

2015年12月16日

上午10時03分恢復聆訊

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PROF DAVID CHUDLEIGH BELLINGER (on former oath)

Cross-examination by MR LEE (continued)

MR LEE: Sorry, my Lord.

Professor, you mentioned about testing of lead in the bones; is that right?

A. Yes.

Q. I understand that it normally applies only to the

elderly, or am I wrong?

A. The methods that are currently available are able to detect lead in the bone of adults, but the current technologies are not very sensitive for children, even children who have been heavily exposed in their early years.

The method continues to be developed and it may become available in the future, but at present it's useful only for adults. I wouldn't say just the elderly, but people who are adults.

Q. So beyond what age? I don't mind if you use a broadbrush approach.

A. The most data are available for individuals 45 and older, so I'm not quite sure whether 20 to 45, the methods would be sufficiently sensitive. They may be, under certain conditions.

Q. Why is that good for people perhaps over the age of 45 and not so good for people under, particularly children?

A. Well, it's likely because of the rapid bone remodelling that goes on in children as they grow. We did a study in my hospital, Boston Children's Hospital, where we followed up -- at about age 12 to 15 children who had been treated for lead poisoning as toddlers, as two and three-year-olds in our hospital, they had blood lead levels up into the 40s and 50s microgram per decilitre,

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C and using the currently available technology, we
D actually did not detect lead in the bones of any of
E those children.

F So the lead apparently goes in and out very rapidly
G as children are developing, but once we reach maturity,
H physical maturity, lead simply accumulates in the bones.
I It does come out under certain circumstances, when women
J are pregnant, lactating, or when women reach menopause,
K or if someone has osteoporosis, where there's bone
L demineralisation, then lead can come back out, but
M otherwise it tends to just accumulate in the bone.

N Q. When you said lead in the bone you mentioned in and out,
O and then later on it may come back out. Do you mean to
P say the lead will not get out of the body but it may get
Q in or out of the bone?

R A. It will come out of the bone and then go into the other
S pools that I mentioned yesterday: the soft tissues and
T the blood. And it may get out of -- may be excreted.
U We do know that lead from bone is passed to a foetus
V from the pregnant mother. So it doesn't necessarily
remain in the woman's body or the adult's body, and it
can be excreted.

CHAIRMAN: Can you stop.

T Can you all switch off your mobile telephones,
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Yes, please, Mr Lee.

MR LEE: Would airplane mode be sufficient?

CHAIRMAN: Yes, I believe so.

MR LEE: You mentioned about pregnant women. Could lead in the bone get out of the body even in people other than pregnant women?

A. Yes.

Q. Thank you. When you are looking an at person of, say, 45 or beyond, which method of testing of lead in the bone is more reliable, blood or bone?

A. Well, they are measuring somewhat different -- the term is they have different exposure averaging times. The lead in the bone, depending upon which bone you are looking at, probably integrates exposure over a longer period. The blood will reflect largely more recent exposure of the past several months, whereas bone may reflect exposure over a period of years.

Q. So maybe ideally you should do both?

A. If the capability is available, it gives you a more complete picture of exposure, yes.

Q. Is it a very advanced method of testing lead in the bone, or is it generally available to hospitals?

A. It's primarily a research tool at this point.

Q. I see.

A. It's not used clinically, and the technology is not

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widely available. It's at only a few research centres.

Q. You talked about half-life when it comes to lead in the blood. Do you have such a thing in bones?

A. Yes. It depends on the type of the bone. If it's the very hard, it's called cortical bone, then the half-life may be as long as 30 years. But there are areas of bone that are more spongy, they are more in contact with the circulation, the circulation of blood, and so -- that's called trabecular bone. The half-life of lead in trabecular bone is probably ten years or perhaps less.

Q. Okay. I'm going to ask you another matter. It's a simple matter but it's important, because when it comes to an incident like this in Hong Kong, in fact in any community, people may be afraid --

A. Certainly.

Q. -- and there's too much fear, so I want to quell that, if possible.

Would it be entirely safe for me to brush my teeth with water which contains a lot of lead?

A. You mean over a long period of time or once?

Q. Well, perhaps -- I put "a lot of lead" into my question.

If I were to brush my teeth and wash my mouth with water from a tap which contains a pretty high level of lead, say -- I don't consume that, I don't drink it -- is it safe?

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A. If nothing gets into your body to be absorbed, yes, it would be.

Q. But normally, you know the procedure of brushing teeth and washing your mouth -- some may seep in, a little bit, but certainly you don't drink it, that's what I mean. Is that safe?

A. It would depend on how much lead is there, how much it's adding to your background exposure from other sources.

Q. Other sources of course is nothing to do with water from the tap.

A. Right.

Q. What sort of level would be so high that you don't even recommend me to wash my mouth with such water?

A. I'm not sure I could assign a number.

Q. It would be very high?

A. It would probably be very, very high, yes.

Q. Because I don't want our people in Hong Kong to get too worried about this. So generally, would it be safe for people to wash their mouth, brush their teeth, with water from the tap?

A. Based on my knowledge of what the lead concentrations are in the water, I would say yes.

Q. So it's quite safe to use the water to take a shower?

A. Yes.

Q. Wash my hair?

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A. Right.

Q. Thank you.

Now, you come to this. Your knowledge of the lead level in the water -- you mentioned it -- such knowledge that you have of the lead content in our water, where do you get it from?

A. It was from the information provided me, presumably from the Water Authority and their testing.

Q. Do you know that the Water Authority in Hong Kong, the Waterworks Department in Hong Kong, when they tested the water samples they would flush it for five minutes before they would take the sample? Do you follow me?

A. Yes.

Q. When, the question is, there is lead or much lead in the water from our taps, what method would you recommend to use: first draw or always after five minutes' flush?

A. It depends on the question you are asking, the kind of information you want.

Q. You know the nature of this Inquiry.

A. Yes, and if the water has been standing overnight for a period of hours and coming in contact with lead-containing fixtures, it's well known that the concentration will be higher than it will be if you measure the concentration in a sample after the tap has been flushed.

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Q. Of course you know that in Hong Kong a lot of people, even rich people, live in tall buildings, living in flats in tall blocks; you know that?

A. Yes.

Q. Because you can see it all over. Of course, very often water is pumped to the top of the building and then a water tank and then it comes down to serve all the units. Do you understand that?

A. Yes.

Q. Therefore, it will go through the pipe and there will be a lot of joints in the pipe, and if in the joints there is solder used which contains lead, then every time water comes through such a joint or connector, then some lead may actually get into the water; do you follow me? And you can imagine all the way going down, going down, to a particular flat. Again, it depends on where your flat is located, because if your flat is located pretty close to the water tank, as opposed to far away, going through many more joints, then you can see there must be some difference between lead in the water for a flat which is closer to the tank than one which is further away from the tank. Do you follow the logic?

A. It's a reasonable hypothesis. I don't know. The data --

Q. Again, it depends on what about the other people having

turned on their pipes?

I will be more specific. If you have somebody at the end of that pipe -- you know what I mean, the end of that long pipe -- switching it on at 6 o'clock in the morning, and all the water would go through that, let's say I use it for 10 minutes, and then somebody in the flat which is closer to the tank would turn on the tap, say, at 10 am, then a lot of water would have been used before 10 am. So, in that case, do you expect the lead content in the water to be lower when the water is used at 10 am as opposed to at 6 am?

A. Again, it's a plausible hypothesis. I don't know that anybody has ever done that particular experiment. I'm not a water expert so --

Q. But you see the logic of it?

A. I see the logic, yes.

Q. So ideally, one should actually give the time when the water sample is taken, because it would affect the extent of lead in the water? Is that logical?

A. It could, yes.

Q. We have certain figures to show -- see whether you see the logic of it -- and if you don't feel comfortable to answer, then tell me, because I'm sure the Commission will be sympathetic.

Mr Chairman, there is in fact a TV programme shown

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C some time ago, I understand, and it's from TVB,
D News Magazine. It's a documentary from one of the
E television channels in Hong Kong, and it was televised
F on 18 July this year, and now it's on YouTube, so it's
G freely accessible and very much in the public domain.
H It contains a certain test result.

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J What happened was there is a resident, Mr Chairman,
K surnamed Chu, Mr Chu. In fact, he could be a witness,
L if necessary. Certain water samples were taken from his
M flat, and the TV people were there when the water
N samples were taken, and then the water samples were then
O tested in the lab -- we don't know which lab, Mr Chu
P doesn't know either. Mr Chu didn't even know the
Q results of the testing until he saw the programme,
R because it was just taken away from his flat to be
S tested. Mr Chu himself was not exposed to any excess of
T lead in his blood, because somehow he took the
U precaution of flushing the water always before he used
V it, unlike me. So he was not affected at all.

Now, the results which we have, in the form of --
it's something like that (indicating). It's captured
from YouTube. (Handed).

CHAIRMAN: Yes.

MR LEE: It will give the level of lead after first draw.

CHAIRMAN: Yes.

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MR LEE: Then after 30 seconds, after 60 seconds and after 120 seconds.

CHAIRMAN: Yes. Well, if you are asking sampling methods, Prof Bellinger may not be the expert that you wish to ask.

MR LEE: I know.

CHAIRMAN: I think it's Prof Fawell.

MR LEE: Indeed, but if possible the professor may be able to help us on the health effect of lead in such water.

CHAIRMAN: Right.

MR LEE: I'm afraid it's not in English, but over there you see "0", the Chinese character is "second", "49"; do you see that?

A. Yes.

Q. Micrograms per litre, which is at the top there, in Chinese characters. You see that "0", "20" -- do you see that?

A. Yes.

Q. In fact, this is micrograms per litre; is that right?

A. (Nodded head).

Q. Then the first one is "49". That's first draw, because it's at 0 seconds. After 0 seconds you have this figure, 49 micrograms per litre; all right?

A. Yes.

Q. The next one, "28", you see 30 seconds?

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A. Yes.

Q. Please say "yes" rather than nod, because the record doesn't record a nod but they record a yes.

A. Yes.

Q. Thank you.

The third one is 10 micrograms and 60 seconds; do you see that?

A. Yes.

Q. And then 7 micrograms, 120 seconds?

A. Yes.

Q. Would that be consistent with your knowledge of these things?

A. Yes, it is. In the literature, it is suggested to run the tap for two minutes, to recent an asymptotic level of lead.

Q. You say the literature mentions two minutes. Have you come across literature that mentions five minutes?

A. I have seen that figure, yes. It's less common than the two minutes.

Q. But if the figures supplied to you by our Waterworks Department in fact show some X micrograms per litre in the water, but after flushing of five minutes, then presumably, if you work backwards, if it is first draw, it will be much higher, logically?

A. It's possible, yes.

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Q. Possible or likely?

A. Well, it depends upon the water system. If there are lead fixtures in the water that can come in contact with them, I would expect under those circumstances the five-minute flush sample to have a lower concentration. If it's not coming into any contact with lead, I would expect it to be the same regardless of the duration of the flush.

Q. Of course, it all depends on the time when the water sample was taken, as I asked you earlier?

A. It may, yes.

Q. So maybe we should actually -- since the TV crew had actually gone into Mr Chu's flat to take this, I suppose it would not be first thing in the morning, but anyway, we will find out soon.

On this hypothesis, therefore, if in fact all the water samples supplied to you had been from first draw, or at least part of it would show first draw, or even 2 minutes as opposed to 5 minutes, then presumably, as a matter of logic, the figures of the lead content in the water would be higher? Of course one doesn't know exactly how much higher; right?

A. Correct.

Q. If you then identify a number, maybe a large number of other flats which would have been affected by more lead

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content in the water if they had made the first draw, then the government would be able to identify many more flats, presumably, which might conceivably have been affected by lead in water? Is that logical?

A. Again, it's a reasonable hypothesis. The only way we would know is if data were collected to confirm it.

Q. Presumably, a responsible government would then make sure that the people living in those flats which show pretty high lead content in the tap water would undergo blood tests? Would that not be a reasonable thing to do?

A. Again, if the data were collected that indicated that as a reasonable course, I of course would agree with it.

Q. And of course the net result would show that there may be many more people who had rather high lead content in their blood than the figures before you now show? Do you follow me?

A. I understand your argument, yes.

Q. And that would be a logical approach?

A. Well, again, it's setting out a series of premises that do suggest that there's a question that needs to be answered.

Q. Now, here your expertise comes in. Now, with your experience in these things and expertise, what would you advise the government to do, from the public health

point of view, bearing in mind the interests of the people living in those estates?

A. Well, from my perspective working in the health field, my concern is more how much lead is getting into people rather than how much is in the water. Again, what I said yesterday about the multiplicity of sources, I tend to focus on that the human body integrates the exposure a person gets from all different sources, and my concern from the standpoint of health effects is how much has been absorbed into the body.

So I always support doing biological sampling of people, to answer that question.

Q. Biological examination of the people. Bearing in mind that your evidence is lead could come into the body via a number of channels -- right?

A. That's correct.

Q. -- what sort of biological tests would you recommend be conducted?

A. A blood test, measuring blood lead.

Q. Would the blood test actually tell you the source of the lead getting into the body?

A. Not a routine blood test, no.

Q. What about a non-routine blood test?

A. Yes, there is -- lead exists naturally in several stable isotopic forms, and the ratios of different stable

isotopes can vary, depending upon where a given sample of lead was mined. So sometimes it's possible to identify the source of the lead in a person's blood based on the isotopic signature of the lead, because you can compare that signature to the isotopic signature in the potential sources.

It doesn't always work and it's not a test that's routinely available, but in theory, it is an option, if that is the research question of interest.

Q. You mention the signature. Is it almost like the signature of a print, like a fingerprint, not as precise, no doubt?

A. It's not as individual as an individual's fingerprint, but you may see the ratio of two of the stable isotopes. For instance, this has been used, when the interest is in how much lead in the air from the combustion of petrol was contributing to blood lead levels in a population, the lead that was used as an additive to petrol tended to be mined from different areas than the lead that is used in lead-based paint, for instance. So analyses of the signatures of the lead in people's blood, you could ask the question how much does that signature -- to what extent does that signature resemble more the signature of the lead used as a petrol additive than the lead used in paint?

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Q. Okay. So now you are making a distinction between lead from paint and lead from petrol?

CHAIRMAN: No. It's the isotopic signatures of lead.

I think lead has two forms of isotopes, 206 or 208 or something like that.

A. That's correct.

CHAIRMAN: And if you, Mr Lee, read the task force reports, you would notice that the government actually conducted tests on the source of the lead, whether it's from, say, solder or whether it's from the fittings, the valves and the gates, et cetera.

MR LEE: Thank you, Chairman.

So that you know that the chairman is an expert too.

A. Yes.

Q. So, using certain blood tests one could discover whether the lead had come from the water or other than water?

A. In theory. As I say, it isn't always quite as clear a result as you would hope.

Q. But at least it would give you some sort of reference point, at least; right?

A. It might give you a clear answer. It might not. That's all I can say.

Q. Could these tests be done in Hong Kong, do you think? Is it generally or only in your hospital or what?

A. I would assume it could be done here.

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Q. Thank you.

Now, if there is such an incident in the States, for example, where you live -- which state do you live in?

A. Massachusetts.

Q. If it had taken place there, would you advise the government to test, to conduct random blood tests on the population, or just selected groups of people more vulnerable, like children, pregnant women, and so on?

A. It would depend on the question that you want the answer to. I might, depending on the resources available, do risk stratification, identify the individuals most at risk, and target them initially, and depending upon the results in that population, extend to other segments of the population.

Q. For children, where would you draw the line? If you would concentrate first on groups of people more vulnerable, for children, where would you draw the line?

A. I tend to be more protective when it comes to children. I would probably say around age 12.

Q. Thank you. And no doubt pregnant women and lactating women -- no doubt you include them too?

A. Yes, I would.

Q. Any other people you would include as more vulnerable?

A. Those would be my initial choices for the most vulnerable subgroups.

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Q. Thank you.

Mr Chairman, we have certain facts from particular -- from our clients, actually, and I will give those figures to you. (Handed).

The first page belongs to this family living in Kwai Luen Estate, within brackets; do you see that?

A. Yes.

Q. This is the Chong family. On the left-hand side, you see the husband, the date of birth; you see the wife, the date of birth; and you see the son, date of birth; and then the daughter, her date of birth. Do you see that?

A. Yes.

Q. Then you also see the age at the time and blood collection date.

Now, I should fill you in. This incident, excess lead in water, came to light in Hong Kong around mid-July this year. Mid-July.

A. Yes.

Q. So you see the date when the blood was collected. You see the wife. The second stage, she was -- oh, both dates are dated. Then the blood level, lead level in the blood, the husband is 3.64, and we took the reference point at 10; do you see that?

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Q. And then the wife, which should be 5, and she exceeded it somewhat; right?

A. Yes.

Q. The first one. The second one is lower down; it's already dropped, reduced, and became normal, if you use 5 micrograms per decilitre as where you draw the line. Then the son was below, and the daughter was just below.

You see the symptoms now, under the column, and the husband had abdominal pain and diarrhoea, the same as the wife. Then "Time frame": it began one or two months after moving into this flat, both of them, of course. For the daughter, the young daughter:

-- Slow response.

-- Delayed speech or language development: way behind when compared with her brother (who could express his emotions relatively well at 2 years old).

-- Situation improved obviously as soon as she stopped drinking lead water."

Then they found out, the government found out, and the whole family switched to drinking water which was supplied elsewhere, safe water.

You see that?

A. Yes, I do.

Q. Are these symptoms consistent with excess lead in the blood?

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A. They are but only at blood lead levels considerably higher than the maximum of 5 that were observed in this family.

Q. But could -- of course, it's very difficult to be absolutely scientific about it. You cannot say beyond this you never have pain, or rather below this you never have pain and above this you may have pain. You can't be that precise.

A. No, you can't. The problem is that these are all such non-specific symptoms and signs that can be associated with many other sorts of health effects, including stress. So it's very difficult to be certain.

Q. Are there very specific signs?

A. Of lead toxicity?

Q. (Nodded head).

A. It's really only when someone becomes encephalopathic and they start having swelling and bleeding in the brain, which tends to occur only in children at levels only above 100 micrograms per decilitre and may not even occur with several micrograms per decilitre. That's one of the very difficult aspects of lead toxicity. The signs are non-specific. So sometimes lead is not identified as the cause for a long time.

Q. But of course there could be symptoms which you can say, anybody can say, have nothing to do with lead in water?

For instance, a bruise on my knee, if I have been playing football and fell down, that has nothing to do with lead; right?

A. That's right.

Q. Are these consistent with a person who might have too much lead in his blood?

A. The symptoms are consistent, but it's very unlikely, in my experience, based on these blood lead levels.

Q. We turn to the next one. Case 2 is the Liu family, also in Kwai Luen Estate. They moved in in August last year.

We see the wife, aged 45. Her blood was not tested, but she had neck pain, and abdominal pain around the waist. We see the time frame when she suffered those symptoms: the neck pain was from about April to June this year, and improved after drinking normal water; we see "yes" in brackets. Then abdominal pain around the waist, she suffered from that after February 2015, this year, and improved after drinking normal water. The frequency you see at the right side: a few times.

Now, the daughter: you see the blood collection date, 25 July, and then three months later, and the level of lead, 6.4 and 5.5 respectively. She would be considered to be suffering from potential health risk, and she had abdominal pain more than ten times, medical consultation dates between February and August, at least

twice a month, and "Poor memory -- Comments from teachers", since moving in, and not improved.

Would that be consistent, these symptoms, with there being too much lead in the blood of the daughter?

A. Again, it could be. The same problem that these are non-specific symptoms.

I would also ask when were these symptoms identified; what was the date?

Q. The second-to-last column, "Time frame". Of course we could only take statements from them.

A. Was this based on the wife reporting that yes, I had neck pain between April and June, but when was she asked that question?

Q. She was asked that question just a few days ago, because we knew about these people but we wanted to take statements from them for use in this Inquiry, and we wanted the statements to be submitted to the various people concerned before Christmas. So that's why we took statements. But we knew about these people.

A. I would be much more concerned if there were in the medical record evidence of this woman reporting to her primary care physician, before she knew that she had lead in her water, that she was suffering from abdominal pain.

Q. I understand they have been to their doctors, so we

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could have got such evidence.

A. I think that would be very important. Otherwise, looking back, in the context of knowledge of this incident with the water lead, people can re-interpret all kinds of --

Q. Yes. It could be psychological?

A. That would be one of the things that would have to be considered.

Q. Of course. When one reads about these things and then says, "What about me?"

A. Right.

Q. Particularly when you have nothing to do at home.

A. Well, it's a very natural kind of human response to a situation.

Q. You see over the page, for this family over the page, you see the pattern of the use of water. That is before they knew the incident, they would start using the water at 6 am and boil water from the first draw; you see? Because in a lot of families in Hong Kong, they are busy, and the first thing they do when they get up is to take water from the tap and boil it, and then for the rest of the day they use the boiled water, which might have cooled down, of course. That is the problem.

A. Mm-hmm.

Q. So they have this habit. For breakfast they have congee

A and also cook lunch -- fish, vegetables and so on for
B the husband -- and then lunch and dinner, you see, soup
C every night, and wash dishes, last use around 9 pm. So
D the water would be collecting between 9 pm until
E 6 o'clock in the morning.

F A. Right.

G Q. The last one, case 3, this is the Lee family, Kai Ching
H Estate. We see the husband and wife, eldest daughter,
I nine, the second daughter, five, and the youngest
J daughter, one. Why don't we save some time and go to
K the second page -- or maybe the eldest daughter,
L "Symptoms": "Weak resistance to diseases" -- no doubt
M you would say, for this sort of thing, ideally we need
N to call the doctor who treated this at the time?

O A. Yes, that would be helpful.

P Q. I entirely see the logic of your answer, Professor.
O "Serious cold and coughing"; it might be just
P natural.

Q Over the page, "Lack of concentration; noticeable
R deterioration in academic performance." No doubt we
S need a teacher to give that sort of evidence?

T A. Yes.

U Q. The second daughter now -- the second child is also
V a daughter -- three daughters, that's right, the second
U one -- again, first, "Weak resistance to diseases", we

need a doctor there.

"(2) Slower physical development (in terms of height and weight) compared to the elder sister."

Again, there may not be anything abnormal about it. In every family you have a taller and a smaller child.

A. That's right. That's what makes this different.

Q. I don't have that knowledge because I have only one child.

Then the youngest daughter, she has 6.7 micrograms in her blood and classified as "Potential health risk".

Again, "Weak resistance to diseases", and:

"(2) Delayed speech or language development: way behind compared with her sisters (who could speak reasonably well at 3 years old).

-- Still cannot speak clearly enough so the parents could understand.

-- Situation improved a little after she went to kindergarten."

So these symptoms, if we can call them symptoms, of these children, are they consistent with there being, particularly the youngest one, excessive lead in the blood?

A. Yes. All of these things have been linked to elevated exposure to lead.

Q. Over the page, we see again, unfortunately, they boil

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their water first thing in the morning, at 6.30 am,
which no doubt would have contributed to it; yes?

A. Other things being equal, yes. If there is lead in the
fixtures, then that pattern of use would be expected to
result in higher concentrations.

Q. Again, the last time they used water from that tap would
be 9 pm; do you see that?

A. (Nodded head).

Q. While you still have that chart, go back to the second
case, page 3. Go back to page 3. You see "Daughter" on
that page, at the bottom?

A. Yes.

Q. Her date of birth was 8 November 2010, and the blood
lead level was 6.4 and then 5.5; do you see that?

A. Yes.

Q. I will show you another document, which unfortunately
is in Chinese (Handed), and I will provide the
translation.

You see this Chinese document, on the top-right
corner there's some English. Do you see the date? The
date was the date of this document.

A. Yes.

Q. Which was 10 August this year. Then further down, you
see "DOB"; that's the date of birth?

A. Yes.

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Q. It is 8 November 2010, which tallies with our other document that I showed you, the daughter, her date of birth.

A. Right.

Q. Her name is in Chinese. I think we should not disclose her name. The surname is Lam; all right? The surname of the mother is Liu, which we have on this document, but the daughter's surname is Lam. Then her sex is female, we see that on the document.

A. Yes.

Q. Then she was discovered -- the document then says, in English -- I will now give it to you -- the heading is:

"Assessment of physical condition and intelligence of children.

Report of preliminary assessment".

Then what was contained in this document was:

"The developmental performance of the child is consistent with his/her age."

Okay? The developmental performance of the child is consistent with her age. Then:

"Recommendation: For Maternal and Child Health Centre to contact and arrange for follow-up developmental surveillance."

So that was the recommendation. Unfortunately, it does not give any indication as to the conclusion that

the developmental performance of this child is consistent with her age.

In your state, Massachusetts, if there is a preliminary assessment of this kind, would you expect more information to be given to the parents, say consistent and do you expect -- do you know, for example -- when you read this thing, you just don't know what sort of test has been conducted.

A. Right. My first question would be why was the testing conducted; was it because of a concern about developmental delay?

Q. Yes, because of the discovery of the lead content in the blood was 6.4 micrograms, which was higher than what the government would consider to be normal for a child under eight.

A. Yes.

Q. That was why they then sent her to the centre for testing.

A. Well, I don't know what the local practices are in this regard, what kind of testing was done, whether it was a screening test or simply asking the parent about achievement of developmental milestones or whether a full neurodevelopmental battery was administered. Typically, in the United States, if a paediatrician does a screening exam and everything looks okay, that would

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C be the message communicated to the parents: no concerns
D in any areas. If there were concerns, say in the
E development of expressive language, the parents would
F be told and directed -- referred to some centre for either
G more intense evaluation or surveillance of the sort that
H was recommended here.

I So I think there's just not enough information to
J know what the situation is here, for this young child.

K Q. But in the US, you mentioned already what sort of
L assessment would be expected to be done; right? You
M already mentioned?

N A. Right.

O Q. If we could now come to the letter on which you were
P asked questions yesterday, which is bundle E2, page 846,
Q the letter from the Department of Justice, Mr Chairman.

R Professor, I will spend a little more time on this
S letter, because this is almost my last subject.

T A. Okay.

U Q. We see the reference, after "Dear Sirs", it says:

V "Commission of Inquiry into Excess Lead Found in
Drinking Water.

Production of relevant documents possessed by the
Director of Health."

Do you see that?

A. Yes.

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C Q. "Further to our last submission of documents on
D 3 December 2015, we are instructed to enclose herewith
E the following updated documents which are in the
F director's possession and are relevant to the
Commission's enquiries".

G Then three types of documents. The first one is
H "updated summary tables", then the second one is
I "updated list of blood test results", and the third one
is "updated master list of documents published". Then:

J "Regarding Prof David C Bellinger's expert report
K dated 1 December 2015 provided to the Commissioner of
L Inquiry into Excess Lead Found in Drinking Water ('the
M expert report'), it is noted that reference has been
N made to the line-listing of the follow-up blood lead
O tests as of 22 October 2015. We are instructed to
provide the information as set out in the following
paragraphs to the Commission.

P In page 18 of the expert report, it mentioned that
Q the results of repeat blood lead tests were reported for
R 28 individuals. In fact, 29 individuals had repeat
S blood lead tests conducted in the same period and the
T interval between the initial and repeat blood lead test
U was approximately three months for 25 individuals. For
the remaining four individuals (all pregnant women), the
V interval ranged from one week to one month (see document

submitted by the director on 29 October ...", and so on.

So they are very careful, almost painstaking, because apparently you only mention 28 and they said in fact there are 29.

