batch of witnesses out of the way, then we will move on
to the Water Supplies Department, and thereafter we will
K have the two experts.

I

J

L This is the order of witnesses. Thank you very
much.

K

L

(1.10 pm)

M (The hearing adjourned until 10.00 am

M

N on Tuesday, 1 December 2015)

N

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R

S

S

T

T

U

U

V

V

C

INDEX

C

PAGE

D

MR ERIC LEUNG CHI KWONG (affirmed)1

D

E

Examination-in-chief by MR HO1

E

Cross-examination by MR KHAW8

F

F

Cross-examination by MR PENNICOTT41

G

G

Cross-examination by MR E CHUNG50

H

H

Cross-examination by MR TAM61

Re-examination by MR HO63

I

I

(The witness withdrew)66

J

J

K

K

L

L

M

M

N

N

O

O

P

P

Q

Q

R

R

S

S

T

T

U

U

V

V