A. Correct.

Q. I suppose as you would expect of the Director of Health, very meticulous about these things. That's good.

Now:

"As for the 'exposure assessment' mentioned in page 19 of [your] expert report, a lead exposure assessment ... is conducted by a nurse of the Department of Health ... for every individual with elevated blood lead level. For selected circumstances, LEA [lead exposure assessment] will be supplemented by a home visit. Relevant documents including the questionnaire and reference materials used for conducting lead exposure assessments, protocol and flowchart for home visits of cases with elevated blood lead level are included in the above-mentioned updated 'master list of documents published'."

So they were dealing with your point about exposure assessment; do you understand?

A. Yes.

Q. Now:

"Regarding the 'developmental assessment' mentioned

A in page 19 of the expert report, all children with
B elevated blood lead level will receive preliminary
C developmental assessment at [the Director of Health's]
D Child Assessment Centres (for pre-school children below
E 6 years) or Student Health Service Special Assessment
F Centres (for schoolchildren 6 to 12 years) by
G a developmental surveillance team" -- now, note this,
H "developmental surveillance team" -- "composed of
I paediatricians and nurses. The developmental
J assessment covers major developmental areas including
K gross and fine motor, language and communication,
L cognition, learning, behaviour and emotion, self-care,
M vision and hearing. This is conducted through history
N taking (including birth, developmental and medical
O history, daily and school functioning and parents
P concern on development and behaviour), reviewing school
Q reports and school work, physical examination (including
R soft neurological signs), clinical observation and use
S of questionnaires and assessment tools."

I think yesterday you expressed satisfaction of
these measures taken; is that right?

A. Yes. This is quite a complete plan. I don't know what
other kind of information one would ever want as part
of a developmental assessment. It sees how the child is
functioning in the eyes of the parents, in the eyes of

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the school. There's a plan for individual assessment of the child, history taking. It covers the major areas of function. I think it's quite complete.

Q. But of course you don't know what they actually did, but from the description you have no reason to disbelieve it?

A. That's right.

Q. I think that's fair.

A. Yes.

Q. So the next paragraph:

"Children identified with developmental or behavioural problems will have follow-up evaluation at Child Assessment Service according to individual needs."

So they were dealing with developmental assessment, and then mentioning this developmental surveillance team, and then, after the assessment, children identified with developmental or behavioural problems will be treated in this way; there will be follow-up evaluation.

A. Correct.

Q. Which is also correct, you would say?

A. I would say yes. We don't like to subject children to assessments they don't need or follow-up that they don't need, so it's appropriate to target the follow-up, to make sure that any children with identified problems are

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receiving the services that they need.

Q. But again you don't know what they would do, how they would assess the children at this Child Assessment Service, but you have to assume that they would do it properly?

A. Well, I would hope so, and that would be my first assumption, yes.

Q. But of course you can't pass adverse comment on that because there's no evidence?

A. No, I haven't seen the specific protocols that they would apply.

Q. I want to be fair to them too, so at this stage, fine.

A. So far, so good, is what I would say.

Q. Now the next sentence:

"Children with largely normal development" -- note the word "largely" -- "would receive continuous monitoring through enhanced developmental surveillance at Maternal and Child Health Centres (MCHC) during pre-school years and annual health visits at Student Health Centres during school years."

So there are two types of children. The first type was the first sentence, those identified with developmental or behavioural problems. Now, then children with largely normal development would still receive continuous monitoring through enhanced

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developmental surveillance. Of course, if you go back to the earlier paragraph, the fourth line, the last few words, "the development surveillance team", this is where the words come from, "enhanced developmental surveillance"; do you see that?

A. Yes.

Q. Then:

"Parents are provided with anticipatory developmental guidance and information on children's development in the form of pamphlets."

I asked you about that yesterday; do you remember?

A. Yes.

Q. So here, the picture given is even those students or children who have not been found to have any developmental or behavioural problems would be monitored continuously through this enhanced developmental surveillance, and then parents are provided with anticipatory developmental guidance by means of these pamphlets.

Then the pamphlets are also available online, that is the bit we got into trouble with yesterday.

Now, instead of showing you the whole thing, which I don't think is necessary, we will give you the index of those pamphlets. It's in English. (Handed).

A. Okay.

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Q. These few sheets of paper which are being distributed -- the document I just handed up to you, Professor -- look at page 1, the very bottom of it, small letters, do you see that, "http"?

A. Yes.

Q. That's the online thing, and the one they gave was Chinese, the one in the letter is "chi" and then "health"; do you see that, in the Chinese?

A. Yes.

Q. In the letter, it's not exactly the same, because we have the English document, whereas the link they mention actually is Chinese.

A. Right. I went to that link last night and noticed that it was all Chinese.

Q. So you did your homework.

A. Yes.

Q. So we've got the English for you.

A. Thank you.

Q. Thank you, Professor. I won't spend much time on it, but if you go through that, "Happy Parenting" -- this is "Health Information". "Health Information" and then "Child Health", "Happy Parenting", then the first little pamphlet is:

"Happy Parenting ... Newborn Baby [Birth to one week].

Download image version", and so on.

Second one is "Happy Parenting" again, and then (3), (4), (5), and then pre-school children later on.

"Infant & Toddler", "Pre-school Children". So different booklets, different pamphlets.

At the top of the second page, just turn over, you see the last revision date -- oh, you don't have that.

Then you see the next document, again "Happy Parenting (1) [Birth to one week]", then you see the heading:

"Newborn jaundice.

Care of the umbilical cord.

Breastfeeding", and so on.

You just browse through it, please.

Then, if you go over the page, you see "Content revised", there was the date, June 2015; do you see that, in brackets? The second sheet, back page, at the top, "Content revised".

Then the third sheet now, again, "Happy Parenting (2) Newborn Baby [1 week to 1 month]", and then browse through the headings. Then you see "Content revised" at the bottom, March 2015.

Then the next document, again "Happy Parenting (3) Infant & Toddler". Again, browse through the page, the index.

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CHAIRMAN: So what's your question to the professor?

MR LEE: The question is these pamphlets in fact have nothing to do with lead in water or lead in blood; nothing to do.

You follow? You agree?

I mean, they are all there. I don't want to waste time.

Do you agree, they have nothing to do? These are useful pamphlets, no doubt, for any baby or for any mother, but they have nothing to do at all --

A. Well, none of the headings do. I don't know what the content is. It's possible.

Q. Exactly. Coming back quickly to the letter -- I just want to put them in context; do you see what I mean? They have nothing to do with enhanced developmental surveillance of any kind, these pamphlets.

A. They do have to do with developmental -- of how parents can support child development.

Q. Yes, but nothing to do with lead, the question that we are looking at?

A. I don't think they are advanced as having to do with lead in the letter.

Q. But when they talk about "enhanced developmental surveillance", what would that mean, normally?

A. It means someone is watching a child to make sure that

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they are on target in all the aspects of development.

Q. But because of the word "enhanced", then obviously they are paying particular attention to certain children?

A. I think that's appropriate under the circumstances, that people are concerned to make sure that this episode does not derail the development of a child.

Q. So how would you read -- in other words, children who are found to be largely normal, their parents would have the benefit of these pamphlets; right? Listen to what they suggest.

A. Right.

Q. But, presumably, all parents would be supplied with these pamphlets anyway, with or without this incident?

A. I don't know whether that's true or not.

Q. But if they were readily available, then it's not for particular children but for all children?

A. They would be helpful to all parents and children, yes.

MR LEE: Please look at your report.

I don't need to put any more questions, Mr Chairman.

Thank you, Professor. Nothing more from me.

CHAIRMAN: Thank you.

Cross-examination by MR LAM

MR LAM: Mr Chairman, I wonder if I could have the chance to ask the professor a few questions.

Professor, I am from one of the main contractors,

A Shui On. One answer of interest that you just said, the
B question from Mr Lee about the other non-routine blood
C test, and you said, concerning the isotopic test, it
D doesn't always work, and -- I am quoting from what you
E said -- you said it's not a test that is routinely
F available, but in theory it's an option, if that's the
G research question of interest to you.

H What I want to ask you is, you said it doesn't
I always work; why doesn't it always work?

J A. Because the isotopic signatures of lead from different
K sources may not always differ very much, to the point
L where you can reliably identify the lead in blood or
M solder as coming from this particular mine, basically.
N And sometimes lead from the same mine may be used in
O different products.

P So it just depends upon a specific situation,
Q whether or not it gives you a clear answer as to the
R source of the lead.

S Q. Then I think you carried on and you said: it might give
T you a clear answer and it might not. That's the reason
U why you said it.

V A. That's basically it, yes.

Q. I want to ask you about what Mr Lee has shown to you
concerning the isotopic test. Of course in that
context, your answer was based on the blood test that

was asked of you by Mr Lee and then you said --

A. He was asking whether the lead in blood could be identified by source.

Q. Would your answer be any different if it was concerning lead in water?

A. No, it wouldn't.

Q. I want to ask you about Mr Lee's case studies. Do you have them with you?

A. Yes.

Q. If I may go to case 1 first. Now, the daughter, which is really of my interest. She is six months. Then it is said that the symptoms were:

-- Slow response.

-- Delayed speech or language development: way behind compared with her brother (who could express his emotions relatively well at 2 years old)."

Of course, we are talking about a very young daughter, six months at the time -- yes?

A. Yes.

Q. Of course, we are looking at the blood lead level. As you already mentioned during the course of yesterday, there are other factors at play, like environmental, eating habits, and perhaps parents' occupation. So, insofar as the blood lead level itself is concerned, it may or may not be the lead in the water that caused it?

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A. It's a contributor but it's not the whole story, in a typical scenario.

Q. Insofar as the symptoms are concerned, again it says "Slow response", but bearing in mind the age of this young daughter, it could also be other social or economic factors or she could be a late achiever so far as we are concerned, because at the moment it is very vague information that is contained in this case study?

A. I agree, because as I say it is non-specific and there are tremendous variability in children's developmental paths.

Q. "Situation improved obviously as soon as she stopped drinking lead water."

Again, that is very vague. It could well be the reason being that she got older and her responses would be quicker, let me put it that way.

A. That's correct, and that's why I asked when this information was elicited, because this is based on parent report, presumably, and the parents are aware of the larger context of the situation.

Q. If I can then ask you, Professor, to look at case 2. Case 2, a young daughter of four years old and then the complaint was abdominal pain and poor memory. Again, the same factors apply: it could be socioeconomic factors insofar as the symptoms are concerned and it

could be that she is a late achiever.

A. That's correct.

Q. But for this case, we do have the extra sheet of tests, and Mr Lee had read to you the developmental performance -- in Chinese -- of the child is consistent with her age. It could well mean that she is absolutely normal, nothing malfunctioning insofar as her development is concerned; isn't that right?

A. That would be a reasonable interpretation. I don't know what they meant by "within normal limits".

Q. Sure. So far as case 3 is concerned, I think the same answers you would give insofar as those factors and symptoms are stated there, that it's vague and doesn't really point to any conclusive answers. Do you agree?

A. Yes, I agree.

MR LAM: I have no further questions. Thank you, Professor.

Re-examination by MR KHAW

MR KHAW: Just one matter, Professor. On the blood tests which could provide isotopic analysis of the lead content in blood, you have told us earlier that it is possible to identify the source of lead in a person's blood on the basis of the isotopic signature of lead, and then you can compare that signature to the signature in relation to other sources.

A. (Nodded head).

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C Q. You have also told us why you say that this doesn't
D always work, and you consider that an option.

E I just want you to consider this. You have seen the
F data of the blood tests in relation to the affected
G estates in Hong Kong, and yesterday we also went through
H the updated list of the blood tests, and they all showed
I in general a decline of the content of lead in blood --

J A. Correct.

K Q. -- in relation to most of the residents. In such
L circumstances, would you find it necessary to conduct
M blood tests for the isotopic analysis of blood, for
N those people affected?

O A. I would think not. To me, the evidence of the
P consistent declines, ranging from a few per cent to
Q 50 per cent, following the interruption of the exposure
R to what we know is lead-contaminated water -- to me,
S that tells the story, that people were being exposed to
T lead in the water. And the isotopic analysis would be
U icing on the cake, but personally, I don't think it's
V necessary in order to draw the conclusion that there was
exposure, which is now no longer happening.

MR KHAW: Thank you. That's all I have. Thank you very
much.

CHAIRMAN: Thank you, Prof Bellinger, for your assistance in
preparing the report and in coming to Hong Kong to

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testify.

WITNESS: Thank you, Mr Chairman.

CHAIRMAN: Since you have completed your evidence, you are free to go and explore Hong Kong.

WITNESS: Thank you very much, Mr Chairman.

MR LEE: May I say Merry Christmas.

WITNESS: Merry Christmas to all.

CHAIRMAN: Let's take the morning break.

上午 11 時 22 分聆訊押後

上午 11 時 50 分恢復聆訊

出席人士如前。

林先生：主席。

主席：係。

林先生：而家我會傳召瑞安嘅區才華先生。

主席：好呀。

林先生：主席，嗰個口供係响 H1，item 10，page 53。

主席：好呀。

瑞安承建有限公司（“瑞安”）（葵聯邨第二期的總承建商）的第一證人：區才華（瑞安副總經理）以本地話宣誓作供

主席：請坐，區先生。

林先生：主席，而家我會用英文係讀出區先生嘅口供。

主席：好呀。

林先生主問

問：區先生，如果你睇一睇個口供，會响你面前嘅，如果有任何嘅不同意之處，請你指出，响我讀完之後。

COMMISSION OF INQUIRY INTO EXCESS LEAD FOUND
IN DRINKING WATER

WITNESS STATEMENT OF MR. AU CHOI WA

FOR

SHUI ON BUILDING CONTRACTORS LIMITED

1. I, Au Choi Wa, am the Deputy General Manager of Shui On Building Contractors Limited ("**Shui On**"). I am duly authorised by Shui On to make this statement on its behalf.
2. I joined Shui On in 1990 as a Graduate Engineer. At the time of Kwai Luen Estate Phase 2 Project (the "**Project**"), I was initially the Assistant General Manager (until 30 June 2013) and subsequently promoted to the position of Deputy General Manager (since 1 July 2013). My primary role now is to oversee all of Shui On's Housing Authority projects. During my tenure with Shui On, I have been involved in 16 completed and 4 ongoing Housing Authority projects.
3. I am a registered professional engineer in Hong Kong

in civil and structural discipline, registered with the Engineers Registration Board under the Engineers Registration Ordinance. I am a Chartered Engineer and a member of the Institution of Structural Engineers in the United Kingdom as well as the Hong Kong Institution of Engineers. I am also a member of the Town Planning Appeals Board and the Home Affairs Bureau Public Forum. I am also a former member of the Contractors' Registration Committee and the Registered Contractors' Disciplinary Board Panel of the Buildings Department.

4. As the Assistant General Manager and subsequently the Deputy General Manager of the Project, I primarily carried out my duties from the head office. I visited the site of the Project on a regular basis. At the initial construction stage, I conducted monthly site visits. Towards the completion of the Project, I conducted weekly, sometimes daily, site visits. During these site visits, I walked around the site with Shui On's site staff to inspect the site safety, progress and quality of the works. The Project Manager, Mr. Ching Shiu Hong, produced monthly reports which I checked and verified during my site visits.

5. In this Witness Statement, I shall address Questions 1 to 13 of the Commission's list of questions set out in Messrs. Lo & Lo's letter dated 16 October 2015. My colleagues Mr. Ching Shiu Hong and Mr. Wan Wai Ho have personal knowledge on site level matters and will supplement my answers where appropriate.

Background

6. Before I address the specific questions raised by the Commission, it may be helpful for me to set out some background information regarding the Project.

7. The Housing Authority awarded the main contract for the construction of Kwai Luen Estate Phase 2 to Shui On on 4 August 2011 and signed the Main Contract on 23 April

2012 (the "**Main Contract**"). Shui On was responsible for the execution of the works in accordance with the design and the specifications contained in the Main Contract. The works commenced on 12 August 2011.

8. Shui On sub-contracted out the plumbing works of the Project to Ho Biu Kee Engineering Company Limited ("**Ho Biu Kee**") and Shun Cheong Electrical Engineering Company Limited ("**Shun Cheong**").

9. Ho Biu Kee was our domestic Sub-Contractor for the supply and installation of the entire fresh water installation system outside the pump rooms. Pursuant to Clause 7.2 of the Sub-Contract [**Bundle B4.5/6827**], the Sub-Contract was 'back-to-back' to the Main Contract. Ho Biu Kee engaged Mr. Lam Tak Sum as the Licensed Plumber who was responsible for carrying out the relevant statutory duties under the Waterworks Ordinance and Regulations, including supervising the execution of the plumbing works carried out by Ho Biu Kee.

10. Shun Cheong was the Nominated Sub-Contractor for fire services and water pump installation, and was responsible for the design, supply, and construction of the fresh and flush potable water system inside the pump rooms. Shun Cheong engaged Mr. Yue Kam Man as the Licensed Plumber who was responsible for carrying out the relevant statutory duties under the Waterworks Ordinance and Regulations, including supervising the execution of the plumbing works carried out by Shun Cheong.

11. The plumbing works commenced in June 2012 and we received the signed Form WWO 46 Part V from the Water Services Department for the satisfactory inspection of the completed plumbing system on 17 April 2014 [**Bundle B4.3/5046**].

12. As a member of Shui On's Procurement Committee, I

participated in selecting sub- contractors for Shui On's construction projects. We considered a number of factors including past performance, capability and competitiveness of pricing of the sub- contractors. Prior to the Project, we previously had engaged Ho Biu Kee as our plumbing installation sub-contractor on 39 nos. of completed Housing Authority projects and had found their past performance to be satisfactory. After considering the above factors, Shui On engaged Ho Biu Kee as our Sub-Contractor for the plumbing works of the Project.

13. In addition to engaging a Licensed Plumber through Ho Biu Kee as required under the Sub- Contract, Shui On implements quality assurance procedures in accordance with the accredited ISO 9001 system to ensure the quality of all of our projects. The quality assurance procedures are set out in the Project Quality Plan specifically designed and prepared for each project by the relevant project manager. The Project Quality Plan sets out summaries of the project activities to be controlled, the materials to be inspected upon delivery to the site, the construction processes to be inspected, in-process inspection checklists, system testing checklists and project process instructions. For Kwai Luen Estate Phase 2, the Project Manager, Mr. Ching Shiu Hong, prepared the Project Quality Plan and he will give further evidence on this in his statement.

14. I shall now address the specific questions raised by the Commission below. Since our Nominated Sub-Contractor Shun Cheong and its licensed plumber are not an involved party in the Inquiry, I shall limit my discussion to Ho Biu Kee and Mr. Lam Tak Sum only.

Question 1: Describe and explain the steps and procedures in the construction and installation of the fresh water plumbing system in the Affected Estate.

15. PLU1.W110.5 of the Main Contract [**Bundle B2/597**]

required Shui On to carry out all plumbing installation works mentioned in the Specifications and shown on the drawings by a contractor or a licensed plumber as approved by the Water Services Department. In compliance with this provision, we sub-contracted out the plumbing works to Ho Biu Kee who appointed Mr. Lam Tak Sum as the Licensed Plumber for all the plumbing works outside the pump rooms. As the works were related to the day to day process of the Project, I will defer to our Site Agent, Mr. Wan Wai Ho, to explain in his witness statement the steps and procedures in the construction and installation of fresh water plumbing services.

Question 2: With reference to the steps and procedures outlined above, explain the role and responsibilities of your client and the respective role and responsibilities of its sub-contractor(s), licensed plumber(s) ("LPs") and other person(s) in the contractual, construction and post-construction stages relating to the installation, supervision of work, inspection, certification of completion, monitoring and maintenance of the fresh water plumbing system as far as controlling the content of lead of the Plumbing Materials is concerned, stating the procedures, criteria and standards involved.

Role and responsibilities of Shui On, Ho Biu Kee and Mr. Lam Tak Sum

16. Shui On's primary responsibility was to complete the works, including the plumbing works, in accordance with the contractual requirements under the Main Contract and the relevant statutory requirements.

17. Pursuant to Clause 7.2 of the Sub-Contract with Ho Biu Kee [**Bundle B4.5/6827**], the Sub-Contract was 'back-to-back' to the Main Contract. Ho Biu Kee had a contractual obligation to comply with all of the contractual requirements under the Main Contract, a copy of which was sent to Ho Biu Kee in October 2011.

18. The Licensed Plumber had a statutory duty to comply with all the requirements under the Waterworks Ordinance and Regulations, including the supervision of the plumbing works carried out by Ho Biu Kee. He was also responsible for preparing, signing and submitting Water Service Department's Form WWO 46 and all the liaison with the Water Services Department. Mr. Wan Wai Ho will further explain the Licensed Plumber's roles and responsibilities in the preparation and submission of Form WWO 46 in his witness statement.

19. Notwithstanding that Shui On sub-contracted out the plumbing works, we took the steps and measures outlined below as far as plumbing works are concerned to ensure compliance with the contractual requirements:

(a) Materials, Workmanship and Testing

Shui On required Ho Biu Kee to submit materials for approval before they were used in the plumbing works. We also adopted a number of measures for quality control on workmanship and procedures for system testing to the plumbing and drainage installation to ensure that it functioned properly in accordance with the specification requirements under the Main Contract. Mr. Ching Shiu Hong will explain these measures in further detail in his witness statement.

(b) Qualification of workers

Special Conditions of Contract Clause 133 [**Bundle B4.2/3481**] and PRE.B6.340.A [**Bundle B4.2/3517-3521**] of the Specification required all plumbers to be either (i) registered skilled or semi-skilled workers or (ii) skilled or semi-skilled workers holding a full (大工牌) or intermediate (中工牌) trade test certificate issued by the Construction Industry Authority or the Construction Industry Council Training Academy.

Shui On had a number of measures to ensure that Ho Biu Kee hired skilled or semi-skilled workers for the plumbing works in accordance with such requirement. Mr. Wan Wai Ho will provide further details in his witness statement.

(c) ISO Audit System

To comply with our ISO 9001 requirements, our Quality Assurance Manager, Mr. Patrick Chan, conducted internal audits quarterly for each project to ensure our quality assurance system was properly implemented. We also appointed an independent auditor to check the compliance of our quality assurance system.

Procedures, criteria and standard involved in controlling the lead content in plumbing materials

20. As far as the soldering material is concerned, the minor nature of the soldering material in the plumbing system was generally recognised in the construction industry and was not considered to be a high-risk item.

21. Furthermore, Shui On was not required to test the lead content in water under the Main Contract or under the legislation for issuance of the "Water Certificate" (formally known as the Water Services Department's Form WWO 1005 "Certificate Regarding Water Supply Connection") and the "Occupation Permit" by government control bodies.

22. Ho Biu Kee had been Shui On's plumbing sub-contractor for many of Shui On's Housing Authority projects. We never received any complaints about the soldering materials procured and used by Ho Biu Kee.

23. For the above reasons, our Project Quality Plan did not require our site staff to check the soldering material delivered to the site or conduct quality control on the soldering jointing to copper pipes.

24. Notwithstanding the above, Shui On did require Ho Biu Kee to propose and submit material samples for approval. For this Project and for soldering materials specifically, Ho Biu Kee submitted soldering samples by fax dated 31 October 2011 and proposed the use of "Lead-free Solder Wire and Powerflow Flux" which is said to be in the lead-free category. A copy of this letter is shown at exhibit "ACW-1". ...

林先生：Which is in bundle pages 71 to 76, Mr. Chairman.

...Based on Ho Biu Kee's submission, we submitted a Sample Submission and Approval Form [**Bundle B4.4/5203**] to the Housing Authority for approval. Under the 'back to back' Sub-Contract, it was the responsibility of Ho Biu Kee to procure, and the Licensed Plumber to supervise, the use of the approved lead-free soldering material. We had no reason to question Ho Biu Kee was not using such materials after the formal sample submission process we made in respect of lead-free soldering materials and the fact that no such issues had arisen in the past projects where we worked with it as a plumbing subcontractor. We have no idea how this material was "switched" although as a responsible contractor in the construction industry in Hong Kong we will shoulder our responsibility and carry out any rectification works as necessary.

Question 3: Explain and identify with reference to the tender documents, the Main Contract and Sub-Contracts the specific contractual terms and provisions pertaining to (a) the construction of the Affected Estate to ensure drinking water will be lead-free and safe and (b) prohibiting the use of pipes, fittings and soldering and other plumbing material ("Plumbing Materials") from which lead may leach into drinking water (the "Contractual Requirements").

(a) Contractual provisions in relation to drinking water

25. The Main Contract (and the back-to-back Sub-Contract) did not contain any specific contractual provisions requiring Shui On to ensure that drinking water in the completed Project was lead-free and safe. I should note that we were building the infrastructure for the water supply by the Water Services Department. We were not supplying water ourselves. Eventually it would be the Water Services Department that would supply water and for that reason we would follow whatever requirements the Water Services Department stipulated. If they wished to stipulate testing for lead, we would simply implement that.

26. Further, at the time of the completion of the plumbing works of the Project, there were eight parameters for checking the water quality as contained in the Water Services Department Circular Letter No.2/2012. These parameters were turbidity, colour, pH, free residual chlorine, conductivity, total coliforms, E.coli and heterotrophic plate count. There was no requirement to test lead or other heavy metals in drinking water. For occupied estates, to obtain the accreditation of "Quality Water Supply Scheme" launched by the Water Services Department, there is also no requirement to test lead content in drinking water.

(b) Contractual provisions in relation to the plumbing materials

27. The only requirement in the Main Contract (and also the back-to-back Sub-Contract) in respect of the prohibition of the use of leaded materials was contained in PLU1.M160.5. [**Bundle B2/S84**]. This provision states that the soldering alloys for copper and copper alloy capillary fittings were required to "use only lead-free category solders".

28. In fact, the Main Contract (and thus the back-to-back

Sub-Contract) and the Nominated Sub-Contract specified the installation of the following components in the plumbing system which contained lead:

<u>Components</u>	<u>Specification Reference</u>	<u>Bundle Reference</u>
Non-Return Valves	PLU1.M610.5- PLU1.M640.5	B2/588-590
Gate and Globe Vales	PLU1.M610.5- PLU1.M640.5	B2/588-590
Fixed Ratio type pressure reducing valve	PLU1.M910.5- PLU1.M920.5	B2/592-593
Pilot type pressure reducing valve	PLU1.M1010.5- PLU1.M1040.5	B2/593-594
Fresh water pumps	FWP6.2.020.A	B4.1/2587
Booster fresh water pumps	FWP6.2.025.5	B4.1/2588

29. In particular, PLU1.M620.5 (1)(a), PLU1.M620.5, 2(b)(i), PLU1.M1020.5 (2)(a), FWP6.2.020.A (2)(a) and FWP6.2.025.C (2)(a) required the components to be constructed with CuSn5Zn5Pb5 alloy. This means that the components made with alloy contain approximately 5% lead content by weight.

Question 4: Explain the measures, supervisory, monitoring and quality control system in place by your Client in order to comply with such Contractual Requirements and to ensure the safety and quality of drinking water.

30. Shui On implemented a number of measures to ensure due compliance with the contractual and statutory requirements. These included:

- (a) Implementing a Project Quality Plan;
- (b) Checking incoming material delivered to the site;

- (c) Conducting material sample submissions;
- (d) Checking the qualifications of skilled workers;
and
- (e) An ISO audit system.

I have briefly discussed these measures in my answer to Question 2 above. Mr. Ching Shiu Hong and Mr. Wan Wai Ho will provide further details of the above measures in their witness statements.

31. As to measures for ensuring the safety and quality of the drinking water, no specific measures were taken in this regard. This was because the Main Contract, the Waterworks Ordinance and the Buildings Ordinance did not require Shui On to check the lead content in drinking water before the Incident. Had there been such a requirement, Shui On would comply with it and require its sub-contractors to do so to the satisfaction to the Housing Authority and the Water Services Department. Shui On would also add this requirement to its quality assurance system, including the Project Quality Plan for each project.

Question 5: Explain and identify the prevailing Contractual Requirements and statutory and non-statutory requirements pertaining to the approval of Plumbing Materials by the HA.

32. For contractual requirements, PRE.B9.410.5 of the Particular Specification [**Bundle B4.2/3528**] required Shui On (and thus Ho Biu Kee under the back to back Sub-contract) to submit samples of materials as requested by the Contract Manager. The specifications of plumbing materials were set out in clauses PLU1.M110.5 to PLU1.M1230.5 [**Bundle B2/581-595**]. Shui On submitted samples of the plumbing materials listed in Mr. Wan Wai Ho's answer to Question 6 in his witness statement for the Housing Authority's approval. No express request was made by the Contract Manager for sample submission of some of those materials. However,

A we did so as a matter of practice. B

C
D 33. To my best knowledge, there was no statutory requirement
E pertaining to the approval of plumbing materials by the
F Housing Authority. Instead, there were statutory
G requirements regarding the approval of plumbing
H materials by the Water Services Department through the
I submission of Form WWO 46 Part I by the Licensed Plumber.
J In short, the plumbing works had to be carried out using
K the Water Services Department approved materials and
L fittings or updated plumbing materials in accordance
M with Water Services Department Circular No.1/2004
N whenever there was any minor alteration initiated by
O the Licensed Plumber. The Licensed Plumber can mail
P or fax a copy of the previous Form WWO 46 with his
Q signature and date on each entry of such alteration.
R This needs to be done before staff of the Water Services
S Department conducts inspection.
T

**Question 6: Explain and identify the types of Plumbing
Materials submitted to HA for approval.**

M 34. For this project specific question, Mr. Wan Wai Ho will
N address this question in his witness statement.

**Question 7: Explain the choice and decision of joining pipes
(a) by soldering instead of (b) using mechanical
compression joints, and why the former method of joining
the fresh water pipes was extensively used in the Affected
Estate. If it is a matter of costs, please state the
difference in costs.**

R 35. Clause 7 of PLU1.M130.5 [**Bundle B2/582-583**] of the
S General Specification of the Main Contract sets out when
T capillary joints (i.e. soldering) or compression or
U screw joints (i.e. "mechanical compression joints")
V were to be used. Mr. Ching Shiu Hong will discuss this
further in his witness statement.

36. From Shui On's perspective, cost was not a consideration
in determining whether to use solder or mechanical

compression. We followed, and required our Sub-Contractor to follow, the contract specifications as to the use of soldering or compression joints.

Question 8: From the preliminary findings of the Water Services Department Task Force published on 25 September 2015, Plumbing Materials (including valves and taps) were used which deviated from the list of Plumbing Materials submitted to the Water Services Department ("Deviated Plumbing Materials"). Please explain and identify the Deviated Plumbing Materials and also, to the best of your Client's knowledge, why the Deviated Plumbing Materials were allowed to be used without being spotted during the supervisory and monitoring processes. This request is confined to Deviated Plumbing Materials which have now been found to contain lead or from which lead has leached into water.

37. This is related to the deviation of plumbing materials approved by the Water Services Department and the Housing Authority. Mr. Wan Wai Ho will address this question in his witness statement.

Question 9: Identify the persons, companies and entities responsible for the procurement of plumbing materials. If such materials were procured by your Client's sub-contractors or any other persons or entities other than your Client, explain the measures, supervisory, monitoring and quality control systems in place by your Client in ensuring that (a) the Plumbing Materials are lead-free, (b) they comply with the Contractual Requirements, statutory and non-statutory requirements and (c) that drinking water will be lead-free and safe.

38. Ho Biu Kee was the Sub-Contractor of plumbing works and was responsible for the procurement of plumbing materials.

39. In response to Question 9(a), the only requirement in the Main Contract (and also the back-to-back

Sub-Contract) in respect of the prohibition of the use of leaded materials was contained in PLU1.M160.5 [Bundle B2/584]. This provision states that the soldering alloys for copper and copper alloy capillary fittings were required to "use only lead-free category solders". To ensure compliance with this provision, Shui On required Ho Biu Kee to propose and submit material samples. For this Project and for the soldering materials specifically, Ho Biu Kee did so by fax dated 31 October 2011 and proposed the use of "Lead free Solder Wire and Powerflow Flux" which was said to be in the lead-free category(a copy of this letter is shown at exhibit ACW-1). Based on Ho Biu Kee's submission, Shui On submitted a Sample Submission and Approval Form [Bundle B4.4/5203] to the Housing Authority for approval. It was Ho Biu Kee's responsibility under the back to back Sub-Contract to procure and supervise the use of the approved lead-free soldering material. The Licensed Plumber also had a statutory duty to ensure that the approved lead-free soldering material was used on site.

40. Other than the soldering material, there was no other provision in the Main Contract (and the Ho Biu Kee Sub-Contract) requiring the plumbing materials to be lead-free. To the contrary, the Main Contract (and thus the Ho Biu Kee Sub-Contract) specified several components of the plumbing system to contain lead. As stated in the answer to Question 3 above, the Main Contract specified certain components to have approximately 5% lead content by weight.

41. In response to Question 9(b), Shui On implemented quality assurance procedures to ensure that the plumbing materials comply with the contractual requirements as set out in my answer to Question 2 above. Please refer to Mr. Ching Shiu Hong's and Mr. Wan Wai Ho's witness statements for further detail.

42. In response to Question 9(c), there was no contractual

or statutory requirement imposed on Shui On to ensure that the drinking water was lead-free. I repeat my answer to Question 3.

43. Further, for the purpose of obtaining the "Water Certificate" and the Occupation Permit, only eight parameters (turbidity, colour, pH, free residual chlorine, conductivity, total coliforms, E.coli and heterotrophic plate count) were required to be tested as set out in Water Services Department Circular Letter No.2/2012 [**Bundle B15.1/37443-37451**]. We therefore did not test for lead or other heavy metals in drinking water. Had there been such a requirement, Shui On would comply with it and require its sub-contractors to do so to the satisfaction of the Housing Authority and the Water Services Department. Shui On would also add this requirement to its quality assurance system including the Project Quality Plan for each project.

Question 10: Identify the persons in your Client responsible for the inspection, construction and installation and approval/certification of completion of the fresh water plumbing system in the Affected Estate and the steps taken by them in (a) discharging such responsibilities and (b) ensuring the safety of drinking water.

44. Mr. Wan Wai Ho will address part (a) of this question.

45. As to the steps taken to ensure the safety of drinking water, as I have stated in my answer to Question 4 above, no specific measures were taken in this regard because the Main Contract, the Waterworks Ordinance and the Buildings Ordinance did not require the checking of lead content in drinking water for the purpose of obtaining a Water Certificate or an Occupation Permit. Had there been such a requirement, Shui On would no doubt have done so and required its Sub-Contractor to do so to the satisfaction of the Housing Authority and the Water Services Department.

Question 11: Explain the steps taken by the persons identified in the 2 preceding paragraphs in ensuring that (a) the work in connection with the construction and installation of the Plumbing Materials was carried out by workers with sufficient training and qualifications, and (b) on approved and lead-free Plumbing Materials which comply with the Contractual Requirements, statutory and non-statutory requirements will be used in the construction and installation of the fresh water plumbing system.

46. Special Conditions of Contract Clause 133 [**Bundle B4.2/3481**] and PRE.B6.340.A [**Bundle B4.2/3517-3521**] of the Specification required all plumbers to be either registered skilled workers or skilled workers holding a full trade test certificate issued by the Construction Industry Authority or the Construction Industry Council Training Academy ("**CIC**"). To obtain such a certificate, the workers would be required to pass certain tests, including tests on using soldering materials. In this regard, I refer to paragraph 93 of the report prepared by The Hong Kong Institution of Engineer [**Bundle U1/31**] which states that the CIC training "*stipulated the use of lead-free solder and trainees were reminded of using of such throughout*". Mr. Wan Wai Ho will explain the steps taken by Shui On in ensuring that the plumbing workers possessed the requisite training and qualification.

47. Regarding part (b) of this question, the only requirement in the Main Contract (and also the back-to-back Sub-Contract) in respect of the prohibition of the use of leaded materials was contained in PLU1.M160.5 [**Bundle B2/584**]. This provision states that the soldering alloys for copper and copper alloy capillary fittings were required to "*use only lead-free category solders*". To ensure that Ho Biu Kee would use lead-free soldering materials, Shui On required Ho Biu Kee to propose and submit material samples. For this Project and for the soldering materials specifically, Ho Biu Kee did so and proposed the use of "*Lead free*

Solder Wire and Powerflow Flux" by fax dated 31 October 2011 (see exhibit **ACW-1**). Based on Ho Biu Kee's submission, we submitted a Sample Submission and Approval Form [**Bundle B4.4/5203**] to the Housing Authority for approval. As our specialist plumber, Ho Biu Kee was responsible for procuring, and the Licensed Plumber was responsible for supervising, the use of the approved lead-free soldering material. Neither Ho Biu Kee nor the Licensed Plumber ever reported that non-compliant soldering material had been used on site.

48. I understand that as a matter of industry practice the workers do not like using a roll of soldering material. They usually cut out a length and fold it and put it in their pockets. When carrying out soldering, they unfold it and then weld. It was highly unlikely that our site staff would be able to tell by visual checking whether or not the workers were using the approved lead-free soldering material.

Question 12: Given your answers to the matters in the preceding paragraphs, explain to the best of your Client's knowledge how Plumbing Materials containing lead came to be used in the Affected Estate and also why the use of the same had been allowed and overlooked?

49. I do not know how leaded soldering came to be used on site. Shui On certainly did not allow the workers and Ho Biu Kee to use leaded soldering materials in the plumbing system.

50. Based on the limited information available, it is difficult for me to conclude why leaded solder came to be used at the Project. I can only say that the possibilities may include the following:

(a) Non-compliant soldering materials mistakenly ordered and used by Ho Biu Kee's workers;

(b) Non-compliant soldering materials mistakenly delivered to site and used by Ho Biu Kee's workers;

(c) Ho Biu Kee's workers using soldering materials from other sources due to delay of delivery of the approved materials in order to cope with the tight site progress;

(d) Ho Biu Kee's workers using soldering materials from other sources for making good the leakage of copper pipe during pressure test at final stage of the Project; or

(e) Other causes that are not known yet.

51. In the overall scheme of things, soldering material was minor in nature and was not considered to be a high-risk item. Ho Biu Kee had been Shui On's plumbing sub-contractor for many of Shui On's Housing Authority projects and we had never received any complaint to the soldering materials procured and used by Ho Biu Kee. Further, we did not expect Ho Biu Kee not to use the approved material in light of the formal submission and representation that lead-free soldering materials would be used. We had carried out site inspections and did not detect any irregularities. Had we detected the use of non-compliant soldering materials, we would have immediately stopped its use and noted this in Site Diary, site meeting minutes and correspondence to Ho Biu Kee. However, there were no such incidents. In addition, the Main Contract, the Waterworks Ordinance and the Buildings Ordinance did not require the checking of lead content in drinking water for the purpose of obtaining a Water Certificate or an Occupation Permit. For these reasons, our Project Quality Plan did not require our site staff to check the soldering material delivered to the site or conduct quality control on the soldering jointing to copper pipes.

52. As mentioned in my answer to Question 11 above, it was highly unlikely that our site staff would be able to verify whether or not the workers were using the approved lead-free soldering material when the material

was cut into pieces.

53. For the above reasons, we inadvertently overlooked the use of non-compliant soldering material.

Question 13: Describe the measures and quality control system in place and/or any other recommendations (after the discovery of excess lead in drinking water) by your Client in order (a) to address the health concerns of the residents of the Affected Estate, (b) to comply with the statutory and non-statutory requirements and standards in drinking water and (c) to ensure the safety and quality of drinking water supply. Please also state any other recommendations your Client has in relation to (a), (b) and (c) above and on how similar incidents may be avoided in the future.

54. To address part (a) of this Question, once we received news that there was excess lead in drinking water in July 2015, we immediately arranged for water filters to be installed at all housing units. The works commenced on 13 August 2015. We also arranged for and commissioned a temporary water supply on each floor on 21 August 2015.

55. Although this is not an easy task, re-plumbing proposal for the defective jointing to copper pipes has been prepared and we proactively liaise with the Water Services Department and the Housing Authority for early commencement of the works to settle the concerns of the tenant as early as possible.

56. To address parts (b) and (c) of the Question, for present projects, Shui On requires the Licensed Plumbers to prepare monthly reports on their inspection of the plumbing works whenever the works are in progress. We also require them to conduct water sample tests in accordance with Water Services Department Circular No.1/2015.

57. In light of the incident, Shui On has proposed to the Housing Authority its new plan regarding the

procurement and use of soldering materials · as follows:

A. For on going projects to be completed in 2015

(I) Checking for installed plumbing works using copper pipes

1. Thorough inspection and review for all completed copper pipe works.
2. All the solder joints of uncertain quality will be removed.

(II) Checking on incoming soldering materials to copper pipes

1. All soldering materials required for jointing copper pipes will be purchased by Shui On according to the approved sample.
2. All incoming soldering materials for jointing copper pipes will be recorded, inspected and tested to satisfactory using X-ray scanning (Niton Analyzer) according to our operating procedure before use.
3. Inventory record will be kept by Shui On to assess the consumption of the materials against progress to ensure proper using of materials.

(III) Workmanship control on workers

1. Briefing will be provided to all plumbers on proper using of approved soldering materials to joint copper pipe.
2. The plumbers will obtain jointing material from Shui On for carrying out solder jointing work for copper pipes.
3. The location of work by each plumber will

be recorded to trace the works carried out by each plumber.

4. The consumption of soldering material by each plumber will be recorded for traceability of work.

5. At least one sample for each plumber's work will be selected monthly and test using X-ray scanning to ensure approved materials is used by each plumber within the month.

6. Final inspection on soldering materials to joints of copper pipes through random sampling to further verify the quality and materials of the soldering joints before completion of the project.

B. For projects in hand with copper water supply pipes not yet installed

(I) Checking on incoming soldering materials to copper pipes

1. All soldering materials required for jointing copper pipes will be purchased by Shui On according to the approved sample.

2. All incoming soldering materials for jointing copper pipes will be recorded, inspected and tested to satisfactory using X-ray scanning (Niton Analyzer) according to company operating procedure before use.

3. Inventory record will be kept by Shui On to assess the consumption of the materials against progress to ensure proper using of materials.

(II) Workmanship control on workers

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1. Briefing will be provided to all plumbers on proper using of approved soldering materials to joint copper pipes.
 2. Plumbers will obtain jointing material from Shui On for carrying out solder jointing work for copper pipes.
 3. The location of work by each plumber will be recorded to trace the works carried out by each plumber.
 4. The consumption of soldering material by each plumber will be recorded for traceability of work.
 5. At least one sample for each plumber's work will be selected monthly and test using X-ray scanning to ensure approved materials is used by each plumber within the month.
 6. Final inspection on soldering materials to joints of copper pipes through random sampling to further verify the quality and materials of the soldering joints before completion of the project.

58. Had soldering been an item which we were alerted to as a requirement of testing (lead content in water or nickel or cadmium or chromium) we would have and could have done so. One has to bear in mind that for a project there are thousands of materials which need to comply with one specification or the other. We try and ensure compliance by way of sample submissions with testing certificates. We thereafter implemented a testing criteria but it is not all 100%. One needs to strike a balance and this is acknowledged in the industry. I believe Shui On's system was adequate to deal with most situations from the perspective of material compliance.

59. Shui On has taken a proactive approach to tackle the

problem occurred in Kwai Luen Estate Phase 2 and to prevent similar incidents from happening in all of our projects to be completed in the future.

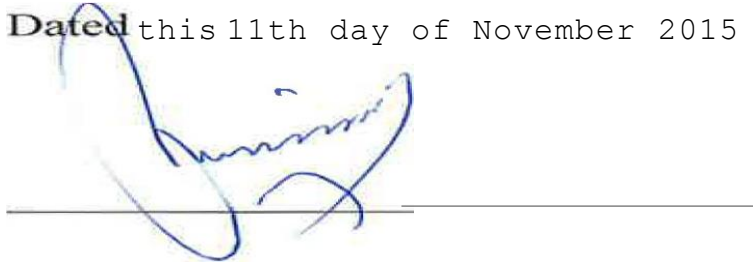
60. To my best knowledge, there was no standard of safe drinking water found in Hong Kong in the past. The adoption of WHO provisional guideline value of lead content or other heavy metals was not made known to the construction industry until July 2015 after the incident occurred. To cope with the prevailing standard of safe drinking water, we recommend that the relevant authorities clearly set down the requirements for meeting the standard and any updated standard, and made known to all construction industry practitioners of the requirements. With clear standard and requirements in place, we can follow the requirements to meet the standard of safe drinking water set by the relevant authorities.

61. Shui On will follow the enhanced measures mentioned in paragraph 57 above to prevent the presence of lead solder in copper pipe joints and check the water samples before completion of any project with the assistance of the Licensed Plumbers as mentioned in paragraph 56 against the standard imposed by the relevant authority to ensure the compliance of the standard and quality of drinking water supply.

62. On behalf of Shui On, I would take this opportunity to say that the company is sorry for the inconvenience caused by this incident to the residents of Kwai Luen Estate Phase 2.

63. The matters stated above are true to the best of my knowledge and belief.

Dated this 11th day of November 2015



Au Choi Wa

問：區生，以上讀咗嘅六十三段嘅證人口供，有冇任何地方需要修改？

答：冇嘅。

問：你會唔會沿用呢一份嘅口供作為你嘅證人供詞嘅一部分？

答：會。

林先生：主席，我有其他問題。

主席：唔該。

鄭小姐：係，主席、委員，係。

鄭小姐盤問

問：區先生，你好。

答：係。

問：首先我想就住你嘅工作背景係問你幾條問題先嘅。咁我哋從你個證人供詞嗰度就睇到你個人個專業就係一個工程師喇，係。

答：係。

問：你亦都喺呢一個供詞嘅第 3 段嗰度就向我哋講解咗你一啲嘅資歷同埋公職咁喇。咁當中我留意到你係香港工程師學會 (HKIE) 嘅一個會員嘅。

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答：係。

問：證人供詞亦都提到，你係喺 1990 年就加入瑞安呢一間公司嘅。

答：係，啱啱大學畢業。

問：係，明白。

答：係。

問：呢度亦都講到，你總共就係參與過二十個房委會嘅工程項目嘅。

答：係，我喺瑞安做咁耐，由 1990 年開始已經係做房署工程嘍嘞。

問：明白。我想問下，喺呢二十個房署或者房委會嘅工程項目入面，有幾多個係公屋嘅項目呢？會唔會有啲係其他譬如話居屋嘅項目咁樣呢？

答：其實我參與嘅話，公屋同居屋都有嘅。

問：公屋同居屋都有？

答：係，房委會嘅工程或者係房委會嘅工程。

問：係。咁大概有幾多個係公屋、有幾多個係居屋呢？即係約數可以嘍嘞。

答：大部分都係公屋。

問：大部分都係公屋？

答：係。

問：係。區生，你都知道我哋呢一個研訊個焦點其實就係講緊呢一個公屋裏面嗰個食水供應嗰個系統嘅情況。所以就住嗰啲你參與過嘅公屋工程項目裏面，你知唔知道佢哋係用啲乜嘢嘅物料嚟做呢一個嘅飲用水嘅水喉嘅呢？

答：以我個人所知，其實都係跟合約個規範，即係英文叫做 specification 嘅。

問：係。

答：咁佢裏面寫得好詳細嘅，我哋大部分都係跟嗰啲要求去做。

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問：明白。咁以你嘅記憶裏面，呢啲嘅工程項目有啲係用銅喉嘅，係咪？

答：有十幾單係用銅喉。

問：有十幾單係用銅喉嘅？

答：係。

問：咁其餘啲係用啲乜嘢嘅物料嚟做呢一個飲用水嘅喉管呢？

答：喺之前啲工程，即係一九九幾年或者係 2000 年頭啲，應該係用鉛水包膠喉，即係我哋叫做 uPVC-lined pipe。

問：係。頭先你講話一九九--九零年代...

答：1990 年開--係喇，開始用...

問：嗰陣時就係用呢一個鉛水包膠喉？

答：其實 1990 年我--我記得唔係好清楚，1990 年至到一九九幾年係用啲咩嘢嘢。但係我記得 1997 年我做過一單元州街三期，就係用 uPVC-lined GI pipe。

問：係。即係我哋所講嘅 galvanized steel pipe，係咪？

答：係，但係佢裏面有一浸叫做包膠，即係 uPVC-lined。

問：係，明白。咁跟住--我相信--即係我哋之前都聽過一啲證供，大約喺 2000 年，譬如年中，打後開始，我相信大部分嗰個公屋嘅工程都係用銅喉嘅，係咪？

答：以我記得，我哋第一單用銅喉應該係粉嶺 36，三期。

問：係。呢個大約係講緊咩嘢年份呢？

答：佢就應該 2006 年 complete。

問：2006 年 complete？

答：唔知--係呀，唔知 06 定 07，唔記得，actually 唔記得。

問：冇問題。咁喺呢啲用銅喉嘅工程項目嗰度，焊接呢一個水喉管嗰個工序係咪用燒焊去--用焊料嚟運作㗎？

B

B

C

答：我記憶中應該係全部都用 soldering。

C

D

問：全部都係嘅。所以，區生，其實即係你處理嘅項目嗰度都有--即係你係有呢一方面嘅經驗。即係你處理嘅項目底下，都係有呢一方面嘅經驗？

D

E

答：應該係咁講話，我處理嘅項目入面，佢合約嘅要求就係咁樣。

E

F

問：明白。

F

G

答：係。

G

H

問：好喇，或者區生，我哋而家可能專注啲講一講呢一個葵聯邨二期呢一個嘅工程嘞。

H

I

答：好呀。

I

J

問：咁我哋就知道呢一個工程大概係二零一零年嘅八月開工嘅，係咪？

J

K

答：係。

K

L

問：你喺第 7 段嗰度都提過。

L

M

答：係。

M

N

問：咁就係 2014 年嘅完工喇。

N

O

問：咁都係一個相對嚟講比較新落成嘅一個嘅項目喇。

O

P

答：係到現時為止最新落成嘅，我哋公司嚟講。

P

Q

問：最近嘅？

Q

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答：係嘞。

R

S

問：明白，明白。據我所知，呢個葵聯邨二期就係有兩個大廈嘅，係咪？兩個樓嘅，...

S

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答：係。

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問：...一個係叫做聯逸樓，一個係聯悅樓？

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答：係。

問：咁想問下，每一棟樓大概有幾多個單位嘍？

答：我淨係記得兩座加埋應該係一千五百零七個單位。

問：一千五百零七個單位？

答：係。但係有一座大啲、一座細啲，但係 actual 嘅 figures 我唔記得
咗。

問：得，有問題，明白。有一點，區生，我想同你澄清下，都係關於嘢日子
上面嘅啫。你或者可以睇一睇你證人供詞嘅第 11 段，係喺文件夾嘅第
55 頁嘅。

答：係，見到。

問：咁你就講到呢個葵聯邨二期嗰個水喉嘅工程，plumbing works，就
係喺呢一個 6 月，2010 -- sorry，2012 年係開始嘅。

答：係。

問：我就留意到，似乎你呢度講嗰個日期就同你另外一位同事，溫偉豪先生，
有啲出入嘅。或者我帶你睇一睇佢嗰個證人供詞。

答：好呀。

問：如果你搵去文件夾嘅 tab 12，咁嗰度就係你見到係溫先生嘅證人口供。

答：見到。

問：咁如果你去嘅第 23 段，亦即係文件夾嘅第 90 頁。

答：見到。

問：我哋呢度就見到溫先生就話何標記“commenced their plumbing
works in June 2013”，係 2013 年嘅，“and completed the works
in April 2014”，2014 年。

答：唔。

問：咁關於呢一個開展呢一個嘅水喉工程嗰個日期，我想問下區先生，你而
家睇完溫先生呢一度所指出嘅日期，咁你係會覺得邊一個嘅日期係準確

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呀，係12年嘅6月抑或13年嘅6月呢？

C

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答：我諗可以咁講，即係其實水喉工程分好多個步驟。咁嘅話，我諗溫生個陳述書裏面所講嘅2013年6月係我哋個大--我哋叫做「大樓」，喺building上面嘅水喉正式開工。

D

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問：係。

F

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答：咁我講嗰個2012年嘅6月就其實--其實做--一個地盤裏面，除咗大樓上面嘅水喉之外，仲有地下嗰啲喉，underground嘅喉，好多、好多都會係都係--我哋都叫水喉工程嘅。

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問：係。

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答：咁所以其實兩個都有contradiction，即係不過只係講嘅位置唔同。我講成個地盤，第一條喉--可能第一條喉做--其實做mock-up嗰陣時，因為我講緊係從mock-up flat開始都係--係會比較早開工。

J

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問：係。

L

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答：但係溫生所講嘅話，就應該係佢講係當sample flat approve咗之後佢正式開工。

M

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問：但係，區生，我就想問多你少少。因為你睇埋溫生佢嗰個23段嘅下一句，咁佢呢度就講何標記係大約有十個月去執行呢一個嘅水喉嘅工程，即係佢哋喺呢一個分判商合約底下嘅工程嘅。

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答：見到。

P

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問：咁所以似乎佢呢一度講就係成個分判商合約底下嘅水喉工程歷時係大約有十個月嘅。所以我就想--即係你會唔會話再諗一諗，究竟即係溫先生呢度講嗰個開始日期，其實就真係所有工程嘅開始日期，抑或你所講其實前期，2012年嘅時候就已經有啲工程做緊呢，就住呢一個嘅水喉工程？

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答：其實，以我理解吓，以我理解，何標記佢哋地盤裏面全速進行嘅話，即係可以正式開工嘅話，因為我哋仲有啲approval要做，有部分嘅approval，譬如sample flat嗰啲，即係辦房，要則師批准咗之後先可以叫做全速開工，就應該就係溫偉豪所講嗰個6月，就2013年開始，咁去到完工，去到2014年嘅4月係有十個月嘅。咁呢個就係講majority嘅works。咁但係其實佢真正--我嘅interpret--即係

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我寫我個陳述書裏面所講嘅去開工嘅，開工嘅日子，就係話其實佢水喉，頭先講 full strength 做，之前都有啲 preparation 要做嘅，同埋有啲--其實我所講嘅水喉工程係成份合約裏面包括埋大樓上面或者地下或者--其實可能其他 external works，成份工程包埋個 mock-up，包括埋 sample。

問：區生，頭先你提到即係話你嘅理解，就係溫先生提到嘅呢個日子，2013年6月，之前就做咗部分嘅工序。當中嘅工序就包括嗰個我哋所謂嘅 mock-up flat。

答：Mock-up，係，木板房。

問：即係嗰個到木板房喇，係咪？

答：唔係，木板房同埋有個叫做 sample flat，樣辦房，係。

問：係，呢個我明白嘅，樣辦房。一陣間我都會就住樣辦房係向你提出一啲問題嘅。

答：好呀，好呀。

問：咁或者--但係我哋可以繼續先。區生，你喺你自己嘅證人供詞--或者我哋可以返番去文件夾嘅 tab 10 嗰度。我見你第4段嗰度都有提到，當呢一個嘅葵聯邨二期嘅工程進行嘅時候，你主要就係駐守喺呢一個 head office 嗰度嘅，係咪？

答：係。

問：但係你亦都話你係會係進行一啲嘅地盤嘅 site visit 嘅。

答：係。

問：好，跟住落嚟，區生，我想問一啲關於--其實頭先你都提到嚟嘞，即係呢一個嘅房委會工程底下嘅一啲嘅 specifications，同埋你就住呢啲 specifications 嘅一啲認知嘅。

答：好呀。

問：區先生，你處理過咁多房委會嘅工程，咁我相信你對於房署就住呢啲工程嘅 specifications，尤其是關於呢一個嘅水喉用料嘅 specification 係有所認識嘅，係咪？

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答：有啲理解。

問：係。我哋喺呢個研訊嗰度，其實即係大家而家都有認識嘞，就係呢啲嘅水喉工程嘅部件，喺個 specification 底下，係有啲係歸納喺 PLU1 嗰度，...

答：係。

問：...有啲係歸納喺 PLU2 嗰度嘅。

答：係。

問：咁同埋喺呢一個 specification 底下，就係有一個要求，係專門就係就住呢一個焊料嗰個嘅含鉛嗰個情況係有所要求嘅。咁我就唔會麻煩你要特登睇番個 specification，因為我相信你都熟喇，喺證人供詞都有講過，咁基本上，好簡單咁講，其實就係要求我哋所用嗰個焊料係要一個 lead-free category。

答：係。

問：咁或者我哋簡稱呢一個做無鉛焊料嘅要求喇。

答：係。

問：區生，我想問下，係咪即係其實--你做咗咁耐呢啲房署嘅工程，尤其是我講緊一啲用銅喉嘅工程以嚟，你都知道呢一個嘅無鉛焊料嘅要求㗎？

答：其實我自己冇乜點留意呢樣嘢。雖然合約個規範有寫到--因為其實我哋合約規範係分兩種嘅，一種叫做 general specification，一個係叫做 particular specification。咁 general specification，就即係而家房署叫做 standard library，即係你見即係佢下低印住 standard library。咁 standard library，通常佢第一次 launch 嗰陣時我哋會睇嘅。跟住如果睇完咗之後，有啲咩嘢特別嘅要求嘅話，我哋會留意。但係好可惜，即係無鉛焊料呢度，因為我哋始終都係倚賴水喉承建商，咁所以我哋嗰度亦都有收到任何嘅投訴，佢用咗，亦都佢都提議嘅嘢，亦都係啱合約嘅要求，我哋 check 過，咁所以就我自己個人嚟講，就關於呢個無鉛焊料，喺事發之前我就唔係好留意嘅。

問：區生，你話你冇特別留意喇。

答：唔。

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問：但係我想問下你有冇聽過即係有關無鉛焊料要求呢一樣嘢呢？

答：事前，即係7月14號，我哋收到 report 話我哋葵聯邨二期有啲問題喇，事發之前冇聽過。

問：所以即係話你所謂事前，即係鉛水事件曝光，今年7月，之前你係冇聽過無鉛焊料要求，...

答：係。

問：...係喺房委會底下合約裏面嘅其中一個 specification 嘅？

答：我自己睇就有留意到喇，咁聽亦都有聽過。

問：明白。咁或者--好吖，我哋都用番呢一個7月嘅，做一個分水嶺。咁喺呢一個事發之前，區生，就你個人嚟講，你知唔知道即係鉛呢一種化學物質對於人體係有害嘅呢？

答：知道。

問：咁你又知唔知道其實--即係喺市面上喇，所賣得嘅焊料係有分有鉛同埋冇鉛之分，呢一個你喺事發之前，你知唔知道嘅？

答：事發之前唔知道。

問：事發之後，而家你就知道呢一個嘅 specification 底下，我哋所講嘅無鉛焊料要求喇，係咪？

答：係。

問：如果我咁講，我話呢一個要求，其實個目的好簡單喇，就係想避免呢一個焊料裏面可能有嘅鉛份係會污染咗呢一個喉管裏面嘅飲用水，呢一個你贊唔贊成？

答：其實喺事前，其實我真係冇乜認知嘅。

問：係，我明白。但係我而家就係問你事後，...

答：係，咁但係而家，事後而家我睇...

問：...係嘞，你知道咗嘞，...

答：即係其實喺呢個聽證會裏面有好多文件出嚟喇，咁我盡量都改善自己嘅

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認知，都睇咗好多。咁頭先你講嘅嗰個 point 嗰度，我同意嘅。

問：即係你同意...

答：同意。

問：...其實呢一個嘅要求嘅目的就係...

答：係。

問：...我所講嘅啲喇，係咪？區生，或者可以我哋睇一睇番你嗰個證人供詞。咁你第 25 段，即係文件夾嘅第 58 頁，呢度就係咁講嘅，“The Main Contract (and the back-to-back Sub-Contract) did not contain any specific contractual provisions requiring Shui On to ensure that drinking water in the completed Project was lead-free and safe. I should note that we were building the infrastructure for the water supply by the Water” --我相信係 Water Supplies Department, ...

答：係。

問：...“We were not supplying water ourselves.”

區生，即係我哋大家當然都知道，即係嗰個 specification 底下的確就係冇一條條文就話「啊，你哋要確保食水係無鉛同埋安全嘅。」

答：係。

問：我哋知嘅。咁我哋亦都知道，當然瑞安唔係供水嗰個喇，係咪？

答：係。

問：但係頭先我哋都講過嘞，其實呢一個無鉛焊料要求嘅背--嗰個目的，我哋大家都有供識喇，係咪？咁你聽完咁樣之後，其實你都會唔會贊成，就係即係最終我哋有一個咁樣嘅無鉛焊料要求，其實想達到嘅目的，都係希望公屋嗰個食水係無鉛同埋安全喇，係咪？

答：頭先我--我嘅陳述書裏面亦都講過，因為其實合約裏面都有啲部件喇，部件嘅要求係有鉛嘅，所以其實我覺得，如果跟到合約做嘅嘢，跟到合約做嘅嘢，或者跟到法例做嘅要求嘅話，理論上嗰啲食水應該好安全，但係係咪無鉛呢，呢度我保證唔到嘅。

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問：但係嗰個無鉛焊料要求就係其中一個希望確保食水無鉛嘅一個嘅條文喇，係咪？

答：可以減低個風險喇，係嘞，當然。

問：明白。咁而家呢一啲嘅 specification，即係同埋其他嗰啲都係喇，就係其實即係加諸喺瑞安作為總承建商身上嘅，係咪？

答：我哋同房署有合約嘅關係嘅話，我哋就要符合合約嘅要求。

問：係。區生，其實即係我呢個問題我都唔想話花太多時間。即係我喺你個證人供詞嗰度其實都好幾處，即係或者 for the record 喇，喺譬如話第 7 段、第 16 段、第 24 段，咁我都見到其實你哋都好直接咁樣講，即係瑞安作為總承建商係有責任就係確保你哋做出嚟嗰個工程係符合即係呢一個嘅總合約裏面嗰個設計同埋 specification 嘅。

答：係。

問：係。咁所以，即係我開門見山咁樣問你喇，即係話如果葵聯邨二期嗰度發現有啲焊料係即係用咗係有含鉛嘅焊料嘅話，咁其實瑞安就並冇係即係符合到頭先我所講嗰個無鉛焊料要求，呢個你接唔接受呀？

答：雖然我哋瑞安喺呢--即係平時做嘢都好，都有好多 quality control procedure，即係我哋叫做品質監控計劃，但係奈何，其實呢樣嘢係關於用咗--冇用到有--無鉛焊料，呢個房屋署合約要求裏面，咁無論係邊個問題都好，工人問題又好，或者係承判商問題都好，因為係合約係我哋瑞安同房署簽嘅，所以其實呢個房屋署合約嘅要求，我哋係符合到。

問：明白。

鄭小姐：主席，我將會係即係去開始問另外一個課題嘅問題，咁或者睇下會唔會呢個係一個方便嘅時間？

主席：好呀。咁我哋食午飯先。午飯完之後，兩點半再繼續。好，唔該晒。

下午 12 時 54 分聆訊押後

下午 2 時 30 分恢復聆訊

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出席人士如前。

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主席：繼續，Ms Cheng。

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鄭小姐：唔該晒。

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瑞安承建有限公司（“瑞安”）（葵聯邨第二期的總承建商）的第一證人：區才華（瑞安副總經理）宣誓繼續作供
鄭小姐繼續盤問

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問：接住落嚟，想同你討論下關於呢一個嘅挑選呢一個嘅水喉分判商，同埋呢一個分判商合約嘅問題嘅。

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答：好。

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問：你仲有冇你嘅證人供詞喺面前？

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答：有。

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問：麻煩你揸去第 12 段，文件夾嘅 55 頁。

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答：見到。

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問：呢度，區生你提到，你係瑞安嘅 procurement committee 嘅成員，你係有份參與係為呢一個瑞安嘅建築工程係選擇呢一個嘅分判商嘅。

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答：係。

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問：首先想問一問呢一個 procurement committee 個主要工作係咪就像去幫公司去選擇啲工程嘅分判商呢？

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答：除咗選擇工程嘅分判商之外，都會選擇供應商。

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問：供應商？

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答：即係材料供應商。

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問：明白。想問下呢一個 committee 係有幾多個成員？

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答：其實我諗應該咁講，最主要嘅成員就係會有我哋嘅董事--執行董事，有譬如冇副總經理，即係我--譬如舉例，房署工程，就我就會喺度，另外有我哋採購部嘅主管--部門主管，亦都有嗰個項目嘅工程經理，同埋嗰個項目嘅材料--工料測量師，即係我哋叫 QS quantity surveyor。

問：明白。

答：最主要呢啲成員。

問：Okay，所以即係每一個工程底下，可能嗰個 procurement committee 嘅成員都會有啲唔同，係咪呀？因為會睇下嗰個項目嗰個 contract manager 係邊個咁樣？

答：係，係。

問：就住葵聯邨二期呢一個工程項目，你本人都係有份參與去選擇呢一個嘅水喉分判商嘅，係咪？

答：係。

問：我哋而家知道喺葵聯邨二期項目底下，總括啲嚟講，水喉分判商係要負責係供應某一啲嘅水喉嘅配件嘅，據我所知，水喉分判商係要負責房署 specification 底下 PLU1 嘅一啲物料嘅，啱唔啱？

答：總括--可以咁講，因為其實我哋同水喉分判商，因為佢係一個專業嚟嘅，所以我哋--因為我哋總承建商其實唔係樣樣嘢都識㗎嘛，所以我哋就會採--即係會聘請一啲專業嘅水喉分判商，同一時間譬如連買料都好，我哋都會係叫埋佢買嘅，所以係一個 back-to-back 嘅 contract。

問：明白，呢個知道嘅。不過我都喺你個同事程先生個證供嗰度就見到，即係佢就解釋話有啲物料，即係 PLU1 嗰啲物料就係即係學你話齋，就係由即係專業嘅水喉分判商去提供，但係亦都有啲物料，係 PLU2 嘅物料就係瑞安自己提供嘅嘅？

答：係，例如嗰啲花灑、龍頭或者潔具嗰啲，我哋自己會買番。

問：想問一問呢一個選擇水喉分判商嘅過程嗰度係咪用一個我哋所謂一個投標，一個 competitive tendering 嘅模式去進行嘅呢？

答：普遍嚟講，我哋喺好多分判商嘅合約裏面，我哋都會用 competitive tendering，...

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問：係，咁...

答：...不過喺水喉，特別喺水喉裏面，因為葵聯邨二期我哋落標嗰陣時，我哋已經搵何標記都畀意見嘅，咁所以其實...

問：即係你哋向房署--房委會...

答：落標之前，我哋中...

問：瑞安落標嘅時候？

答：係喇，中標前嘅時候，我哋已經 engage 咗何標記嘅。

問：所以即係其實你哋個 procurement committee 選擇何標記為水喉分判商呢個決定即係甚乎係早過你哋向房委會嗰度即係投標嘅？

答：係呀，交標前我哋已經同何標記亦都擺咗佢嘅價錢，亦都擺咗佢個 commitment 去做呢單工程，我哋投標，就咁躑又中咗標嘅話，就會畀佢做。

問：明白。

黎先生：你其他嗰啲工程係咪都係咁做㗎？

答：其他唔係每一個工種我哋都會咁做嘅，其他嗰啲我哋都會--譬如我哋會將我哋個 subcontract，當個 subcontract tender 嘅話，我哋會出標畀--有一個 tender list 去做嘅，但係當然，我哋唔係每一種工程都會用頭先嗰種我哋叫落標前已經 engage 咗佢呢個方法，因為通常我哋會覺得嗰啲工程係要專業，我哋就會考慮用呢個方法，其他嗰啲我哋就會出標。

黎先生：咁點解咁特別？

答：因為其實何標記就佢係對我哋嚟講，係一個叫做 reliable，對我哋公司嚟講，因為佢同我哋公司合作咗三十幾年，亦都 so far 做咗三十幾單房署工程，一路都相當良好，佢嘅表現都相當良好，同埋亦都好合作，佢亦都好有競爭力，所以我哋會考慮到佢過去嘅表現，我哋部分嘅工程我哋會搵啲分判商，譬如何標記咁，我會搵佢喺落標之前，係大家有個共識，有個 understanding，咁嘅話，其實我哋都係保障番我哋公司如果中咗標之後嘅風險嘅啫，即係如果佢肯 commit 去做嗰單工程嘅

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話。

主席：即係絕大部分你哋嗰啲公屋工程，絕大部分都係好似今次咁樣樣嘢事前就已經搵咗何標記畀個價錢你哋，然後先至去投標，係咪咁呀？

答：其實過去咁多單裏面，唔係單單都咁嘅，不過有幾單我哋會係搵何標記幫我哋手，喺水喉工程裏面，喺落標之前，會同佢有溝通先。

主席：係喇，咁點解呢幾單又有啲咩嘢咁特別，要咁樣樣做呢？

答：因為其實早十年、八年之前，其實我哋都係 open tender 嘅，咁何標記又中標，又做得好，所以其實因為過去呢幾年，其實嗰啲價錢或者分包商嘅價錢都比較浮動，所以我哋有時我哋會落標之前，如果我哋覺得嗰樣嘢風險大，譬如--因為水喉係銅喉，嗰啲價錢會比較 fluctuate，咁所以如果係攞咗個 commitment，就會個風險細啲，但係譬如其他嘅工程--即係以前，十幾年前或者十年八年前，嗰陣時就有咁 fluctuate 嘅話，我就會 open tender，睇下邊個承判商係又有能力，我哋一定會考慮佢嘅能力同埋佢過去嘅表現嘅，如果佢投訴得多，或者水務局投訴得多嗰啲，我哋都可能會就算平，都唔畀佢做。

黎先生：可唔可以直接啲講，係因為佢價錢比較平呀，何標記？

答：其實...

黎先生：即係個競爭力...

答：...係咪平我就好難講嘅，好難講，不過 so far 嚟講，我哋過去呢十年八年，就算我哋 open tender 都好，或者我哋同佢傾都好，何標記個價錢都係好合理，即係都係--之前十年八年就最平係佢，而家我哋希望畀個合理價錢去做好佢，所以近呢單我哋同佢傾。

問：區生，即係換句話說，喺葵聯邨二期呢一個工程嗰度，即係其實你哋係冇考慮到即係其他水喉分判商嘅，係咪咁嘅意思？

答：葵聯邨二期，我哋係搵何標傾嘅。

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問：即係一諗就係諗到係搵何標記？

答：因為我哋落--頭先講咗，我哋落標之前應該係傾咗，當然，如果唔中標嘅話，佢都有得做。

問：明白。你呢一度，第12段，你自己話你即係選擇分判商嘅時候，你會考慮好幾個因素，包括有 past performance、capability 同埋 competitive of pricing。

答：係。

問：就住葵聯邨二期呢一個工程嗰度，其實你就住呢三個因素，其實你係冇作--即係譬如話幾個分判商咁作比較，係咪呀？

答：喺葵聯邨二期，我哋係冇做到呢個動作。

問：剛才你講話...

答：Sorry，應該係咁講，喺葵聯邨二期，我哋落標之前，我哋已經做咗呢個動作，中咗標之後就有做呢個動作。

問：但係你考慮呢幾個因素嘅時候，你只係睇下何標記係咪符合呢幾個因素，但係就有比較何標記同埋其他一啲即係可能會有興趣嘅水喉分判商，可唔可以咁講？

答：應該咁講，其實喺價錢方面，我哋就有考--即係落標之前，搵何標記做呢個 engagement 嗰陣時，我哋最主要考慮佢過去嘅 performance 同埋佢嘅 capability，佢會畀番價錢畀我哋，等我哋去落標。

問：就住呢一個價錢嚟講，我就想問一問，頭先你話你同何標記，即係喺你哋向呢一個嘅房委投標之前，其實即係就住個價錢嗰度都起碼有一個共識，係咪？

答：係。

問：但係即係如果你哋都未話投到標，亦都未知道房委會係即係用幾多錢嚟判畀你哋做，你哋又點樣可以去考慮究竟你哋用幾多錢嚟判畀何標記做為之合理呢？

答：應該咁講，其實我哋喺水喉呢個工種裏面，我哋最緊要就係穩陣，因為其實因為水喉方面，喺水喉工程裏面，唔係淨係合約規定咁簡單，係有水務條例嘅規定及法例嘅要求嘅，咁所以我哋一定要搵一個係比較

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competent, 佢哋 competent 或者係 reliable 嘅, 即係叫做可靠, 可靠同理有能力嘅分判商去做呢樣嘢。

佢報幾多錢畀我哋, 其實我哋都擺番落去我哋嘅總標價裏面嘅啫, 即係如果佢貴咗, 可能我哋都會貴咗, 貴咗就可能唔中標。但係如果佢係合理嘅話, 我哋係合理嘅話, 因為其實我哋份總合約係包括好多好多好多工種, 譬如嚟講, 葵聯路呢單, 如果我有記錯, 好似五億幾工程, 其實何標記係佔二千幾萬, 其實都係部分, 就但係影響唔到大局嘅, 影響唔到大局嘅個價錢, 不過最緊要我哋希望做工程, 因為都好大風險, 我哋做總包, 所以我哋盡量希望可以將啲風險校到最低。

問: 想問一問, 當何標記即係報個價畀你哋去考慮嘅時候, 係會唔會話有一個清單, 我哋所謂一個 breakdown, 去話畀你聽究竟譬如話人工就包括幾多錢、物料就包括幾多錢咁樣呢? 會唔會有一啲咁樣嘅明細嘅呢?

答: 我哋畀佢其實--因為我哋 engage 佢嗰陣時, 其實我哋諗中咗標都係 back-to-back 嘅, 因為我哋不嬲同佢做開都係 back-to-back, 即係背靠背, 所以我哋會將份合約, 個 BQ, 我哋都嗰份 bill of quantity, 我哋將會總合約嗰份 bill of quantity 整份畀佢, 等佢填咗返嚟畀我哋, 但係嗰度 bill of quantity, 以我所知, 就有分材料同理人工嘅, 佢只係話一個 items of work, 你會落幾多錢咁嘅啫。

問: 即係所以嗰一度, 即係你哋...

主席: 對唔住, 我想問一問, 你頭先講二千幾萬, 一千五百個單位, 二千幾萬...

答: 係, 因為佢個合約係包埋膠喉, 即係有銅喉同膠喉, 即係有來水、去水同理地渠嘅, 所以即係佢--即係有地下嗰啲去水嘅, 所以其實佢個合約會係咁, 即係佢供水同理去水, 即係 drainage and plumbing, plumbing and drainage。

主席: 供水同理去水, 供水又幾多錢? 有冇分開呀?

答: 呢個我就有詳細去拆番開佢, 供水即係 plumbing 係幾多、drainage 幾多, 我就有分開。

主席: 即係來水同理去水, 你係講係包唔包埋呢個泵房裏面做嗰啲嘢嘍?

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答：唔包，唔包，泵房係一個 nominated subcontractor 嘅--即係 nominated subcontract，泵房裏面係另外一個判頭，係順昌（譯音）做嘅。

主席：係囉，千五個單位二千萬，一個單位咪萬幾釐？

答：來、去水連埋公眾位，差唔多，所以應該合理。

主席：因為我哋聽到有啲分判商判番嚟得三千幾釐一個單位咋。

答：呢個我唔清楚。

主席：好，繼續。

答：因為呢個係 base on 我哋合約，我哋自己有份合約。

問：我想問下當何標記佢哋即係向你...

主席：何標記即係收貴你，唔係收平你嗎？

答：最緊要即係我哋自己咁睇，其實我哋都有啲 reference 去 compare 番嘅，因為其實頭先--因為其實我頭先講咗，來水同去水，一個單--即係除咗做單位之外，仲有好多公眾位，仲有天面、地下，好多好多。

主席：係，我知，我明，係，其他嗰啲人都係咁樣嘅咋，淨係計單位嘅咋，其他嗰啲就...

答：仲有公眾位，仲有公眾位。

主席：係囉。

繼續，唔該。

問：你哋係咪同一個單位呢一個每一個單位幾多錢呢一個嘅 unit 嚟去叫何標記去 quote 個價錢畀你？

答：頭先講咗，我哋係用份 BQ 畀佢填番嚟嘅，當然你話幾多錢一個單位，

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我哋會做一個 reference，即係做一個參考價。

問：頭先你話你哋自己本身即係都有啲 reference，你何標記呢個頭先即係主席都計過，你萬幾釐一個單位呢一個同你哋譬如話舊時用其他分判商工程比較起上嚟，呢一個價錢算係偏高咗，偏低，抑或都係合理呢？

答：我哋嗰陣時比較，係應該係合理嘅，因為點解？呀，我記得喇，因為我哋呢份合約仲有包一個公園嘅，來、去水，仲有一個公園，一個好大型嘅公園要做，所以何標記包埋嗰個公園嗰啲水喉同埋去水，所以可能如果拆番開出嚟，每個單位可能唔會係萬幾釐咁貴。

主席：我知，咁都係--因為我哋聽嗰啲 so far 都去唔到 4,000 釐。

答：佢可能係...

主席：就算有啲邨係譬如又要做埋咩嘢？商場，又要做埋停車場諸如此類嗰啲都--不過唔緊要，你繼續。

黎先生：嗰啲另計。

答：呢個係，係喇。

主席：係，嗰啲另計，係，總之你就係好似睇落去，好似超貴。

答：都係減低風險。

問：區生，頭先你都提到，即係何標記我哋就知道佢包咗部分嗰個水喉嘅物料、部件咁樣，你亦都講過即係有啲呢啲部件、物料嗰個價錢可能係會即係有升有跌，差價可能係會好大概，如果你喺叫何標記去覆一個價錢畀你嘅時候，係冇要求佢話畀你聽物料佔幾多錢、人工佔幾多錢，你點知道其實佢哋即係所用嘅物料、配件嗰啲價錢係咪合理呢？

答：我哋可以搵啲分判--個供應商嗰度可以 check 到呢樣嘢嘅。

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問：咁呢樣嘢你哋有冇做到？

答：我哋採購部嗰面如果覺得嗰樣嘢好貴嘅話，我哋會咁 check。

主席：唔係，我想公平啲起見先，你呢萬幾釵係咪包唔包埋晒嗰啲水喉嗰啲嘢㗎？

答：包埋材料。

主席：即係佢要畀埋材料嘅？

答：係，畀埋材料。

主席：你哋乜嘢都唔出嘅？

答：係。

主席：得，好。

問：或者呢度我見到你哋嗰個分判商嗰個合約嗰度有個條文都係同我哋而家討論緊嘅嘢有關嘅，或者我哋一齊望一望。

答：好。

問：麻煩去文件夾 B4.5，個分判商合約應該係喺第 6825 頁嘅，區先生，你有喺面前？

答：見到。

問：就麻煩你去一去第 6846 頁嗰度，6846 頁嗰度，我理解呢個都係嗰個分判商合約嘅一部分㗎嘅。

答：係，見到。

問：呢度就係歸嗰個「價格包含說明」底下嘅一啲條款。

答：係。

問：我見到第 2.4 條嗰度就係咁樣寫嘅，喺 6846 頁個底下嗰度。

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答：見到。

問：佢呢度就話係一個新增條款嚟嘅，就話承判商喺交標嘅時候「必需註明所採用材料的牌子及產地來源，並附夾該材料的有關資料如樣板、色板、說明書、規格、試驗證書、設計草圖、施工細則、預算進度及過去曾經使用該牌子材料承做的工程紀錄等資料附夾在標書內，以便本公司參考。若不同牌子」或「款式或種類的單價有所不同，承判商必需於價時加以說明。」嘅。

答：見到。

問：呢度我哋就見到一個咁樣嘅條款，但係事實上當呢一個嘅何標記即係佢哋向你哋提交個價錢、交標嘅時候，呢一個步驟有冇做到？以你嘅記憶所及。

答：喺葵聯邨二期嗰度，佢交標畀我哋嗰陣時，呢啲材料就未畀我哋嘅，不過佢有個 commitment，即係佢有個承諾，就係話會交到嗰啲--即係畀嗰啲材料係啱合約嘅要求。

問：即係話所以呢一個第 2.4 條呢一個步驟就並冇係採用喺呢一個葵聯邨二期呢一度嘅？

答：喺佢交標前係冇做到。

問：咁所以喺佢--佢交標前冇做到，喺你同佢簽約之前有冇做到呢？

答：簽約前都未做呢個動作。

問：簽約前都未做呢個動作？

答：係。

問：換句話說，即係其實你哋喺簽咗約之前--或者咁講，即係簽約嗰一個 moment --嗰一個時間上，你哋都有呢一個條文底下所要求嘅資料？

答：應該咁講，因為其實何標記同我哋合作咗咁多單，即係三十幾單房署工程，其實我哋都有個 understanding，即係佢會做番好嘅樣嘢，所以其實我哋呢個步驟就喺佢簽約嗰陣時就未做到。

問：區生，你唔覺得其實 2.4 條其實都係有佢嘅重要性喺度嘅咩？因為你喺個證人供詞嗰度都多番提及你哋同何標記，冇錯，係有一個所謂 back-to-back 嘅 arrangement，即係你哋一啲責任佢哋都要承擔

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嘅，但係儘管如此，都唔會減少你哋對房委會底下嘅合約責任，呢個你贊唔贊成？

答：明白，係。

問：如果係咁嘅話，即係你哋就齋倚賴何標記嘅一個承諾，話佢會用合規格嘅物料，但係就其實冇一啲詳細嘅資料去知道佢用嘅乜嘢牌子、乜嘢來源、乜嘢樣辦嘅物料嘅時候，你哋點樣可以安心知道佢哋會幫你符合到房委會加諸喺你哋身上嘅要求呢？

答：我哋有個步驟嘅，就係何標記用嘅咩嘢料之前，佢會話畀我地聽，雖然簽約嗰陣時佢未做呢個動作，但係當佢做之前，我哋要佢畀個辦我哋睇，跟番呢個，畀番晒我哋，我哋睇完咗之後，我哋會畀埋房署批埋添，批完咗之後，佢先可以用嘅，因為呢個步驟就確保佢用嘅料係啱合約嘅要求，當然我頭先都講咗，即係話可能呢個步驟係褪遲咗做啫，但係唔等如有做。

問：好，或者我哋而家就去睇一睇呢個步驟，就住呢一個焊料嚟講，我哋大家都知道佢係歸喺房署嘅規格嗰度就 PLU1 嗰度，所以房委會佢哋就有一個嘅要求係話呢一個總承建商一定係要交一個 sample 上去嘅，即係呢個唔係一個必然嘅要求嚟嘅？

答：因為其實我做咗房署工程咁耐，如果佢真係要 submit sample 嘅話，佢會喺個規範，即係 specification 寫得好清楚佢要你 submit sample，喺呢度係見唔到呢個字。

問：呢個我哋都知嘅，即係聽過好多證供。但係我就知道瑞安就住呢一個葵聯邨二期呢一個工程係有就將呢一個焊料嘅樣辦係提交過 sample 畀房委會嘅。

答：係，知，我 check 番紀錄，係見到呢樣嘢。

問：喺你嘅證人口供第 32 段。

答：見到。

問：你都有提到，第 61 頁，你都有提到就係你哋會即係就焊料同埋其他物料，提交一啲 sample。

答：係。

問：你話有一個嘅--喺最耐個句--最耐個兩句，你就話其實即係房委會個

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度都有話一個 express 個 request，但係你哋都會咁樣做，as a matter of general practice 咁樣嘅。

答：係。

問：想問下區生，你做咗咁多房委會嘅工程，你覺得即係就住焊料提交一個 sample，背後嗰個意義係乜嘢，點解要咁樣做？

答：其實我哋瑞安做咗咁多單房署工程，其實有啲嘢我哋覺得嗰樣嘢係我哋合乎合約嘅要求嘅話，雖然係咁講，但係我哋都會擺房署嘅一個 understanding，所以我哋有好多嘢我哋都會入埋畀房署睇嘅，即係當 sample submission，最少一樣嘢，呢個 process 係一個通知房署「我會用呢隻材料」，雖然佢係符合合約要求，但係「會用呢隻材料，用呢隻牌子」。

問：或者房署嗰啲規格嗰度有一個條文都同我頭先同你討論緊嘅嘢有關嘅，或者我哋望一望，好唔好？

答：好。

問：麻煩你去文件夾 B4.2，3528 頁。

答：見到。

問：區生，你會見到嗰文件嘅下半頁嗰個部分，有一個嘅條文正正係講緊 samples 嘅，見唔見到呀？

答：見到。

問：“SAMPLES OF MATERIALS - GENERAL REQUIREMENTS”，呢度就講，“Submit samples of materials as requested by the CM and do not confirm orders until approval has been obtained. Keep approved samples at the place agreed by the CM for comparison with materials used in the works, which must conform with the samples set aside.”

答：見到。

問：你見到呢一句之後，你會唔會同意我咁樣講，就係你哋提交一啲物料嘅樣辦畀房署，其實其中一個好重要嘅意義就係等當你個工程大手採購一啲物料嘅時候，係可以確保嗰啲買嚟嘅來料係同房署批咗嗰個樣本係一樣嘅？

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答：應該咁講，其實房署寫呢啲合約嗰陣時，我就 understanding 就係佢上面寫完嗰句之後，寫完嗰個 quote，即係話下面嗰啲就係佢所需要講嘅嘢，即係其實佢有一拵 material，如果佢寫到明要 submit sample 嘅話，佢嗰個 intention 就會係--就係頭先大狀你所講嘅嘢。

問：但係我哋即係知道，我哋都有共識，即係話佢唔係特別要求你交焊料上去嘅，但係事實上你哋都有咁做到。

答：我哋有一個 general practice，我哋。

問：係喇。我個意思就係話你做呢個 general practice 其中一個可以達致嘅目的其實正正都喺呢度講，背後個精神其實都係想咁樣，係咪？即係話當你大手採購物料嘅時候，你可以確保買嚟嘅來料係同嗰個 sample -- approve 咗嗰個 sample 係一樣。

答：呢個其中一個原因，因為其實仲有其他原因，就係話我哋要畀房署知道我哋買咗咩嘢料，嗰樣嘢我哋 check 過係啱合約要求，即係我哋話畀房署聽，即係等大家都--因為大家都有一個合作關係，有個 trust 嚟度，等大家都知。

問：明白，好。就住你即係贊成嘅第一個原因嚟講，換句話說，即係話如果就住一種物料，你係有提交到樣辦畀房署，但係當物料來貨嘅時候其實有 check 到究竟來貨嗰一隻係咪就係房署批嗰一隻嘅話，其實就即係有辦法去確保究竟個物料係咪同嗰個 sample 係一樣--一致，係咪呢？

答：其實喺我陳述書講咗，其實我哋喺地盤嚟講，有千百樣物料，每一種物料--千百類，但係每一類都可能好多種 size，所以其實我哋都會分析番每一種材料，雖然我哋其實就算上 sample 都好，都幾百種呀我哋，但係我哋都會分析番佢嗰個風險嘅高低同埋佢哋會出事嘅機會率有幾大、過去嘅經驗，我哋會擺番落我哋嗰個叫品質管理計劃書裏面，即係所謂嘅 project quality plan，呢個 project quality plan 就係我哋個項目經理去制訂，所以焊料嗰度我哋承認係有擺到落去個 PQP 裏面去控制呢樣嘢個材料，但係我哋都做咗最基本嘅嘢就係話知道何標記佢用嗰隻料--想用嗰隻料，應該話，想用嗰隻料或者提交畀我哋嗰隻料係符合合約嘅要求。

問：一陣間我哋都會就住即係 project quality plan 嗰度即係研究一下嗰個內容嘅。

答：好。

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問：而家就首先想返番去你嘅證人供詞嗰度先，第 24 段，58 頁，呢一度提到就係何標記係有就住呢一個嘅焊料係首先向你哋提交嗰個樣辦嘅，呢度你有提到佢哋就係用咗--你呢度提到何標記畀你嘅一個傳真，我哋可以喺文件夾嘅第 72 頁嗰度見到嘅，麻煩你撥一撥去嗰度。

答：見到。

問：我見到呢一張傳真，首先個日期就係 2011 年嘅 10 月 31 號，係咪？

答：係。

問：跟住我哋就見到係何標記嘅一個 Kevin Kwong 先生係交出嚟嘅？

答：係。

問：呢一個傳真個下面個內容就寫「現附上以下有關 Lead-free Solder Wire and Powerflow Flux 之物料資料給貴司做 Submission 用途」。

答：見到。

問：下面就有講到嗰個牌子就係--或者個型號就係 Fry？

答：係。

問：跟住就有講到佢嗰個來源地就係荷蘭？

答：係。

問：下面有講到嗰個出產商？

答：係。

問：跟住就有提到 supplier 就係雋景建材公司，係咪？

答：係。

問：Prosperity？

答：係。

問：我就見到你呢一個--呢個係你嘅證人口供嘅附件，喺呢一張嘅傳真後面，我就見到有啲關於嗰個 Fry 99C lead-free solder wire 嘅

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一啲資料嘅。

答：係，見到。

問：你一路搵落去，有佢嘅資料，一啲詳細啲嘅說明，同埋由 75 頁開始嗰度係有啲 test reports 嘅。

答：係，見到。

問：但係我就見到第 72 頁嗰張傳真嗰度，如果你睇番文件夾嘅上--文件嘅上半槓，佢呢度寫嗰個 number of pages 就一頁嘅咋喎，所以我就想問一問，當呢一個嘅何標記嘅呢個 Kevin Kwong 先生佢上交呢一啲嘅資料嘅時候，究竟佢係有冇夾到後面呢一啲嘅詳細啲嘅譬如 test report、說明等等嘅呢？

答：詳細嘅情形，我哋就因為其實佢遞畀我同事嘅 Kelvin Yeung fax...

問：係，我見到有個 Kelvin Yeung 先生。

答：Fax 畀 Kelvin Yeung，係我哋其中一個同事嚟嘅，通常如果佢係連埋辦、連埋 test report、連埋實物嘅話，佢就會 by hand 畀，另外再補份 fax 嘅，但係當然，實際嘅情形係點，我唔清楚。

問：Okay，明白。但係以你嘅理解，一般來說，即係當何標記交呢一啲資料上嚟嘅時候，佢係咪會差唔多嗰段時間交埋嗰個焊料嗰個實物上嚟㗎？

答：應該咁講，因為其實何標記佢 submit 好多 sample 嘅，有啲 sample 好大件嘅，有時所以佢其實有時會佢係 by hand，成嚟 sample 搵入嚟嘅，連埋 test report 嗰啲，但係當然，你話 particular 呢個 case 係點嘅話，呢個我自己唔係太清楚。

問：即係你有 personal knowledge 喺呢個？

答：係。

問：但係你知唔知道何標記就住葵聯邨二期呢一個工程，有冇就焊料提交到實物上嚟，呢個你知唔知？

答：呢個我自己唔清楚。

問：得，冇問題，或者我可以問一問你啲同事。

B

B

C

答：好。

C

D

問：頭先返番去你個證人供詞第 24 段，你提到嗰個頭先我哋睇過嗰個 fax 之後，你就話--係第 58 頁嘅，24 段。

D

E

答：見到。

E

F

問：你嗰個段落提到嗰個 fax 之後，跟住你就話即係 based on 何標記嘅 submission, "we submitted a Sample Submission and Approval Form", 就係畀房委會，係咪？

F

G

G

H

答：係。

H

I

問：或者我哋又攞嗰個出嚟睇一睇，係喺文件夾 B4.4，第 5203 頁。

I

J

答：見到。

J

K

問：唔好意思，等一等。我哋就見到呢一個嘅 submission form, 右上角個日期就係 2013 年 2 月 18 號嘅，係咪？

K

L

答：係。

L

M

問：想問下，點解隔咗咁耐先至交個 submission form 嘅呢？因為我哋頭先睇到 Mr Kevin Kwong 嗰個 fax 其實就係 2011 年 10 月 31 號就已經畀咗你哋喇，純粹想知道即係點解隔咗咁耐，你哋先至係會將個 submission form 交界房署嘅呢，呢個你知唔知道？

M

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O

答：呢個我唔清楚。

O

P

問：呢一份表，我哋都睇到喺 5204 頁嗰度就係你個同事，亦都係公司嘅 AQCC Man Kwan Wa 先生係去準備喇喇？

P

Q

答：係，文筠華（譯音）。

Q

R

問：我哋再落啲，就睇到係喺 2013 年嘅 5 月 20 號就係批咗嘅。

R

S

答：係。

S

T

問：呢一個嘅表格嗰度其實就包括咗好幾種唔同嘅物料嘅，係咪？

T

U

答：係。

U

V

問：我哋可以喺 5203 頁嗰度見到有一系列嘅物料。

V

B

B

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答：係。

C

D

問：第4個 item 就係“Brazing Alloys & Soldering Alloys for Copper Fittings System”。

D

E

答：係。

E

F

問：咁樣嘅，我就喺個 form 本身嗰度就睇唔到有單單就住 soldering material 係去列出一啲詳細嘅資料，即係就咁睇呢份 form 就有嘅。

F

G

答：係。

G

H

問：不過就我見到後面喺一啲嘅啲 attachments 嗰度，就有關於呢一個 Fry 嗰個嘅資料嘅。例如我哋睇番 5283 頁嗰度，就係頭先鄭先生，Kevin Kwong 交嚟嗰個 fax，跟住之後就係我哋頭先都睇過啲嘅關於 Fry 嘅資料。

H

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J

答：係講緊第幾頁？

J

K

問：唔好意思，5283。

K

L

答：5283。見到。

L

M

問：我從你啲同事，即係程生同埋溫生嗰啲口供嗰度其實都睇到，佢哋就話當房委會批咗呢啲物料之後，你哋就有同--即係 inform 番，呢個係佢哋用嘅字，inform 番即係何標記嘅？

M

N

N

O

答：係，通常...

O

P

問：我想問下，係用啲乜嘢嘅方式去同何標記講嘅呢？你知唔知道究竟係口頭上吖，書面吖，抑或係點樣？

P

Q

答：通常我哋就會用 memo 嘅，用 memo 通知番佢嘅，但係有時我哋都會用 e-mail 嘅，應該全部都會 e-mail，即係普遍嚟講，我哋都係用 memo 或者 e-mail。

Q

R

R

S

問：Memo 或者 e-mail，因為即係我自己所睇到，就即係暫時喺文件夾嗰度就見唔到呢個紀錄嘅。

S

T

答：呢個可能要問番我地盤啲同事。

T

U

問：Okay，好，冇問題。你會唔會知道其實就住葵聯邨二期嚟講，你哋話

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番畀何標記聽即係呢個焊料嘅 sample 係 approve 咗，係同邊一個人士講，何標記，呢個你會唔會知道？

答：通常如果何標記--呢個地盤，以我所知，應該都係番 Kevin Kwong。

問：搵番 Kevin Kwong。區生，我哋而家就從何標記嘅證供知道其實呢一個嘅地盤個個--佢喺何標記嚟講，個 person in charge 就係另外一位人士，就係呢一個黃貴雄先生嘅。

答：係。

問：你嗰陣時，即係當呢個工程進行嘅時候，你認唔認識佢？

答：黃貴雄，我唔係--即係嗰陣時我落地盤行嗰陣時，可能見過佢，但係我就嗰陣時唔係好認識佢。

問：而家黃生就喺佢嘅口供講，就話其實佢先至係就住地盤要即係落 order 買啲咩嘢物料去做決定嗰個人，呢個你當時你知唔知道㗎？

答：當時唔知，當時唔知。

問：以你記憶，當時會唔會有同佢任何就住呢一個物料採購等等嗰方面嘅問題有溝通過？

答：我同黃貴雄其實喺葵聯邨二期裏面係有溝通過嘅。

問：得，冇問題。我哋而家轉去下一個題目，想問一問你關於--你頭先都提過，project quality plan 嘅，我哋睇到你個證人供詞嘅第 13 段嗰度，你就有講每一個--即係瑞安嗰個房署嘅工程，你哋都會係有佢自己嘅 project quality plan 嘅，係咪？

答：係。

問：我知道就住葵聯工程，嗰個 project quality plan 係你個同事程生係即係負責去準備㗎喇。

答：係，因為佢係 project manager。

問：你本人，區生，當其時有冇份去幫手準備㗎？

答：喺葵聯邨二期個 project quality plan，我係有參與。

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問：冇參與嘅？

答：冇參與。

問：我唔會問你一啲關於即係個 project quality plan 嘅細節，我會留番啲畀你畀生嘅。

答：好。

問：不過即係我相信根據你嘅經驗，區生，因為每一個項目都有佢嘅 project quality plan，係咪？

答：係。

問：所以你對呢一方面，如果我問你一啲比較 general 啲嘅問題，你都應該答到我，係咪？

答：應該得嘅，因為我自己都做過 PM。

問：你自己都做過 PM？

答：係。

問：好，我想問下，長話短說先，我就知道你哋即係都講得好清楚，你 23 段嗰度，我哋可以睇一睇，即係你嗰度都開宗明義講，就係話其實你哋個“Project Quality Plan did not require our site staff to check the soldering material delivered to the site or conduct quality control on the soldering jointing to copper pipes”嘅。

答：係，因為寫呢句嘢之前有啲原因講咗，我哋覺得 soldering material 因為好多原因，令到我哋就有擺到落去。

問：好，呢個我知道，但係我都想--即係因為呢一個 project quality plan 係牽涉到一啲你哋公司監管諸如此類嘅問題，所以都想同你快啲睇一睇嘅。

答：好。

問：呢個可以喺文件夾 B4.5 嗰度搵到嘅，6660 頁。

答：得，見到。

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問：麻煩你就撥去 6666 頁，我哋可以睇一睇嗰度。

答：見到。

問：呢一度其實都有好多嘅 item，就係講緊你哋就住嗰個工程項目嘅一啲唔同嘅 project activity 嘅，同我哋而家最有關聯，我相信就係第 6 點“Material Control”嗰度嘅，我個理解就係如果一個物料係包含喺呢一個 project quality plan 嗰度，你哋就需要就住個物料，就係進行第 6 點以下嗰啲步驟嘅，係咪咁講呀？

答：可以咁講，可以咁講。

問：或者我哋好快咁睇一睇啲步驟，第 1，就係要“Identify company materials to be inspected and sampling plans to be used.”

答：見到。

問：我想問下呢度所謂嘅 company materials 係講緊啲乜嘢嘅物料呀？

答：Company materials 就係公司買嘅材料？

問：瑞安買嘅？

答：淨係瑞安買。

問：咁如果喺即係水喉工程嚟講，籠統啲嚟說，就可以係話係即係 PLU2，頭先你講話花灑、龍頭嗰啲物料，係咪呀？

答：嗰啲係公司買嘅材料。

問：第 2，就話“Confirm delivery date and arrange storage space.”

答：係。

問：第 3 就係“Prepare material inspection forms for employer supplied material, company purchased materials and domestic subcontractor purchased materials.”嘅。

答：係，見到。

問：想問下，乜嘢又係呢一個 employer supplied materials 呢？

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答：因為以前係--因為而家--應該咁講，因為以前有啲材料係 employer supply 嘅，舉例，譬如以前嗰啲消防嗰啲街嗰啲龍頭係房署叫我哋去政府物料倉嗰度擺嘅，嗰啲就係叫做 client supplied material。

問：明白。

答：嗰啲我哋都要 control，因為嗰啲唔見咗就好煩嘅。

問：即係如果就住你同房委合約嚟講，employer 就係房委，係咪咁嘅意思？

答：係喇，係喇。

問：Domestic subcontractor purchased materials 喺葵聯邨二期嚟講，就係何標記提供嘅物料，係咪？

答：何標記係其中一個 subcontractor。

問：係，冇錯。第 4 就係“Receive incoming material”。

答：係。

問：第 5 就係“Perform sampling inspection”嘅。

答：係。

問：就住呢一點，我就見到你個同事溫先生喺佢嘅供詞嗰度就係有啲詳細啲嘅講述嘅，或者我哋好快望一望。

答：好。

問：溫生嘅證人供詞，我哋可以喺 H1 文件夾嘅 tab 12 頁嗰度見到，有關呢一個嘅 sampling inspection，就係喺第 34 段嗰度，亦即係文件夾嘅第 96 頁嘅。

答：見到。

問：喺呢一段嘅即係下半嘅，佢就有講就係話“Visual checking was conducted to ensure that the materials delivered to site were the same (in terms of brand, size and colour) as the materials approved by the Housing Authority.”

答：見到。

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問：呢個都係同你嗰個認知係一致嘅，係咪？即係呢一個其實正正就係你哋做 sampling inspection 嘅時候所會做嘅工序，係咪呀？

答：係呀，因為其實嚟到嗰陣時，我哋要收貨，都係用目測嘅方法嘅。

問：用...

答：目測。

問：目測。

答：即係 visual inspection。

問：即係就係會比較一下究竟來貨係咪同之前房委批嗰個 sample 係一致咁樣嘅？

答：係。

問：之後即係 material control，我哋睇番文件夾 B4.5 嗰度第 6666 頁，都仲有幾點嘅，但係嗰啲我哋就或者唔使再好詳細睇，即係其實都係關於你哋點樣處理嗰啲 inspection 嗰個步驟咁樣。

答：係。

問：或者我哋睇一睇第 6669 頁，6669 頁嗰度就係列出咗一個 list of materials requiring inspection upon delivery and their inspection levels 嘅。

答：見到。

問：我哋呢度見到有 a、b、c、d，四個唔同嘅 inspection levels 嘅，我想問下，逐個問一問你，何為 normal inspection，區生？

答：其實 normal inspection 即係話我哋覺得需要 check，需要 check，但係亦都風險係中度，唔係太高，嗰啲就當係一個 normal inspection。

問：Normal inspection 嘅情況底下係會 check 得幾密呢？

答：Check 得幾密，其實每一個 batch 我哋都會 check 嘅，每一個 batch，即係每一次送一批貨嚟，我哋都會 check，會根據--咩嘢叫 normal 呢？其實呢四個 inspection level 會同個 sampling plan 係掛鈎

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嘅，同後面有個 sampling plan 係掛鈎，所以其實每一個 inspection level 會喺每一個 batch 裏面，佢譬如送一百件貨嚟嗰陣時，佢就會抽幾多件去驗，睇下得唔得，因為其實我哋唔會全部 check 晒嘅，除咗我哋所講嘅 100 per cent check。

問：而你話 normal 就係每一個 batch 嚟，你都會抽一件出嚟驗，係咪咁樣？

答：唔係抽一件，...

問：唔係...

答：...係抽某一個數目嘅 sample 出嚟驗。

問：某一個數目？

答：係。

問：咁佢同 tightened inspection 有咩嘢分別呀？

答：佢 tightened 亦都係跟個 sampling plan 亦都會抽得比較多啲嘅。

問：哦，抽得比較多啲，係。

答：抽得比較多啲。

問：咁最多就係 100 個 per cent，係咪？

答：100 per cent，係喇。

問：100 個 per cent 即係話你每一個 batch 來貨，你裏面每一件嘅貨物你都會擺嚟睇，係咪咁嘅意思？

答：係。

問：Reduce inspection 又係咩嘢意思呀？

答：Reduce inspection 就亦都係跟番 sampling plan，即係佢抽嘅數目比較少啲，即係其實每一個 level of inspection，佢 base on sampling plan，抽嘅數目，譬如大家都係送一百件嚟嘅話，如果唔同嘅 level of inspection，抽嘅數目出嚟驗，個數目係唔同嘅。

問：區生，你自己都做過 project manager，你應該都好熟悉，我想問下

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嗰個 sampling plan 嗰度有冇即係白紙黑字講到明就係話你話要抽一個數目，有冇講到明嗰個數目係咩嘢嘍？

C

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答：有，有。

D

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問：有嘅？

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答：你其實喺 6671 頁嗰個 sampling plan。

F

G

問：即係啲 staff，啲前線嘅工作人員就係按住呢一個嘅 sampling plan 嚟去抽查嘅？

G

H

答：係。

H

I

問：我想問下，就住一個物料嚟講，你點樣去決定嗰個物料應該係歸邊一個嘅 inspection level 呢？

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答：以前我做 project manager 嗰陣時，第一樣嘢就係話譬如嗰啲係喺合約裏面寫到明話一定要 submit sample 嗰啲，即係頭先我哋頭先都見過，喺 PRE.9 嗰度有一柶 submit sample 一定要驗，嗰啲我哋會驗。另外有一啲就係有 alert 出過，譬如我哋公司即係有啲問題出現過嘅材料，我哋就會擺落去要驗，驗得嚴謹啲，另外有一啲就係譬如好似嗰啲預製件，預製件我哋如果有問題嘅話，我哋唔驗，唔 100 per cent 驗，吊咗上去之後，如果先發現有問題，咁就會影響到成個我哋嗰個叫做 RC --即係個 reinforced concrete structure 嗰個進度，或者影響埋成個地盤嘅進度嘅，嗰啲我哋就要未吊上去之前，嚟到地盤，一定要驗清楚佢，唔得嘅話，即刻要補貨嗰啲，如果唔到，影響到成個 construction 嘅，嗰啲我哋就會驗得好緊。

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問：即係都有可以話一籃子嘅考慮，係咪呀？

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答：又根據我哋公司過往嘅經驗，有啲 guideline，我哋都有啲 guideline 嘅。

Q

R

問：係咪就住每一個工程項目嘅 project quality plan，都會有呢一個討論，究竟乜嘢物料應該擺喺啲乜嘢 inspection level 嗰度？

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答：其實我哋工程經理，其實佢哋都會考慮呢啲咁嘅因素，但係當然仲有一個因素會擺落去，就係話合約嘅要求，因為其實單單合約未必一樣嘅，當然你頭先--好似今朝我講過，如果喺 standard library，譬如嗰啲叫 general spec. 裏面我哋考慮過嘅嘢，一定會擺喺度，但係另外

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每一單工程有一個叫 particular specification，嗰個特別係嗰單工程係特別嘅嘢，譬如舉例，如果嗰單工程裏面可能有一啲係同斜坡有關嘅，或者同其他一啲--其他--同拆樓有關，不過拆樓又唔需要 submit sample，即係有啲特別嘅嘢我哋會考慮，就會擺埋落去嗰個 quality plan 裏面。

問：我就留意到你嗰個 reduce inspection 嗰個類別嗰度就係有最多嘅物料嘅。

答：係。

問：因為我數過，你四個 inspection level 加埋就係有九十六個 item 嘅，當中有六十八個就係歸 reduce inspection 嘅。

答：係。

問：或者我哋睇一睇 reduce inspection 嗰度嘅 item 22。

答：Item 22？

問：係喇，我哋見到呢個係“Copper pipe and fittings”，係咪？

答：係。

問：我想問下，即係據你所講，呢個“Copper pipe and fittings”呢度就唔包含焊料嘅？

答：係。

問：我想問下，“Copper pipe and fittings”唔包含焊料呢一樣嘢係淨係葵聯邨呢個 project 係咁嘢，抑或你哋其他 project 都係咁樣嘍？

答：其實之前我哋咁多單 project，都係淨係 check copper pipe and fittings，其實原因就係因為嗰陣時啲銅喉好貴，所以佢到嗰陣時，我哋一定要 check 咗佢，跟住因為何標記會入糧畀我哋，雖然佢唔安裝，佢到料佢都會問我哋出 payment 嘅，所以我哋一定要 check 晒之後，嗰啲嘢係 conform to spec.，我哋先會出 payment 畀佢。

問：咁即係可唔可以話其實即係一個主要係一個價錢上嘅考慮，係咪呀？

答：其實唔係價錢上面嘅考慮，而係話因為我哋其實做建築，有好多材料都

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好貴嘅，當判頭買咗之後，佢送咗嚟地盤之後，佢都要找數，所以我哋做 main con.，就會見到如果嗰樣嘢係 okay 嘅話，亦都 conform to spec.，亦都啱嘅話，我哋就會出糧畀佢，等佢可以找咗供應商嗰條數先。

問：我想問下即係 copper fittings 呢度唔包焊料呢一個決定，其實當其時係咪有一個討論，會唔會有一個 conscious decision 係話「我哋決定唔包括焊料。」抑或其實係冇嘅呢？

答：其實係冇諗過要 check 焊料，即係冇特別去討論要 check 埋焊--決定 check 唔 check 焊料呢樣嘢，我哋冇討論過。

問：好，或者區生，我哋睇番你證人供詞，頭先都望過㗎喇，第 23 段，即係文件夾嘅第 90 頁。

答：見到。

問：唔好意思，我諗我錯咗，58 頁，唔好意思，58 頁，之前嗰個係你同事嘅證人供詞，你嗰個係 23 段，喺 58 頁嘅。

答：Okay，見到。

問：頭先都睇過，即係呢度你就講話個 project quality plan 就唔包焊料，呢個係個結論㗎嘅，你之前就畀咗三個理由嘅，就係由第 20 段開始，或者我哋每段可以望一望。

答：好。

問：20 段，你呢度就講因為 soldering material 係即係一個 minor nature in the plumbing system，即係你就話佢唔係被即係視為一個 high-risk 嘅 item，係咪？

答：係。

問：我都知道即係焊料喺工程上嚟講，我哋一般係稱之為小五金嘅其中一個...

答：濕碎料、...

問：濕碎料。

答：...雜項，雜項。

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問：雜項，咁小五金，係咪？可唔可以咁講？

答：係。

問：我哋睇番--我希望你有問到頭先 B4.5 嗰個文件夾，個 project quality plan，仲喺度嘅，係咪？

答：喺度。

問：睇番 6670 頁。

答：見到。

問：我又見到喺呢個 reduce inspection 嗰個類別嗰度，似乎又有啲其他嘅小五金係有驗個嘢，譬如話你睇下 15 嗰個 flush bolt，見唔見到呀？

答：見到。

問：14 嗰個 push handle？

答：見到。

問：另外仲有 12，kicking plate？

答：見到。

問：即係我外行人，但係我理解，呢啲似乎都係一啲即係小五金雜項等等嘢，咁點解驗呢啲，又唔驗焊料呢？

答：其實呢啲唔係小五金，頭先講嗰幾個 item，嗰啲叫做--其實嗰啲係叫五金，不過就唔係小五金，即係等如譬如螺絲或者嗰啲鐵線嗰啲先叫小五金，但係呢啲其實因為呢啲係要入 sample 嘅，啲 pull handle、kicking plate 嗰啲，我哋都會入 sample 畀房署批。

問：以你嘅理解，有冇啲即係你認知嘅小五金係包含咗喺個 reduce inspection 呢個類別嗰度？

答：以我嘅認知，真係雜項或者係嗰啲好濕碎嘅小五金，我哋就唔會擺喺度驗。

問：但係我哋...

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答：因為嗰啲實在太多，喺地盤裏面好多嘅。

問：我哋唔好講話--即係因為可能好--會有啲 confusing，如果我哋話好濕碎嘅小五金，譬如我哋就咁講，籠統啲，小五金，有冇啲小五金喺呢度有驗到？

答：應該就有，冇乜嘅。

問：另外，我哋睇番--唔好意思，有少少係要你睇住兩份文件比較，我哋睇番你證人供詞第 21 段，你呢度畀咗第二個理由話點解唔驗焊料嘅。

答：見到。

問：你呢度話因為“Shui On was not required to test the lead content in water under the Main Contract or under the legislation for issuance of the ‘Water Certificate’”，“and the ‘Occupation Permit’ by government control bodies”嘅。

答：見到。

問：當然，我哋大家都知道，即係喺今年，水務署出一個通函之前，就其實就有一個法律規定或者係合約規定係要驗水嘅時候驗鉛，呢個我哋都知嘅，但係區生，我又發覺即係你喺個證人供詞嗰度--其實我哋睇一睇 28 段。

答：見到。

問：你自己都提到，其實就唔係淨係焊料嘅，似乎其他一啲水喉嘅部件都有機會係含鉛，你自己呢度都喺個表嗰度列出咗一啲出嚟。

答：係。

問：即係當然你只係話嗰個含鉛量唔過某一個程度，就可以用嘅咁樣，譬如話我哋或者睇一睇嗰個“Pilot type pressure reducing valve”，你呢度第 28 段嗰個 table 嗰度嘅第四項，見唔見到？

答：見到。

問：我又發覺呢個 pressure reducing valve 喺呢一個嘅 reduce inspection 嗰度係第 43 項嚟個嘢，你係有驗到個嘢，你哋公司。

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答：係。

問：咁點解又會包含呢一樣嘢嚟去檢驗嘅呢？

答：因為其實第一樣嘢，我哋要 submit for approval，另外第二樣嘢，呢啲材料都係值錢嘅，都幾貴，PRV，我所以因為...

問：即係都係頭先所講嗰個考慮，係咪？

答：...何標記送咗呢啲咁嘅料嚟，佢都會畀張單我哋問我哋收錢，所以我哋就要 check，因為如果我哋畀咗錢佢，而嗰樣嘢唔合規格嘅話，就唔係太好。

問：但係，區生，你提咗兩次話即係嗰個物料係咪值錢係一個考慮，但係另外一個考慮唔係其實要睇下無論嗰樣嘢係有幾值錢或者幾唔值錢都好，其實你係要睇下如果萬一出咗啲咩嘢問題，嗰個風險有幾大，呢個唔係都係一個相關嘅考慮咩？

答：唔係，呢個當然係喇，因為其實我哋點解要 check 呢，就係話佢送得嚟地盤嘅料，佢諗住安裝嘅話，佢一定要畀佢 submit 嘅 sample，同佢 submit 嘅 sample 一樣。第二樣嘢，就因為--第二樣嘢要考慮就係話我哋因為佢入單畀我哋，問我哋收錢，所以我哋有張單喺度，我哋就會 check 佢。

問：最後一個你提出嘅理由，我哋好快睇埋佢，係喺你嘅第 22 段，證人供詞。

答：見到。

問：你就話即係何標記係 "had been Shui On's plumbing subcontractor for many of Shui On's Housing Authority projects. We never received any complaints about the soldering materials procured and used by"何標記。

答：係。

問：區生，我哋其實睇番呢個 inspection list 嗰度就好多即係物料，九十六項嘅，係咪？

答：係。

問：如果頭先你嗰個證人供詞講話即係其實我哋會睇下有冇 complaint

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盛，你總不會係每一度呢度出現嘅 item 都係出過事，係咪呀？之前？

答：當然唔係，當然唔係每一個出過事，頭先講--即係我都講過話去做呢個--邊啲材料需要做 inspection，其實有好多 criteria，即係有好多好多因素，有啲係房署要我哋 submit sample，有啲房署合約要求我哋要 check，即係唔係要求，要求 submit sample 即係要求我哋 check，有啲係我哋之前我哋公司發生過事，有啲係因為我哋有啲嘢要 check 咗之後先可以做另外一個動作，即係好多因素係會令到我哋 build up 呢個 material inspection list 出嚟。

問：好，或者我哋去下一個課題，想講一講物料來貨嘅情況嘅。

答：好。

問：頭先其實喺個 project quality plan 嗰度，material control 嗰個項目底下，我哋見到有個步驟就係講話要即係 confirm delivery date and arrange storage space，係咪？

答：係。

問：即係要確實究竟啲物料幾時嚟，同埋係要睇下有冇即係位畀佢哋安置嘅，係咪？

答：係。

問：但係其實即係我咁樣講啱唔啱呢，無論嗰個物料係嗰個 project quality plan 包唔包都好，其實呢一個步驟都要做，係咪？如果有來貨嘅話，你哋就要係去即係安置佢，係咪？

答：其實點解我哋會有呢個步驟嘅度，因為其實我哋就唔想啲材料，無論係我哋公司買又好，或者承判商買都好，唔想佢亂咁擺，因為我哋想控制佢嚟貨嘅時間，因為如果地盤冇地方擺嘅話，嚟到就會塞死個地盤，如果佢嚟到亂咁擺嘅話，亦都會令到地盤個運作會出現問題，所以我哋想控制呢個程序，想控制佢嚟貨嗰陣時，我哋要有足夠嘅 storage space，佢先可以嚟貨，呢個步驟就係個精髓嘅嗰度。

問：明白，呢個步驟其實即係無論--我個意思就係話無論嗰個物料包唔包喺個 project quality plan 嗰度，你哋都會做，係咪呀？因為如果有啲物料就算唔包喺個 plan 底下，你哋都要確保個流程係順暢，有位畀佢擺咁樣，係咪？

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答：應該咁講，應該係話如果嗰樣嘢係--嗰啲材料真係好細件，好濕碎嘅話，就佢唔會--即係承判商又好，或者我哋自己都好，都未必跟到呢個程序去做，因為我哋管係管大件嘅材料同埋管貴重嘅材料，同埋管 quality plan 裏面有嘅材料。

問：咁我想問下你，我哋知道焊料就唔包喺嗰個 project quality plan 度嘅，你會唔會知道何標記佢哋訂嗰啲焊料要嚟地盤，知唔知個程序係點樣嘍？

答：以我所知，因為其實事後我問番啲同事，其實呢啲焊料到地盤，我啲同事都唔知。

問：都唔知道嘅？

答：係，唔知。

問：我想問下...

答：因為何標記冇畀到單我哋，亦都有通知我哋有焊料到。

問：即係話當焊料要到地盤之前，係有一個要求係要分判商話畀瑞安嘅前線人員聽係有物料要嚟咁樣嘅？

答：如果嗰一啲係大件或者重要，或者嗰啲物料佢會通知我哋，我哋要求佢畀單我哋添。

問：但係頭先你話你問過同事，就住焊料，就有呢一個通知呀？

答：喺水喉嘅焊料呢度，何標記冇通知我哋，冇畀過單我哋。

問：呢個唔會話即係製造到一啲問題畀你哋咩？因為--或者咁，我可能可以幫助一下你，我哋而家事後就向呢一個...

主席：我想問一問，你成日話要畀單你哋，即係換句話嚟講，你哋譬如咁講，判咗畀何標記，假設係 10,000 釐一個單位咁樣樣，你哋就唔係話等佢做完晒，先至畀錢或者分三批畀錢嘅，你哋係咪即係某啲程度上，佢有啲料嚟咗，佢又會問你哋擺錢咁樣樣嘍？

答：係呀，如果嗰啲材料係比較貴重嘅話，我哋會畀咗錢先，因為其實喺承判商嚟講，佢個 cash flow，即係佢個資金流動都好緊要嘅，所以我

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咁如果貴重嘅材料佢到咗，我哋會 pay 咗畀佢先，等佢可以找咗供應商條數先。

主席：咁即係總之就去到成個 project 完晒之後，譬如你就係畀二千萬嘅，就係畀二千萬喇？

答：最後個總數會係咁。

主席：係喇，多咗啲就貴客自理，係咪咁樣樣？

答：都唔係嘅，如果佢啲樣嘢係令到佢有一啲額外嘅損失，舉例，譬如我哋其他嘅工序慢咗，令到佢要加快，佢要搵啲貴啲嘅人嚟做嘅話，嗰時佢會同番我哋講番，我哋會合理處理。

主席：我知，即係一般程序上，如果有呢啲咁特別嘅嘢，就係佢閣下嘅事喇？

答：如果有乜 variation 嘅話，就跟番足個合約，即係 subcontract 佢係幾多錢，咪畀番幾多錢。

主席：即係如果啲啲料，譬如呢啲銅喉係貴咗嘅，嚟到到最後，可能佢就譬如啲銅喉貴咗，佢就於是可能如果佢要賺錢嘅話，佢就要喺第二啲地方就要係 cut cost？

答：其實何標記同我哋合作咗咁多單，其實試過有銅喉係升咗嘅，佢會同我哋講番嘅，佢會同我哋講番，我哋會酌量合理地幫佢嘅，都試過嘅，因為我哋其實最好--即係我哋最想就係話有啲叫長遠嘅伙伴，大家都想做好件嘢嘅啫，因為其實佢銅喉如果貴咗嘅話，我哋喺房署合約或者工務工程其實有個叫 fluctuation cost 嘅，我哋都會補番--房署都會補番啲畀我哋嘅，我哋嗰度，我哋咪嗰度又畀番啲佢，幫補下佢。

主席：何標記咪即係只會賺錢，唔會蝕錢？

答：應該咁講，其實佢係一個--做水喉都好資深嘅分包商嚟嘅，其實我哋同佢都係有個--長遠嘅伙伴，佢其實--唔係話何標記嘅，而係話其實好多分判商，好多行頭都遇到一啲唔同嘅情況，佢哋都要我哋 main con. 幫手嘅，我哋 main con. 你唔--即係合理地處理，如果唔係嘅話，就完成唔到單工程，我哋都靠啲專業嘅分判商幫我哋處理好多嘢。

主席：繼續。

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問：區生，頭先你就講過話可能有啲細啲嘅物料就分判商就唔會或者唔需要通知你哋，我想問下，你哋係點樣同分判商去溝通話「你哋啲乜嘢物料嚟嘅時候要通知我。」呢？

答：其實如果分判商如果佢入過辦啲嘢，有個辦啲嘢，其中一啲比較大件啲嘢，我哋會要佢通知我哋，但係同理有啲係佢一定要我哋畀位佢擺啲嘢，佢會通知我哋。

問：點樣為之大件？區生，我咁樣講可能好抽象，不如咁，首先一步一步嚟，我哋睇一睇我哋事後向呢一個嘅 supplier，即係 Prosperity 雋景公司就其實擺咗一啲發票同埋送貨單嘅，或者可以喺嗰度睇到，即係幫助下我哋而家個討論，麻煩你去文件夾 S1，請你搵去第 103 頁。

答：Okay。

問：區生，其實喺呢一個嘅即係鉛水事件發生之後，有冇睇過呢一啲嘅發票同埋送貨單呀？

答：喺鉛水事件發生之後，其實直至到 COI pose --即係捉出嚟話雋景有啲咁嘅單，我先第一次見到。

問：但係即係所以而家嚟講，你就睇過呢啲單，係咪？

答：係。

問：我哋可以快啲少少望一望，譬如話第一張咁樣，就係何標記就係訂嘅貨，就係我哋見到個送貨地址就係呢一個嘅葵聯邨嗰個地盤，係咪？

答：係。

問：就見到其實嗰張單就唔係淨係得一樣嘅物料送嚟嘅，呢個係個發票，嗰個呼應嘅送貨單其實就係喺後面嗰頁嘅啫，104，或者我哋睇嗰個。

答：係，見到。

問：送貨就唔係淨係送一樣嘅，呢度都有好幾種唔同嘅物料咁樣，係咪？

答：係。

問：或者我哋睇咗第一個 item 先，嗰度就係講到有一種嘅物料，就係叫做英國 50 力扁錫條嘅。

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答：見到。

問：區生，想問下喺今次鉛水事件之前，有冇聽過呢一種嘅焊料呀？

答：冇。

主席：何標記過往同你拍檔咁耐，有冇交過呢啲英國 50 力嘅扁錫條畀你？

答：我印象冇。

主席：次次都係交嗰隻？

答：因為次次佢都係畀我哋 submit 嗰個 sample 都係 F-R-Y，即係 Fry 99C。

主席：得。

問：咁當...

答：即係之前嗰十幾單都係咁。

問：唔好意思。今次事發之前，有冇聽過焊料係可以係以一個錫條咁樣嘅形態出現？

答：焊料好似--其實焊料我真係之前冇乜點留意。

問：冇乜點留意？

答：係。

問：我想問下，譬如話一張單，佢唔係淨係即係齋送一樣嘢嚟，唔係淨係送焊料嚟，譬如佢送好幾樣唔同嘅物料嚟嘅，如果係舉例呢一張單，104 呢個嘅情況底下，分判商又使唔使通知你哋等佢哋有位擺呢啲物料呢？

答：其實佢送貨嗰陣時，我哋就唔清楚，但係其實睇番晒咁多個 item，其實全部都係嗰啲小五金，我哋其實睇番我哋嗰個 PQP，我哋都唔 control 呢啲嘢，所以 end up 佢可能真係冇通知我哋。

問：即係有一個制度要求佢哋通知你嘅？

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答：因為其實睇番晒呢炸嘢，其實都係小五金。

問：我又想問，頭先我哋就討論到即係大件定細件，咁好抽象，就咁講，如果我話畀你聽呢個雋景公司就同我哋講，頭先我哋睇過 item one 嗰隻英國 50 力扁錫條來貨就係應該係用一個咁樣嘅盒去包住嘅，你都見到，英國 50 力扁錫條，裏面就有裝住--或者我畀你睇埋，就係多過一條嘅，我相信，但係就係呢類型嘅錫條嘅。如果來貨係有好幾盒呢一啲咁樣嘅焊料嘅話，呢個算大件定細件？

答：如果喺個地盤嚟講，呢啲其實你唔留意嘅話，根本就唔知佢送左嚟。

問：即係換句話說，其實佢哋都唔會通知你嘅？

答：其實我哋所謂大件，就好似一件預製外牆嘅就真係大--即係嗰啲叫做大件，我哋走去安排，譬如有時佢送嗰啲水喉料嚟，譬如講個--頭先講減壓掣，PRV 係咁大隻，即係隻隻都咁大隻，所以但係嗰啲嚟親，好多隻嘅，咁所以要佔好多地方，所以嗰啲我哋就要--即係加埋佢又亦都畀單我哋，嗰啲，所以嗰啲就我哋會安排。

同埋其實仲有一樣嘢，就係話其實送啲小五金，即係等如送電器嗰啲嘢一樣，其實佢係一車入嚟，佢嚟到，可能裏面裝好多樣嘢嘅，佢嚟到放低幾盒，跟住佢裏面仲有好多嘢，佢又車番走，所以其實呢啲嘢我哋經常都會有人送嘢嚟，放低一啲，就跟住其他啲嘢走，所以就都比較難控制，第一樣嘢。第二樣嘢，我哋啲咁嘅小五金，我哋亦都有擺入 PQP，所以冇控制。

問：當啲分判商佢要通知你嘅情況下，即係當佢會通知你嘅情況嘅時候，佢要畀啲咩嘢資料畀你，就住嗰啲來貨？

答：如果大件嘅嘢，我哋有張 form 要填嘅，嗰張 form 佢會填咗，佢話會有啲咩嘢送嚟，跟住我哋個地盤個總管，即係唔係 site agent，係個 general foreman 就會填低畀唔畀佢入，畀唔畀佢入同埋放喺邊一度，有張咁嘅 form。

問：嗰張 form，你話頭先--即係佢會講到明話嚟嗰樣嘢係一個乜嘢種類嘅物料咁樣？

答：係。

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鄭小姐：主席，我唔知道今日會唔會想 take 個 break，抑或繼續？兩樣都有問題。

主席：好，我哋 take 個十分鐘嘅 break 先。

鄭小姐：唔該晒。

主席：好，唔該。

下午 3 時 42 分聆訊押後

下午 3 時 59 分恢復聆訊

出席人士如前。

瑞安承建有限公司（“瑞安”）（蔡聯邨第二期的總承建商）的第一證人：區才華（瑞安副總經理）宣誓繼續作供
鄭小姐繼續盤問

問：區生，綜合你頭先所講，一個分判商嘅物料嚟貨嘅時候，使唔使提交個 form 去話畀你哋聽，似乎就有好幾個考慮嘅，即係頭先你提過，就係話究竟嗰個物料包唔包嗰個 project quality plan 嗰度、有冇就住嗰個物料係遞過 sample 上去畀房委，或者嗰個物料嚟貨係咪大件，即係頭先你提到呢幾個考慮，係咪？

答：大致係咁。

問：大致係咁。如果個情況係咁，似乎當物料嚟到嘅時候，究竟需唔需要交 form 去通知你哋，呢一個係有好大嘅酌情權其實係交咗畀嗰個分判商或者係瑞安個前線人員，睇下佢交唔交或者收唔收呢一份表格嘅，可唔可以咁講？

答：其實我哋都講咗，其實最主要係佢有冇地方擺，即係呢樣嘢因為一定會好阻地盤，所以如果佢嗰樣嘢係冇地方擺或者阻到地盤嘅話，就算佢唔遞張 form，我哋同事都唔會畀佢入嘅，因為實在太大件，但係當然，其他嘅考慮因素，譬如嗰啲--頭先講咗，貴重嘅材料，佢嚟到，我哋都會--佢都會--要入張 form 畀我哋申請。頭先講咗，亦都係呢啲譬如好似頭先嗰張單講嗰啲咁濕碎嘅嘢，可能佢哋真係唔會，因為第一，又唔

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係好值錢，啲「介子」啲啲，即係加埋可能都有一盒嘢咁大，所以可能嗰度就佢哋分包商就有畀通知我同事，所以我同事都唔知呢樣嘢。

問：所以即係其實好多情況底下，其實你哋都係要信任或者倚賴個分判商或者你哋嘅前線人員去睇下即係會唔會進行交 form 呢一個通知呢一個程序嘅，係咪呀？

答：係喇，佢哋判斷。

問：Okay，由佢哋判斷。就有一個既定嘅系統係去決定呢樣嘢嘅？

答：有系統嘅，不過啲咁濕碎啲啲就留番畀佢哋判斷。

問：區生，我就見到頭先我哋都提過黃貴雄先生，呢一個何標記嘅職員，我就見到佢個證人口供嗰度講嘅嘢同你有少少出入，公平起見，我都想你望一望，睇下你有咩嘢回應嘅。

答：好。

問：或者我哋睇睇文件夾 K3，第 2244 頁。

答：見到。

問：呢一個其實即係由呢個文件夾 tab 6 開始，你就會見到係黃貴雄先生就住呢個聆訊所提交嘅證人供詞，2244 頁就係佢嘅其中部分嘅答案嘅，呢一度嘅 letter (d) 嗰度。

答：係，見到。

問：佢就講到物料來貨嘅時候個情況，佢嘅說法就係話“we had to inform the main contractors as well as the HD staff of all materials delivered to site for incorporation into works”。佢呢度似乎就係話所有會 deliver 去個地盤嘅物料都要係通知你哋嘅，我想睇下你就住佢呢一個講法，你有咩嘢回應啫？

答：等我睇一睇先，因為佢呢度寫「In fact, for 啟晴邨」。

問：我個理解，佢--或者我畀個 context 你，區生，因為黃貴雄先生，我哋頭先都講過，其實佢就係何標記裏面就住呢一個葵聯邨二期工程嘅個 person in charge 嚟嘅，譬如你睇下文件夾嘅 2236 頁。

答：2236 頁，見到。

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問：Letter (b) 嗰度，佢都有解釋佢自己嗰個身分，見唔見到？

答：見到。

問：佢頭先或者你返番去 2244 頁嗰度，我哋可以--我會逐步逐步同你睇呢一段嘅，佢初初佢就講，話佢就會通知你哋“of all materials delivered to site”，咁...

答：佢係咁寫。

問：佢係咁寫，當然佢之後佢都有提到嘅，佢之後佢就講到就話“If they requested copy of delivery orders of the soldering materials issued by Prosperity, I would give to them.”跟住佢就講啟晴。

答：係，見到。

問：嗰個我哋可以唔使理，之後佢就話“However, to the best of my recollection, Shui On/HD did not request for such”，即係有 request for 嗰啲 delivery orders，我嘅理解係，“in Kwai Luen Estate. In any case, I verily believe that the foremen of Shui On should have been well aware of our use of solder strips in the Kwai Luen Estate. However, I could not remember the name of the Shui On foremen.”

呢一段其實佢都提到好幾樣嘢，第一，佢就話佢哋係會通知 main contractor 所有物料到場嘅，第二，佢就都 confirm 就話就住葵聯邨二期，瑞安就有要求佢哋交呢個 delivery orders 嘅，呢一個第二點就同你個供詞係即係 consistent，一致。但係佢嘅第一點，我就想睇下你有冇啲乜嘢回應？

答：第一樣嘢佢係咁寫，但係其實如果當有貨到地盤嗰陣時，因為其實講咗係就算頭先嗰張單都好，其實牽涉嘅貨品其實係唔係好大型嘅啫，可能係一盒，因為嗰啲介子一百二十隻，可能講緊一個杯咁多嘅啫，真係好小型，所以其實佢可能擺咗入嚟地盤，佢唔通知我哋，我哋根本冇辦法得知，所以我哋都唔知佢送咗貨嚟嘅話，我哋點會話要求佢擺單呢，係咪？所以其實喺呢樣嘢裏面，呢個亦都係事實，我哋冇問佢擺單，不過其實佢如果有貨到，佢如果有通知我哋，我哋冇理由唔問佢擺單，所以其實--不過佢係咁寫，佢係咁寫，佢話佢通知咗我哋，我哋冇問佢擺單。

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主席：即係你唔同意佢嘅講法，係咪？

答：唔。

主席：即係你唔同意佢嘅講法，第一句？

答：唔同意佢有通知我哋。

問：但係頭先你提到話如果佢有通知你，你哋就一定會問佢擺單，呢個係你哋個既定程序嚟㗎？

答：如果佢通知我哋，通常佢會畀埋單我哋嘅，佢連單連一--搵單通知我哋，佢擺埋張單入嚟話有貨到。

問：即係話頭先講就話佢哋交幾樣嘢畀你，要交個 form 畀你，係咪？頭先你提到佢哋話交張 form？

答：張 form，係喇，張 form 係要其實事前搞嘅，佢聽日會到貨，佢就擺--問我哋填張 form，擺喺邊度，擺喺邊度，事前通知嘅，跟住到咗貨之後，佢要擺嗰張 form，佢先可以入到閘嘅，我跟住將啲貨擺番畀我哋指定嘅位置，跟住就將嗰張單畀我哋嘅事務行政主任，喺地盤行政主任就去 check 貨。

問：即係如果佢通知你，就會即係 go through 呢一個程序？

答：係。

問：但係如果佢冇通知你嘅話，就呢個程序就唔會即係進行？

答：就話佢如果啲嘢太濕碎，佢唔通知我哋嘅話，我哋根本就唔 aware 有嘢嚟，所以就 implement 唔到呢個程序。

問：好，就住呢一個物料來貨，我最後一條問題啫，就係想知道頭先其實你都略略有提到，就係話啲分判商，我哋或許集中喺水喉分判商，佢哋啲物料嚟到，以你嘅所知，係會擺喺邊度？

答：通常其實佢哋會擺喺佢哋所謂嘅 workshop 附近嘅。

問：係咪我哋所聽過架步？

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答：係喇，架步，地盤個俗稱叫架步。

問：俗稱架步。我想問下，葵聯邨嗰度有兩棟樓，有幾多個架步總共？

答：以我所知，水喉佬應該得一個。

問：得一個？

答：係。

問：即係喺其中一棟樓嗰度？

答：係，不過呢個我唔係好 sure，因為我見過有一個，我行過，即係見過有一個架步，但係因為可能公園上面可能有另外一個架步，因為其實佢上下台，下台有兩棟樓，上面--上台有一個公園，好大個個公園，咁可能佢會上面可能再整多個架步都唔出奇。

問：平日瑞安嘅職員或者前線人員，我相信，會唔會話即係都會喺嗰個架步嗰度工作或者係即係出入嘅呢？

答：工作唔會，出入都唔會，你話經過就我相信實會有人經過。

問：好，或者我哋轉去下一個課題。想問一問你就係即係比較專注啲講焊料呢樣嘢，頭先區生你就講過，就話冇見過，亦都有聽過我哋頭先所講嗰隻錫條。

答：事前。

問：事前，係，知道。好吖，我問番你事前，事前有冇見過我手上呢一個嘅錫線？呢個就係我哋而家成日都講嘍喇，Fry 無鉛錫線。

答：其實事前我都有留意呢樣嘢。

問：冇留意呢樣嘢嘅？

答：係。

問：想問下，頭先你都講過，你就係即係駐守喺 head office，但係都會做一啲 site visit 嘅，係咪？

答：係。

問：你做啲 site visit 嘅時候，有冇睇到即係啲水喉工人進行一個焊接

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水喉嗰個工序，有冇見過？

答：事前，冇乜印象。

問：區生，頭先你--今朝早都有講過話就住嗰個公屋工程，係水喉匠--唔好意思，係水喉分判商係要做嗰個嘅 mock-up flat 同埋之後係有啲 sample flat，係要建築出嚟嘅。

答：合約係咁寫。

問：合約係咁寫。我想問下 sample flat 起咗幾多個，因為我個理解，就係公屋工程單位可能有唔同嘅規格、大細咁樣，通常係多過一個 sample flat 嘅，你知唔知道喺葵聯邨二期有幾多個 sample flat 起咗呢？

答：其實合約通常都會寫一隻 sample wing，另外有幾多個 type 嘅 flat 咁嘅，喺邊一座，幾多樓，合約有寫到明嘅，但係通常我哋都會成隻 wing 咁去做，但係確實個數目，你而家問番我個記憶，就唔係好清楚，不過應該都係一隻翼，大約四、五個。

問：大約四、五個？

答：四、五個左右喇。

問：即係唔會...

答：可能會做多啲亦都唔出奇嘅，因為我哋...

問：係每一棟樓大約四、五個 sample flat 咁樣？

答：其實唔係嘅，佢係房署個合約，佢會寫到明譬如喺 4 樓，喺 4 樓裏面會有 1P、2P、1B、2B，即係有幾款嘅單位，就會做個 sample 出嚟。

問：我明，但係即係因為葵聯邨二期就有聯逸樓同埋聯悅樓㗎嘛？

答：佢會做喺其中一座嗰度。

問：其中一座嘅啫？

答：其中一座。

問：我想問下，當我哋講咗 sample flat 先，sample flat 建--即係喺呢一個嘅製作過程之中，你有冇係特別去睇、巡視咁樣？

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答：Sample flat 我有睇過。

問：你有睇過？

答：不過就唔係個過程裏面，通常都啲 chief architect 落去，我就會陪佢睇。

問：你去睇嘅時候，即係有冇見...

主席：Chief architect，你講房署啲啲？

答：房署，係。

問：你同即係 chief architect 啲啲去睇嘅時候，有冇睇到水喉分判商嘅工人喺嗰度即係做建築工程呢？

答：通常做完喇喇。

問：做完？

答：做完，我哋先去睇，即係接近，唔好話做完，即係差唔多做完。

問：頭先我哋講嗰個 mock-up flat，你自己有冇去睇？

答：Sample flat 就有去睇過，葵聯邨二期有冇 timber mock-up，呢樣嘢我即係印象中好似有，timber mock-up。

問：我就有資料，睇到應該就有嘅，或者我哋可以望一望。

答：因為我都唔記得咗，因為太...

問：得，冇問題，即係我哋都唔要考記憶，不過如果你提到，我就頭先都有 check 過啲資料，就係文件夾嘅第 B15.4。我一陣間都會提到呢度嘅資料，...

答：好。

問：...所以或者我哋而家可能可以開嚟睇咗先都得，39970 頁，區生，或者你睇番之前嗰一頁，呢個其實就係房委會嘅代表律師係畀委員會嘅一

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封信，提供咗之後嗰頁嘅一啲資料嘅。

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答：見到。

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問：之後嗰頁嘅資料其實就係講緊即係今次受影響屋邨佢哋幾時係完成嗰個 timber mock-up 同埋幾時完成嗰啲 sample unit 嘅。

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答：係，見到。

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問：如果根據呢一度嘅資料，我哋睇下第四個--即係第(4)項瑞安嘅度，葵聯邨二期。

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答：見到。

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問：似乎就係有做到 timber mock-up 同埋有做到 sample flat 嘅。

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答：呢度寫落去係咁。

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問：係，呢度寫落去係咁，不過你剛才就話即係 timber mock-up 嘅度，你就自己可能有參與到，冇去過睇？

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答：係喇，冇乜印象，呢個。

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問：得，冇問題。有一度係想問一問你，都係就住焊料嘅問題嘅，或者我哋睇番呢一個嘅--頭先我哋都睇過，房委會嗰個 specification 以下係有一個相關嘅條文，我哋睇文件夾 B4.2，3528 頁。

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答：見到。

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問：其實頭先都睇過嗰一條，即係講緊“SAMPLES”嘅度，我淨係想你今次睇第一句啫，佢呢度就係即係講就話你“Submit samples of materials”，“and do not confirm orders until Approval has been obtained”，我就有就住呢度，有一個疑問嘅，因為我就見到雋景建材嗰啲嘅發票同埋送貨單嘅度，或者我哋可以去番文件 S1 103、104 頁。

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答：見到。

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問：即係我跟住落嚟問你問題，即係如果你係有個--即係唔知道，可以話唔知，不過我就係純粹想睇下你會唔會話之前可能都問過啲同事咁樣。因為個發票同埋個送貨單，你見到呢個第一張喇？

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答：係，見到。

問：送嚟個焊料就係英國 50 力扁錫條嘅，個日期係講緊 2013 年嘅 4 月 24 號嘅。

答：係。

問：但係或者我唔再擺番頭先房署嗰個 approval form 出嚟，你即係 take it from 我，就係當其時房署係喺 2013 年 5 月 20 號先至批呢個 Fry 嚟做呢一個嘅合規格嘅焊料嘅。

答：係。

問：我想問下，即係其實何標記你同佢合作咗咁耐，你知唔知佢哋係咪知道頭先我帶你睇嗰個 specification，就係話你唔應該喺個 approval 畀咗之前就去 confirm 啲物料嘅 orders？

答：何標記嗰個分包商合約係同我哋主合約 back-to-back 嘅，即係話佢應該知道合約嘅要求會係咁。

問：但係似乎喺呢一次事件度就出現咗一個情況，就話起碼有一批嘅焊料就係喺個 approval 都未畀之前，就似乎已經訂咗，送埋嚟呢一個嘅地盤，係咪呀？

答：其實個 approval 係 Fry 99C，但係呢張送貨單其實搵唔到 Fry 99C。

問：所以似乎個情況就係話唔單只嚟到嗰個物料係唔符合個 approval，就喺個日期嗰方面似乎都係即係同頭先講嗰個房署嗰個 specification 係有相違背嘅。

答：如果假設頭先講嘅問題，如果係應該批咗之後，批咗 Fry 99C，先訂...

問：99C。

答：...Fry 99C 嘅話，佢係過早咗訂，佢 take 咗 risk。

問：103、104 就係即係我哋第一 set 搵到嘅一啲嘅送貨單，我哋就不如睇埋下一 set，就喺 105 嗰度嘅，105 即係其實我哋淨係搵到個發票，而家，或者你可以望一望，區生。

答：係，見到，見到。

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問：其實呢度我都有個疑問嘅，就係我哋見到呢一張發票就有出現到第二個 item 就係英國 Fry 無鉛錫線，即係呢個係即係批咗嗰一隻嘅焊料嚟個啲。

答：係。

問：咁就訂咗二十網嘅，但係同時間同一張單又出現番英國 50 力扁錫條，就訂咗 165 磅嘅。

答：見到。

問：其實，區生，我都睇過晒所有雋景提供嘅單，就住建築個過程嗰段時間嚟講，似乎呢一張就係唯一一張單就係有提到呢一個嘅--即係有訂到呢一個 Fry 嘅無鉛嘅錫線嘅啫，即係呢個你可以 take it from 我，就係似乎呢個係唯一一張單。

答：係呀，因為其實成--我哋都講，我係過程--成個過程裏面，包括事後我哋寫信問何標記攞番單，佢都話佢都畀唔到我哋，咁所以係喺聽證會，我先見到呢啲單。

問：你之後有冇--即係你有冇同啲同事傾過或者調查過究竟點解偏偏呢一張單會有 Fry 出現呢？或者我話畀你聽我做過啲咩嘢即係之前嘅工夫，我就睇到，頭先我哋都望到呢一個葵聯邨二期嗰個嘅 mock-up flat 同埋嗰個 sample flat 嗰個嘅完成嗰個日期，似乎即係我哋而家唔使特登攞番出嚟，但係似乎嗰兩個日期都係比呢一張嘅發票嘅日期為早嘅，咁即係似乎呢一度訂嘅 Fry 就唔會係愛嚟用嚟做嗰兩種嘅 flat 咁樣，我想睇下你哋內部有冇即係就住呢一度呢個疑問調查過咁樣？

答：其實好似頭先咁講，因為其實啲單我哋都係喺 COI 呢面我哋先攞到，因為雋景嗰度都有畀到我哋嘅，何標記亦都有畀到我哋，所以其實見到呢啲單嗰陣時，個日子我哋真係有深究到，有深究到。即使我諗頭先大狀你所講，就係話係咪做辦房嗰陣時其實都唔係用緊 Fry 呢樣嘢，係咪咁嘅問題？

問：我自己就當時有個疑問，就睇下會唔會--呢一張嘅發票個日期同埋做辦房嗰個日期可能係吻合，睇下會唔會有機會訂呢啲係愛嚟做，不過似乎睇上去，個辦房完成嘅日期就係遠早--即係唔係遠早於，即係早於呢一個發票嘅日期嘅，所以似乎推斷就唔應該係愛嚟做呢個...

答：係，頭先根據大狀你所講話 5 月十幾號先批辦房嘅話，...

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問：5月十--唔。

答：...13年，咁而家嗰張單係6月14號13年先有Fry到嘅話，理論上就應該唔係，唔係。

問：好，下一個議題我哋可以即係討論一下，就係想問一問關於嗰個地盤嗰啲工人佢哋嘅得知嘅資訊諸如此類，我就知道水喉分判商嗰啲工人就係即係何標記佢哋帶嚟，係咪？

答：係。

問：我知道你嘅同事溫生就會即係比較熟悉呢一個範疇嘅嘢，所以我會問佢多啲嘅。

答：好。

問：不過我係想問你兩個比較即係general啲嗰個範疇嘅問題啫。首先有一個係你自己喺證人供詞嗰度提到嘅，或者我哋去番文件夾H1，第49段。

答：見到。

問：46段，唔好意思，46段，之前嗰一頁，係喇。

答：都見到，唔該。

問：你呢度就講到，就話“Special Conditions of Contract Clause 133”同埋呢一個嘅“Specification required all plumbers to be either registered skilled workers or skilled workers holding a full trade test certificate issued by the Construction Industry Authority or the” CIC, “To obtain such a certificate, the workers would be required to pass certain tests, including tests on using soldering materials. In this regard, I refer to paragraph 93 of the report prepared by the Hong Kong Institution of Engineer”, “which states that the CIC training ‘stipulated the use of lead-free solder and trainees were reminded of using of such throughout’.”咁樣嘅。

答：係。

問：其實我哋就住呢個聆訊，都有收到香港工程師學會嗰一個嘅報告嘅，我

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知道你都係香港工程師學會一個成員。

答：係。

問：但係我相信你係有參與製作呢一個報告嘅，係咪呀？

答：冇。

問：我想問下你呢度提到話呢一個嘅 CIC 嗰個嘅訓練裏面，係會講到明話叫
啲工人係要用無鉛嘅焊料，同埋佢哋係會喺個過程之中都係會提醒佢哋
嘅時候，呢一樣嘢，我想問下，呢個係你本身都已經知道嘅，抑或你係
純粹就係話即係 quote 呢一個工程師學會嘅報告？

答：純粹 quote 工程師學會嘅報告，但係工程師學會嘅報告裏面佢有--呢
個報告裏面有解釋到，亦都有--我記得係 abstract 咗佢一啲
examination 嘅啲啲資料出嚟㗎嘛，...

問：係，咁我想...

答：...嗰度睇落去，真係有做呢個。

問：即係你嘅 knowledge 都係 base on 嗰一個報告所講嘅嘢？

答：係，係。

問：你自己會唔會本身知道即係呢一個 CIC 嗰度個 training 包含呢啲嘢
係講緊即係邊一個年代，呢個你知唔知？

答：唔清楚，呢個。

問：唔清楚嘅，好。第二個關於工人嘅問題，我想問下，喺個葵聯邨二期個
工程嗰度，瑞安作為總承建商，有冇係安排一啲 briefing 係畀一啲唔
同分判商嘅工人去教佢哋關於例如話物料、工作技巧嗰方面咁樣嘅嘢？

答：每一行嘅工人入嚟，我哋都會有 briefing 畀佢，譬如有啲緊要嘅工序，
我哋會講，即係或者即係所謂緊要工序就即係話以前自己 make 過
mistake 嗰啲，我哋一定會再提番佢哋，唔好再畀佢 make mistake。
另外都會集中係講安全、環保嗰啲。

問：好，我哋或者專注喺水喉分判商嗰啲工人嗰方面，佢哋都會有一個
briefing，係咪？換句話說。

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答：係。

問：想問下呢個 briefing 係瑞安乜嘢職員去負責做㗎？

答：水喉分判商？

問：係。

答：事前，之前我哋都會係安全主任。

問：安全主任。

答：做呢個叫 site-specific induction talk，最主要講地盤安全、點走火、佢嗰個架步喺邊度、有啲咩嘢要留意，或...

問：Site-specific induction talk？

答：係，係。

問：你會唔會記得呢一個葵聯邨二期個安全主任係邊位同事，叫咩嘢名？

答：突然間唔記得，真係下--我可以答番你嘅，你畀少少時間我。

問：得，冇問題，唔緊要。或者我問一問你，除咗頭先你講嗰啲範疇，即係安全、個地盤位置、架步喺邊嗰啲之外，會唔會特別提到話用料嗰方面嘅問題？

答：事前真係冇。

問：冇？

答：冇。

問：即係話個 briefing...

答：我問過佢哋，冇，冇嘅。

問：冇提及到...

答：冇提及關...

問：...任何關於用料嘅問題嘅？

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答：係。

問：Okay。

答：不過而家做番晒，而家做。

問：我想問一問，就係呢個係想攞你個 confirmation 嘅啫，其實就係我
哋睇番嗰個 project quality plan，文件夾嘅 B4.5 6667 頁，區
生，見唔見到 6667 頁？

答：係，見到，見到。

問：嗰度個 project quality plan 其中一個 project activity 第 9
項就係個 training？

答：係。

問：我想問下呢一個 training 同你頭先同我講嗰個 briefing 係同一樣
嘢吖，抑或係一啲唔同嘅嘢嚟㗎？

答：呢個應該係唔同嘅嘢嚟。

問：唔同嘅嘢嚟？

答：唔同嘅嘢。

問：咁呢個係咩嘢嚟㗎，請問？

答：呢個係一個 training 係畀我哋自己同事去點 conduct 嗰個 PQP 裏面
或者係我哋個公司嗰個叫 company operating procedure 裏面所
要 carry out 嘅 activities。

問：所以就唔關係畀呢一啲分判商工人？

答：唔係畀工人，唔係畀工人。

問：明白，明白，好。

鄭小姐：主席，我咁就住區先生，我仲係有好少嘅問題，或者聽朝可能可以
完成埋佢。

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主席：好，我哋聽朝繼續，可能其他大狀都有啲問題會問。我哋聽朝早 10 點鐘再繼續，唔該晒。

2015年12月16日

下午4時26分聆訊押後

C Wednesday, 16 December 2015 C

(10.03 am)

D PROF DAVID CHUDLEIGH BELLINGER (on former oath) D

E Cross-examination by MR LEE (continued) E

F MR LEE: Sorry, my Lord. F

G Professor, you mentioned about testing of lead in
the bones; is that right? G

H A. Yes. H

I Q. I understand that it normally applies only to the
elderly, or am I wrong? I

J A. The methods that are currently available are able to
detect lead in the bone of adults, but the current
K technologies are not very sensitive for children, even
L children who have been heavily exposed in their early
years. L

M The method continues to be developed and it may
N become available in the future, but at present it's
O useful only for adults. I wouldn't say just the
elderly, but people who are adults. O

P Q. So beyond what age? I don't mind if you use
a broadbrush approach. P

Q A. The most data are available for individuals 45 and
R older, so I'm not quite sure whether 20 to 45, the
S methods would be sufficiently sensitive. They may be,
under certain conditions. S

Q. Why is that good for people perhaps over the age of 45 and not so good for people under, particularly children?

A. Well, it's likely because of the rapid bone remodelling that goes on in children as they grow. We did a study in my hospital, Boston Children's Hospital, where we followed up -- at about age 12 to 15 children who had been treated for lead poisoning as toddlers, as two and three-year-olds in our hospital, they had blood lead levels up into the 40s and 50s microgram per decilitre, and using the currently available technology, we actually did not detect lead in the bones of any of those children.

So the lead apparently goes in and out very rapidly as children are developing, but once we reach maturity, physical maturity, lead simply accumulates in the bones. It does come out under certain circumstances, when women are pregnant, lactating, or when women reach menopause, or if someone has osteoporosis, where there's bone demineralisation, then lead can come back out, but otherwise it tends to just accumulate in the bone.

Q. When you said lead in the bone you mentioned in and out, and then later on it may come back out. Do you mean to say the lead will not get out of the body but it may get in or out of the bone?

A. It will come out of the bone and then go into the other

pools that I mentioned yesterday: the soft tissues and the blood. And it may get out of -- may be excreted. We do know that lead from bone is passed to a foetus from the pregnant mother. So it doesn't necessarily remain in the woman's body or the adult's body, and it can be excreted.

CHAIRMAN: Can you stop.

Can you all switch off your mobile telephones, please.

Yes, please, Mr Lee.

MR LEE: Would airplane mode be sufficient?

CHAIRMAN: Yes, I believe so.

MR LEE: You mentioned about pregnant women. Could lead in the bone get out of the body even in people other than pregnant women?

A. Yes.

Q. Thank you. When you are looking at a person of, say, 45 or beyond, which method of testing of lead in the bone is more reliable, blood or bone?

A. Well, they are measuring somewhat different -- the term is they have different exposure averaging times. The lead in the bone, depending upon which bone you are looking at, probably integrates exposure over a longer period. The blood will reflect largely more recent exposure of the past several months, whereas bone may

reflect exposure over a period of years.

Q. So maybe ideally you should do both?

A. If the capability is available, it gives you a more complete picture of exposure, yes.

Q. Is it a very advanced method of testing lead in the bone, or is it generally available to hospitals?

A. It's primarily a research tool at this point.

Q. I see.

A. It's not used clinically, and the technology is not widely available. It's at only a few research centres.

Q. You talked about half-life when it comes to lead in the blood. Do you have such a thing in bones?

A. Yes. It depends on the type of the bone. If it's the very hard, it's called cortical bone, then the half-life may be as long as 30 years. But there are areas of bone that are more spongy, they are more in contact with the circulation, the circulation of blood, and so -- that's called trabecular bone. The half-life of lead in trabecular bone is probably ten years or perhaps less.

Q. Okay. I'm going to ask you another matter. It's a simple matter but it's important, because when it comes to an incident like this in Hong Kong, in fact in any community, people may be afraid --

A. Certainly.

Q. -- and there's too much fear, so I want to quell that,

if possible.

Would it be entirely safe for me to brush my teeth
with water which contains a lot of lead?

A. You mean over a long period of time or once?

Q. Well, perhaps -- I put "a lot of lead" into my question.

If I were to brush my teeth and wash my mouth with
water from a tap which contains a pretty high level of
lead, say -- I don't consume that, I don't drink it --
is it safe?

A. If nothing gets into your body to be absorbed, yes, it
would be.

Q. But normally, you know the procedure of brushing teeth
and washing your mouth -- some may seep in, a little
bit, but certainly you don't drink it, that's what
I mean. Is that safe?

A. It would depend on how much lead is there, how much it's
adding to your background exposure from other sources.

Q. Other sources of course is nothing to do with water from
the tap.

A. Right.

Q. What sort of level would be so high that you don't even
recommend me to wash my mouth with such water?

A. I'm not sure I could assign a number.

Q. It would be very high?

A. It would probably be very, very high, yes.

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Q. Because I don't want our people in Hong Kong to get too worried about this. So generally, would it be safe for people to wash their mouth, brush their teeth, with water from the tap?

A. Based on my knowledge of what the lead concentrations are in the water, I would say yes.

Q. So it's quite safe to use the water to take a shower?

A. Yes.

Q. Wash my hair?

A. Right.

Q. Thank you.

Now, you come to this. Your knowledge of the lead level in the water -- you mentioned it -- such knowledge that you have of the lead content in our water, where do you get it from?

A. It was from the information provided me, presumably from the Water Authority and their testing.

Q. Do you know that the Water Authority in Hong Kong, the Waterworks Department in Hong Kong, when they tested the water samples they would flush it for five minutes before they would take the sample? Do you follow me?

A. Yes.

Q. When, the question is, there is lead or much lead in the water from our taps, what method would you recommend to use: first draw or always after five minutes' flush?

A. It depends on the question you are asking, the kind of information you want.

Q. You know the nature of this Inquiry.

A. Yes, and if the water has been standing overnight for a period of hours and coming in contact with lead-containing fixtures, it's well known that the concentration will be higher than it will be if you measure the concentration in a sample after the tap has been flushed.

Q. Of course you know that in Hong Kong a lot of people, even rich people, live in tall buildings, living in flats in tall blocks; you know that?

A. Yes.

Q. Because you can see it all over. Of course, very often water is pumped to the top of the building and then a water tank and then it comes down to serve all the units. Do you understand that?

A. Yes.

Q. Therefore, it will go through the pipe and there will be a lot of joints in the pipe, and if in the joints there is solder used which contains lead, then every time water comes through such a joint or connector, then some lead may actually get into the water; do you follow me? And you can imagine all the way going down, going down, to a particular flat. Again, it depends on where your

flat is located, because if your flat is located pretty close to the water tank, as opposed to far away, going through many more joints, then you can see there must be some difference between lead in the water for a flat which is closer to the tank than one which is further away from the tank. Do you follow the logic?

A. It's a reasonable hypothesis. I don't know. The data --

Q. Again, it depends on what about the other people having turned on their pipes?

I will be more specific. If you have somebody at the end of that pipe -- you know what I mean, the end of that long pipe -- switching it on at 6 o'clock in the morning, and all the water would go through that, let's say I use it for 10 minutes, and then somebody in the flat which is closer to the tank would turn on the tap, say, at 10 am, then a lot of water would have been used before 10 am. So, in that case, do you expect the lead content in the water to be lower when the water is used at 10 am as opposed to at 6 am?

A. Again, it's a plausible hypothesis. I don't know that anybody has ever done that particular experiment. I'm not a water expert so --

Q. But you see the logic of it?

A. I see the logic, yes.

Q. So ideally, one should actually give the time when the water sample is taken, because it would affect the extent of lead in the water? Is that logical?

A. It could, yes.

Q. We have certain figures to show -- see whether you see the logic of it -- and if you don't feel comfortable to answer, then tell me, because I'm sure the Commission will be sympathetic.

Mr Chairman, there is in fact a TV programme shown some time ago, I understand, and it's from TVB, News Magazine. It's a documentary from one of the television channels in Hong Kong, and it was televised on 18 July this year, and now it's on YouTube, so it's freely accessible and very much in the public domain. It contains a certain test result.

What happened was there is a resident, Mr Chairman, surnamed Chu, Mr Chu. In fact, he could be a witness, if necessary. Certain water samples were taken from his flat, and the TV people were there when the water samples were taken, and then the water samples were then tested in the lab -- we don't know which lab, Mr Chu doesn't know either. Mr Chu didn't even know the results of the testing until he saw the programme, because it was just taken away from his flat to be tested. Mr Chu himself was not exposed to any excess of

lead in his blood, because somehow he took the precaution of flushing the water always before he used it, unlike me. So he was not affected at all.

Now, the results which we have, in the form of -- it's something like that (indicating). It's captured from YouTube. (Handed).

CHAIRMAN: Yes.

MR LEE: It will give the level of lead after first draw.

CHAIRMAN: Yes.

MR LEE: Then after 30 seconds, after 60 seconds and after 120 seconds.

CHAIRMAN: Yes. Well, if you are asking sampling methods, Prof Bellinger may not be the expert that you wish to ask.

MR LEE: I know.

CHAIRMAN: I think it's Prof Fawell.

MR LEE: Indeed, but if possible the professor may be able to help us on the health effect of lead in such water.

CHAIRMAN: Right.

MR LEE: I'm afraid it's not in English, but over there you see "0", the Chinese character is "second", "49"; do you see that?

A. Yes.

Q. Micrograms per litre, which is at the top there, in Chinese characters. You see that "0", "20" -- do you

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

B Commission of Inquiry into Excess Lead Found in Drinking Water Day 28 B

C see that? C

D A. Yes. D

E Q. In fact, this is micrograms per litre; is that right? E

F A. (Nodded head). F

G Q. Then the first one is "49". That's first draw, because G

H it's at 0 seconds. After 0 seconds you have this H

I figure, 49 micrograms per litre; all right? I

J A. Yes. J

K Q. The next one, "28", you see 30 seconds? K

L A. Yes. L

M Q. Please say "yes" rather than nod, because the record M

N doesn't record a nod but they record a yes. N

O A. Yes. O

P Q. Thank you. P

Q The third one is 10 micrograms and 60 seconds; do Q

R you see that? R

S A. Yes. S

T Q. And then 7 micrograms, 120 seconds? T

U A. Yes. U

V Q. Would that be consistent with your knowledge of these V

things? V

A. Yes, it is. In the literature, it is suggested to run

the tap for two minutes, to recent an asymptotic level

of lead.

Q. You say the literature mentions two minutes. Have you

come across literature that mentions five minutes?

A. I have seen that figure, yes. It's less common than the two minutes.

Q. But if the figures supplied to you by our Waterworks Department in fact show some X micrograms per litre in the water, but after flushing of five minutes, then presumably, if you work backwards, if it is first draw, it will be much higher, logically?

A. It's possible, yes.

Q. Possible or likely?

A. Well, it depends upon the water system. If there are lead fixtures in the water that can come in contact with them, I would expect under those circumstances the five-minute flush sample to have a lower concentration. If it's not coming into any contact with lead, I would expect it to be the same regardless of the duration of the flush.

Q. Of course, it all depends on the time when the water sample was taken, as I asked you earlier?

A. It may, yes.

Q. So maybe we should actually -- since the TV crew had actually gone into Mr Chu's flat to take this, I suppose it would not be first thing in the morning, but anyway, we will find out soon.

On this hypothesis, therefore, if in fact all the

water samples supplied to you had been from first draw, or at least part of it would show first draw, or even 2 minutes as opposed to 5 minutes, then presumably, as a matter of logic, the figures of the lead content in the water would be higher? Of course one doesn't know exactly how much higher; right?

A. Correct.

Q. If you then identify a number, maybe a large number of other flats which would have been affected by more lead content in the water if they had made the first draw, then the government would be able to identify many more flats, presumably, which might conceivably have been affected by lead in water? Is that logical?

A. Again, it's a reasonable hypothesis. The only way we would know is if data were collected to confirm it.

Q. Presumably, a responsible government would then make sure that the people living in those flats which show pretty high lead content in the tap water would undergo blood tests? Would that not be a reasonable thing to do?

A. Again, if the data were collected that indicated that as a reasonable course, I of course would agree with it.

Q. And of course the net result would show that there may be many more people who had rather high lead content in their blood than the figures before you now show? Do

you follow me?

A. I understand your argument, yes.

Q. And that would be a logical approach?

A. Well, again, it's setting out a series of premises that do suggest that there's a question that needs to be answered.

Q. Now, here your expertise comes in. Now, with your experience in these things and expertise, what would you advise the government to do, from the public health point of view, bearing in mind the interests of the people living in those estates?

A. Well, from my perspective working in the health field, my concern is more how much lead is getting into people rather than how much is in the water. Again, what I said yesterday about the multiplicity of sources, I tend to focus on that the human body integrates the exposure a person gets from all different sources, and my concern from the standpoint of health effects is how much has been absorbed into the body.

So I always support doing biological sampling of people, to answer that question.

Q. Biological examination of the people. Bearing in mind that your evidence is lead could come into the body via a number of channels -- right?

A. That's correct.

Q. -- what sort of biological tests would you recommend be conducted?

A. A blood test, measuring blood lead.

Q. Would the blood test actually tell you the source of the lead getting into the body?

A. Not a routine blood test, no.

Q. What about a non-routine blood test?

A. Yes, there is -- lead exists naturally in several stable isotopic forms, and the ratios of different stable isotopes can vary, depending upon where a given sample of lead was mined. So sometimes it's possible to identify the source of the lead in a person's blood based on the isotopic signature of the lead, because you can compare that signature to the isotopic signature in the potential sources.

It doesn't always work and it's not a test that's routinely available, but in theory, it is an option, if that is the research question of interest.

Q. You mention the signature. Is it almost like the signature of a print, like a fingerprint, not as precise, no doubt?

A. It's not as individual as an individual's fingerprint, but you may see the ratio of two of the stable isotopes. For instance, this has been used, when the interest is in how much lead in the air from the combustion of

petrol was contributing to blood lead levels in a population, the lead that was used as an additive to petrol tended to be mined from different areas than the lead that is used in lead-based paint, for instance. So analyses of the signatures of the lead in people's blood, you could ask the question how much does that signature -- to what extent does that signature resemble more the signature of the lead used as a petrol additive than the lead used in paint?

Q. Okay. So now you are making a distinction between lead from paint and lead from petrol?

CHAIRMAN: No. It's the isotopic signatures of lead.

I think lead has two forms of isotopes, 206 or 208 or something like that.

A. That's correct.

CHAIRMAN: And if you, Mr Lee, read the task force reports, you would notice that the government actually conducted tests on the source of the lead, whether it's from, say, solder or whether it's from the fittings, the valves and the gates, et cetera.

MR LEE: Thank you, Chairman.

So that you know that the chairman is an expert too.

A. Yes.

Q. So, using certain blood tests one could discover whether the lead had come from the water or other than water?

A. In theory. As I say, it isn't always quite as clear a result as you would hope.

Q. But at least it would give you some sort of reference point, at least; right?

A. It might give you a clear answer. It might not. That's all I can say.

Q. Could these tests be done in Hong Kong, do you think? Is it generally or only in your hospital or what?

A. I would assume it could be done here.

Q. Thank you.

Now, if there is such an incident in the States, for example, where you live -- which state do you live in?

A. Massachusetts.

Q. If it had taken place there, would you advise the government to test, to conduct random blood tests on the population, or just selected groups of people more vulnerable, like children, pregnant women, and so on?

A. It would depend on the question that you want the answer to. I might, depending on the resources available, do risk stratification, identify the individuals most at risk, and target them initially, and depending upon the results in that population, extend to other segments of the population.

Q. For children, where would you draw the line? If you would concentrate first on groups of people more

vulnerable, for children, where would you draw the line?

A. I tend to be more protective when it comes to children.

I would probably say around age 12.

Q. Thank you. And no doubt pregnant women and lactating women -- no doubt you include them too?

A. Yes, I would.

Q. Any other people you would include as more vulnerable?

A. Those would be my initial choices for the most vulnerable subgroups.

Q. Thank you.

Mr Chairman, we have certain facts from particular -- from our clients, actually, and I will give those figures to you. (Handed).

The first page belongs to this family living in Kwai Luen Estate, within brackets; do you see that?

A. Yes.

Q. This is the Chong family. On the left-hand side, you see the husband, the date of birth; you see the wife, the date of birth; and you see the son, date of birth; and then the daughter, her date of birth. Do you see that?

A. Yes.

Q. Then you also see the age at the time and blood collection date.

Now, I should fill you in. This incident, excess

lead in water, came to light in Hong Kong around
mid-July this year. Mid-July.

A. Yes.

Q. So you see the date when the blood was collected. You
see the wife. The second stage, she was -- oh, both
dates are dated. Then the blood level, lead level in
the blood, the husband is 3.64, and we took the
reference point at 10; do you see that?

A. Yes.

Q. And then the wife, which should be 5, and she exceeded
it somewhat; right?

A. Yes.

Q. The first one. The second one is lower down; it's
already dropped, reduced, and became normal, if you use
5 micrograms per decilitre as where you draw the line.
Then the son was below, and the daughter was just below.

You see the symptoms now, under the column, and the
husband had abdominal pain and diarrhoea, the same as
the wife. Then "Time frame": it began one or two months
after moving into this flat, both of them, of course.
For the daughter, the young daughter:

"-- Slow response.

-- Delayed speech or language development: way
behind when compared with her brother (who could express
his emotions relatively well at 2 years old).

-- Situation improved obviously as soon as she stopped drinking lead water."

Then they found out, the government found out, and the whole family switched to drinking water which was supplied elsewhere, safe water.

You see that?

A. Yes, I do.

Q. Are these symptoms consistent with excess lead in the blood?

A. They are but only at blood lead levels considerably higher than the maximum of 5 that were observed in this family.

Q. But could -- of course, it's very difficult to be absolutely scientific about it. You cannot say beyond this you never have pain, or rather below this you never have pain and above this you may have pain. You can't be that precise.

A. No, you can't. The problem is that these are all such non-specific symptoms and signs that can be associated with many other sorts of health effects, including stress. So it's very difficult to be certain.

Q. Are there very specific signs?

A. Of lead toxicity?

Q. (Nodded head).

A. It's really only when someone becomes encephalopathic

and they start having swelling and bleeding in the brain, which tends to occur only in children at levels only above 100 micrograms per decilitre and may not even occur with several micrograms per decilitre. That's one of the very difficult aspects of lead toxicity. The signs are non-specific. So sometimes lead is not identified as the cause for a long time.

Q. But of course there could be symptoms which you can say, anybody can say, have nothing to do with lead in water? For instance, a bruise on my knee, if I have been playing football and fell down, that has nothing to do with lead; right?

A. That's right.

Q. Are these consistent with a person who might have too much lead in his blood?

A. The symptoms are consistent, but it's very unlikely, in my experience, based on these blood lead levels.

Q. We turn to the next one. Case 2 is the Liu family, also in Kwai Luen Estate. They moved in in August last year.

We see the wife, aged 45. Her blood was not tested, but she had neck pain, and abdominal pain around the waist. We see the time frame when she suffered those symptoms: the neck pain was from about April to June this year, and improved after drinking normal water; we see "yes" in brackets. Then abdominal pain around the

waist, she suffered from that after February 2015, this year, and improved after drinking normal water. The frequency you see at the right side: a few times.

Now, the daughter: you see the blood collection date, 25 July, and then three months later, and the level of lead, 6.4 and 5.5 respectively. She would be considered to be suffering from potential health risk, and she had abdominal pain more than ten times, medical consultation dates between February and August, at least twice a month, and "Poor memory -- Comments from teachers", since moving in, and not improved.

Would that be consistent, these symptoms, with there being too much lead in the blood of the daughter?

A. Again, it could be. The same problem that these are non-specific symptoms.

I would also ask when were these symptoms identified; what was the date?

Q. The second-to-last column, "Time frame". Of course we could only take statements from them.

A. Was this based on the wife reporting that yes, I had neck pain between April and June, but when was she asked that question?

Q. She was asked that question just a few days ago, because we knew about these people but we wanted to take statements from them for use in this Inquiry, and we

wanted the statements to be submitted to the various people concerned before Christmas. So that's why we took statements. But we knew about these people.

A. I would be much more concerned if there were in the medical record evidence of this woman reporting to her primary care physician, before she knew that she had lead in her water, that she was suffering from abdominal pain.

Q. I understand they have been to their doctors, so we could have got such evidence.

A. I think that would be very important. Otherwise, looking back, in the context of knowledge of this incident with the water lead, people can re-interpret all kinds of --

Q. Yes. It could be psychological?

A. That would be one of the things that would have to be considered.

Q. Of course. When one reads about these things and then says, "What about me?"

A. Right.

Q. Particularly when you have nothing to do at home.

A. Well, it's a very natural kind of human response to a situation.

Q. You see over the page, for this family over the page, you see the pattern of the use of water. That is before

they knew the incident, they would start using the water at 6 am and boil water from the first draw; you see?

Because in a lot of families in Hong Kong, they are busy, and the first thing they do when they get up is to take water from the tap and boil it, and then for the rest of the day they use the boiled water, which might have cooled down, of course. That is the problem.

A. Mm-hmm.

Q. So they have this habit. For breakfast they have congee and also cook lunch -- fish, vegetables and so on for the husband -- and then lunch and dinner, you see, soup every night, and wash dishes, last use around 9 pm. So the water would be collecting between 9 pm until 6 o'clock in the morning.

A. Right.

Q. The last one, case 3, this is the Lee family, Kai Ching Estate. We see the husband and wife, eldest daughter, nine, the second daughter, five, and the youngest daughter, one. Why don't we save some time and go to the second page -- or maybe the eldest daughter, "Symptoms": "Weak resistance to diseases" -- no doubt you would say, for this sort of thing, ideally we need to call the doctor who treated this at the time?

A. Yes, that would be helpful.

Q. I entirely see the logic of your answer, Professor.

"Serious cold and coughing"; it might be just natural.

Over the page, "Lack of concentration; noticeable deterioration in academic performance." No doubt we need a teacher to give that sort of evidence?

A. Yes.

Q. The second daughter now -- the second child is also a daughter -- three daughters, that's right, the second one -- again, first, "Weak resistance to diseases", we need a doctor there.

"(2) Slower physical development (in terms of height and weight) compared to the elder sister."

Again, there may not be anything abnormal about it. In every family you have a taller and a smaller child.

A. That's right. That's what makes this different.

Q. I don't have that knowledge because I have only one child.

Then the youngest daughter, she has 6.7 micrograms in her blood and classified as "Potential health risk".

Again, "Weak resistance to diseases", and:

"(2) Delayed speech or language development: way behind compared with her sisters (who could speak reasonably well at 3 years old).

-- Still cannot speak clearly enough so the parents could understand.

-- Situation improved a little after she went to kindergarten."

So these symptoms, if we can call them symptoms, of these children, are they consistent with there being, particularly the youngest one, excessive lead in the blood?

A. Yes. All of these things have been linked to elevated exposure to lead.

Q. Over the page, we see again, unfortunately, they boil their water first thing in the morning, at 6.30 am, which no doubt would have contributed to it; yes?

A. Other things being equal, yes. If there is lead in the fixtures, then that pattern of use would be expected to result in higher concentrations.

Q. Again, the last time they used water from that tap would be 9 pm; do you see that?

A. (Nodded head).

Q. While you still have that chart, go back to the second case, page 3. Go back to page 3. You see "Daughter" on that page, at the bottom?

A. Yes.

Q. Her date of birth was 8 November 2010, and the blood lead level was 6.4 and then 5.5; do you see that?

A. Yes.

Q. I will show you another document, which unfortunately is

in Chinese (Handed), and I will provide the translation.

You see this Chinese document, on the top-right corner there's some English. Do you see the date? The date was the date of this document.

A. Yes.

Q. Which was 10 August this year. Then further down, you see "DOB"; that's the date of birth?

A. Yes.

Q. It is 8 November 2010, which tallies with our other document that I showed you, the daughter, her date of birth.

A. Right.

Q. Her name is in Chinese. I think we should not disclose her name. The surname is Lam; all right? The surname of the mother is Liu, which we have on this document, but the daughter's surname is Lam. Then her sex is female, we see that on the document.

A. Yes.

Q. Then she was discovered -- the document then says, in English -- I will now give it to you -- the heading is:

"Assessment of physical condition and intelligence of children.

Report of preliminary assessment".

Then what was contained in this document was:

"The developmental performance of the child is

consistent with his/her age."

Okay? The developmental performance of the child is consistent with her age. Then:

"Recommendation: For Maternal and Child Health Centre to contact and arrange for follow-up developmental surveillance."

So that was the recommendation. Unfortunately, it does not give any indication as to the conclusion that the developmental performance of this child is consistent with her age.

In your state, Massachusetts, if there is a preliminary assessment of this kind, would you expect more information to be given to the parents, say consistent and do you expect -- do you know, for example -- when you read this thing, you just don't know what sort of test has been conducted.

A. Right. My first question would be why was the testing conducted; was it because of a concern about developmental delay?

Q. Yes, because of the discovery of the lead content in the blood was 6.4 micrograms, which was higher than what the government would consider to be normal for a child under eight.

A. Yes.

Q. That was why they then sent her to the centre for

testing.

A. Well, I don't know what the local practices are in this regard, what kind of testing was done, whether it was a screening test or simply asking the parent about achievement of developmental milestones or whether a full neurodevelopmental battery was administered.

Typically, in the United States, if a paediatrician does a screening exam and everything looks okay, that would be the message communicated to the parents: no concerns in any areas. If there were concerns, say in the development of expressive language, the parents would be told and directed -- referred to some centre for either more intense evaluation or surveillance of the sort that was recommended here.

So I think there's just not enough information to know what the situation is here, for this young child.

Q. But in the US, you mentioned already what sort of assessment would be expected to be done; right? You already mentioned?

A. Right.

Q. If we could now come to the letter on which you were asked questions yesterday, which is bundle E2, page 846, the letter from the Department of Justice, Mr Chairman.

Professor, I will spend a little more time on this letter, because this is almost my last subject.

C A. Okay. C

D Q. We see the reference, after "Dear Sirs", it says: D

E "Commission of Inquiry into Excess Lead Found in
Drinking Water. E

F Production of relevant documents possessed by the
Director of Health." F

G Do you see that? G

H A. Yes. H

I Q. "Further to our last submission of documents on
J 3 December 2015, we are instructed to enclose herewith
K the following updated documents which are in the
L director's possession and are relevant to the
M Commission's enquiries".

N Then three types of documents. The first one is
O "updated summary tables", then the second one is
P "updated list of blood test results", and the third one
Q is "updated master list of documents published". Then:

R "Regarding Prof David C Bellinger's expert report
S dated 1 December 2015 provided to the Commissioner of
T Inquiry into Excess Lead Found in Drinking Water ('the
U expert report'), it is noted that reference has been
V made to the line-listing of the follow-up blood lead
tests as of 22 October 2015. We are instructed to
provide the information as set out in the following
paragraphs to the Commission.

In page 18 of the expert report, it mentioned that the results of repeat blood lead tests were reported for 28 individuals. In fact, 29 individuals had repeat blood lead tests conducted in the same period and the interval between the initial and repeat blood lead test was approximately three months for 25 individuals. For the remaining four individuals (all pregnant women), the interval ranged from one week to one month (see document submitted by the director on 29 October ...", and so on.

So they are very careful, almost painstaking, because apparently you only mention 28 and they said in fact there are 29.

A. Correct.

Q. I suppose as you would expect of the Director of Health, very meticulous about these things. That's good.

Now:

"As for the 'exposure assessment' mentioned in page 19 of [your] expert report, a lead exposure assessment ... is conducted by a nurse of the Department of Health ... for every individual with elevated blood lead level. For selected circumstances, LEA [lead exposure assessment] will be supplemented by a home visit. Relevant documents including the questionnaire and reference materials used for conducting lead exposure assessments, protocol and flowchart for home

visits of cases with elevated blood lead level are included in the above-mentioned updated 'master list of documents published'."

So they were dealing with your point about exposure assessment; do you understand?

A. Yes.

Q. Now:

"Regarding the 'developmental assessment' mentioned in page 19 of the expert report, all children with elevated blood lead level will receive preliminary developmental assessment at [the Director of Health's] Child Assessment Centres (for pre-school children below 6 years) or Student Health Service Special Assessment Centres (for schoolchildren 6 to 12 years) by a developmental surveillance team" -- now, note this, "developmental surveillance team" -- "composed of paediatricians and nurses. The developmental assessment covers major developmental areas including gross and fine motor, language and communication, cognition, learning, behaviour and emotion, self-care, vision and hearing. This is conducted through history taking (including birth, developmental and medical history, daily and school functioning and parents concern on development and behaviour), reviewing school reports and school work, physical examination (including soft

neurological signs), clinical observation and use of questionnaires and assessment tools."

I think yesterday you expressed satisfaction of these measures taken; is that right?

A. Yes. This is quite a complete plan. I don't know what other kind of information one would ever want as part of a developmental assessment. It sees how the child is functioning in the eyes of the parents, in the eyes of the school. There's a plan for individual assessment of the child, history taking. It covers the major areas of function. I think it's quite complete.

Q. But of course you don't know what they actually did, but from the description you have no reason to disbelieve it?

A. That's right.

Q. I think that's fair.

A. Yes.

Q. So the next paragraph:

"Children identified with developmental or behavioural problems will have follow-up evaluation at Child Assessment Service according to individual needs."

So they were dealing with developmental assessment, and then mentioning this developmental surveillance team, and then, after the assessment, children identified with developmental or behavioural problems

will be treated in this way; there will be follow-up evaluation.

A. Correct.

Q. Which is also correct, you would say?

A. I would say yes. We don't like to subject children to assessments they don't need or follow-up that they don't need, so it's appropriate to target the follow-up, to make sure that any children with identified problems are receiving the services that they need.

Q. But again you don't know what they would do, how they would assess the children at this Child Assessment Service, but you have to assume that they would do it properly?

A. Well, I would hope so, and that would be my first assumption, yes.

Q. But of course you can't pass adverse comment on that because there's no evidence?

A. No, I haven't seen the specific protocols that they would apply.

Q. I want to be fair to them too, so at this stage, fine.

A. So far, so good, is what I would say.

Q. Now the next sentence:

"Children with largely normal development" -- note the word "largely" -- "would receive continuous monitoring through enhanced developmental surveillance

at Maternal and Child Health Centres (MCHC) during pre-school years and annual health visits at Student Health Centres during school years."

So there are two types of children. The first type was the first sentence, those identified with developmental or behavioural problems. Now, then children with largely normal development would still receive continuous monitoring through enhanced developmental surveillance. Of course, if you go back to the earlier paragraph, the fourth line, the last few words, "the development surveillance team", this is where the words come from, "enhanced developmental surveillance"; do you see that?

A. Yes.

Q. Then:

"Parents are provided with anticipatory developmental guidance and information on children's development in the form of pamphlets."

I asked you about that yesterday; do you remember?

A. Yes.

Q. So here, the picture given is even those students or children who have not been found to have any developmental or behavioural problems would be monitored continuously through this enhanced developmental surveillance, and then parents are provided with

anticipatory developmental guidance by means of these pamphlets.

Then the pamphlets are also available online, that is the bit we got into trouble with yesterday.

Now, instead of showing you the whole thing, which I don't think is necessary, we will give you the index of those pamphlets. It's in English. (Handed).

A. Okay.

Q. These few sheets of paper which are being distributed -- the document I just handed up to you, Professor -- look at page 1, the very bottom of it, small letters, do you see that, "http"?

A. Yes.

Q. That's the online thing, and the one they gave was Chinese, the one in the letter is "chi" and then "health"; do you see that, in the Chinese?

A. Yes.

Q. In the letter, it's not exactly the same, because we have the English document, whereas the link they mention actually is Chinese.

A. Right. I went to that link last night and noticed that it was all Chinese.

Q. So you did your homework.

A. Yes.

Q. So we've got the English for you.

C A. Thank you. C

D Q. Thank you, Professor. I won't spend much time on it,
E but if you go through that, "Happy Parenting" -- this is
F "Health Information". "Health Information" and then
G "Child Health", "Happy Parenting", then the first little
H pamphlet is:

I "Happy Parenting ... Newborn Baby [Birth to one
J week].

K Download image version", and so on.

L Second one is "Happy Parenting" again, and then (3),
M (4), (5), and then pre-school children later on.
N "Infant & Toddler", "Pre-school Children". So different
O booklets, different pamphlets.

P At the top of the second page, just turn over, you
Q see the last revision date -- oh, you don't have that.

R Then you see the next document, again "Happy
S Parenting (1) [Birth to one week]", then you see the
T heading:

U "Newborn jaundice.

V Care of the umbilical cord.

Breastfeeding", and so on.

You just browse through it, please.

Then, if you go over the page, you see "Content
revised", there was the date, June 2015; do you see
that, in brackets? The second sheet, back page, at the

top, "Content revised".

Then the third sheet now, again, "Happy Parenting (2) Newborn Baby [1 week to 1 month]", and then browse through the headings. Then you see "Content revised" at the bottom, March 2015.

Then the next document, again "Happy Parenting (3) Infant & Toddler". Again, browse through the page, the index.

CHAIRMAN: So what's your question to the professor?

MR LEE: The question is these pamphlets in fact have nothing to do with lead in water or lead in blood; nothing to do.

You follow? You agree?

I mean, they are all there. I don't want to waste time.

Do you agree, they have nothing to do? These are useful pamphlets, no doubt, for any baby or for any mother, but they have nothing to do at all --

A. Well, none of the headings do. I don't know what the content is. It's possible.

Q. Exactly. Coming back quickly to the letter -- I just want to put them in context; do you see what I mean?

They have nothing to do with enhanced developmental surveillance of any kind, these pamphlets.

A. They do have to do with developmental -- of how parents

can support child development.

Q. Yes, but nothing to do with lead, the question that we are looking at?

A. I don't think they are advanced as having to do with lead in the letter.

Q. But when they talk about "enhanced developmental surveillance", what would that mean, normally?

A. It means someone is watching a child to make sure that they are on target in all the aspects of development.

Q. But because of the word "enhanced", then obviously they are paying particular attention to certain children?

A. I think that's appropriate under the circumstances, that people are concerned to make sure that this episode does not derail the development of a child.

Q. So how would you read -- in other words, children who are found to be largely normal, their parents would have the benefit of these pamphlets; right? Listen to what they suggest.

A. Right.

Q. But, presumably, all parents would be supplied with these pamphlets anyway, with or without this incident?

A. I don't know whether that's true or not.

Q. But if they were readily available, then it's not for particular children but for all children?

A. They would be helpful to all parents and children, yes.

MR LEE: Please look at your report.

I don't need to put any more questions, Mr Chairman.

Thank you, Professor. Nothing more from me.

CHAIRMAN: Thank you.

Cross-examination by MR LAM

MR LAM: Mr Chairman, I wonder if I could have the chance to
ask the professor a few questions.

Professor, I am from one of the main contractors,
Shui On. One answer of interest that you just said, the
question from Mr Lee about the other non-routine blood
test, and you said, concerning the isotopic test, it
doesn't always work, and -- I am quoting from what you
said -- you said it's not a test that is routinely
available, but in theory it's an option, if that's the
research question of interest to you.

What I want to ask you is, you said it doesn't
always work; why doesn't it always work?

A. Because the isotopic signatures of lead from different
sources may not always differ very much, to the point
where you can reliably identify the lead in blood or
solder as coming from this particular mine, basically.
And sometimes lead from the same mine may be used in
different products.

So it just depends upon a specific situation,
whether or not it gives you a clear answer as to the

source of the lead.

Q. Then I think you carried on and you said: it might give you a clear answer and it might not. That's the reason why you said it.

A. That's basically it, yes.

Q. I want to ask you about what Mr Lee has shown to you concerning the isotopic test. Of course in that context, your answer was based on the blood test that was asked of you by Mr Lee and then you said --

A. He was asking whether the lead in blood could be identified by source.

Q. Would your answer be any different if it was concerning lead in water?

A. No, it wouldn't.

Q. I want to ask you about Mr Lee's case studies. Do you have them with you?

A. Yes.

Q. If I may go to case 1 first. Now, the daughter, which is really of my interest. She is six months. Then it is said that the symptoms were:

"-- Slow response.

-- Delayed speech or language development: way behind compared with her brother (who could express his emotions relatively well at 2 years old)."

Of course, we are talking about a very young

daughter, six months at the time -- yes?

A. Yes.

Q. Of course, we are looking at the blood lead level. As you already mentioned during the course of yesterday, there are other factors at play, like environmental, eating habits, and perhaps parents' occupation. So, insofar as the blood lead level itself is concerned, it may or may not be the lead in the water that caused it?

A. It's a contributor but it's not the whole story, in a typical scenario.

Q. Insofar as the symptoms are concerned, again it says "Slow response", but bearing in mind the age of this young daughter, it could also be other social or economic factors or she could be a late achiever so far as we are concerned, because at the moment it is very vague information that is contained in this case study?

A. I agree, because as I say it is non-specific and there are tremendous variability in children's developmental paths.

Q. "Situation improved obviously as soon as she stopped drinking lead water."

Again, that is very vague. It could well be the reason being that she got older and her responses would be quicker, let me put it that way.

A. That's correct, and that's why I asked when this

information was elicited, because this is based on parent report, presumably, and the parents are aware of the larger context of the situation.

Q. If I can then ask you, Professor, to look at case 2. Case 2, a young daughter of four years old and then the complaint was abdominal pain and poor memory. Again, the same factors apply: it could be socioeconomic factors insofar as the symptoms are concerned and it could be that she is a late achiever.

A. That's correct.

Q. But for this case, we do have the extra sheet of tests, and Mr Lee had read to you the developmental performance -- in Chinese -- of the child is consistent with her age. It could well mean that she is absolutely normal, nothing malfunctioning insofar as her development is concerned; isn't that right?

A. That would be a reasonable interpretation. I don't know what they meant by "within normal limits".

Q. Sure. So far as case 3 is concerned, I think the same answers you would give insofar as those factors and symptoms are stated there, that it's vague and doesn't really point to any conclusive answers. Do you agree?

A. Yes, I agree.

MR LAM: I have no further questions. Thank you, Professor.

Re-examination by MR KHAW

MR KHAW: Just one matter, Professor. On the blood tests which could provide isotopic analysis of the lead content in blood, you have told us earlier that it is possible to identify the source of lead in a person's blood on the basis of the isotopic signature of lead, and then you can compare that signature to the signature in relation to other sources.

A. (Nodded head).

Q. You have also told us why you say that this doesn't always work, and you consider that an option.

I just want you to consider this. You have seen the data of the blood tests in relation to the affected estates in Hong Kong, and yesterday we also went through the updated list of the blood tests, and they all showed in general a decline of the content of lead in blood --

A. Correct.

Q. -- in relation to most of the residents. In such circumstances, would you find it necessary to conduct blood tests for the isotopic analysis of blood, for those people affected?

A. I would think not. To me, the evidence of the consistent declines, ranging from a few per cent to 50 per cent, following the interruption of the exposure to what we know is lead-contaminated water -- to me, that tells the story, that people were being exposed to

lead in the water. And the isotopic analysis would be icing on the cake, but personally, I don't think it's necessary in order to draw the conclusion that there was exposure, which is now no longer happening.

MR KHAW: Thank you. That's all I have. Thank you very much.

CHAIRMAN: Thank you, Prof Bellinger, for your assistance in preparing the report and in coming to Hong Kong to testify.

WITNESS: Thank you, Mr Chairman.

CHAIRMAN: Since you have completed your evidence, you are free to go and explore Hong Kong.

WITNESS: Thank you very much, Mr Chairman.

MR LEE: May I say Merry Christmas.

WITNESS: Merry Christmas to all.

CHAIRMAN: Let's take the morning break.

(11.22 am)

(A short adjournment)

(11.51 am)

(Transcript of simultaneous interpretation

except where otherwise specified)

MR LAM: Chairman, I will now call Shui On's witnesses.

It's H1, item 13.

C MR AU CHOI WA (affirmed) C

CHAIRMAN: Please take a seat, Mr Au.

D Examination-in-chief by MR LAM D

E MR LAM: Chairman, I will conduct the evidence in English. E

F Mr Au, please refer to your witness statement
F presented in front of you. If there is any discrepancy,
G you can point that out. G

H (Paragraphs 1 to 24 were read in English) H

[ACW-1; which is in bundle pages 71 to 76,

I Mr Chairman] I

J (Paragraphs 24 to 63 were read in English) J

K Mr Au, I have just read out your statement with
K 63 paragraphs. Do you wish to amend anything or
L supplement anything? L

M A. No. M

N Q. Would you adopt this statement as your witness evidence? N

A. Yes. N

O MR LAM: Mr Chairman, I have no further questions. O

P Cross-examination by MS CHENG P

MS CHENG: Mr Chairman, a few questions. P

Q Mr Au, I would like to ask you a few questions about
Q your career background. From your statement, we know
R that you are an engineer. R

S A. Yes. S

T Q. In paragraph 3 of your statement, you state some of your
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qualifications and public office. You are a member of HKIE, Hong Kong Institution of Engineers, and you also mentioned that in 1990 you joined Shui On?

A. Yes, I just graduated in that year.

Q. You said you have participated in 20 HA projects.

A. I started to work for Shui On in 1990 and all along I have been involved in HA projects.

Q. For the 20 HA projects, how many PRH, public rental housing projects? Have you been involved in HOS projects?

A. Yes, both PRH and HOS projects of the HA.

Q. How many PRH projects, how many HOS projects?

A. Most of them are PRH projects.

Q. Mr Au, you know the focus of this Inquiry is about the situation with the water supply in the PRH. Regarding those projects in which you are involved, do you know the material they used for the plumbing works in relation to drinking water supply?

A. I think, as far as I know, they follow the contract specifications, which are very detailed. So we follow the requirements in the form of the specs.

Q. According to your memory, do some of the projects use copper pipes?

A. Yes, more than ten of them use copper pipes.

Q. What about the rest? What material did you use?

A. Before 1990 or before early 2000, they would use galvanised pipe.

Q. You mentioned it was 1990?

A. 1990s. I can't remember clearly, 1990 to 1990-something. I was involved in Un Chau Estate in 1997 and we used uPVC-lined pipes. They also had PVC lining in those pipes.

Q. From the evidence we have heard, starting from the year 2000, mid-2000, most PRH projects used copper pipes; right?

A. The first project for us is Fanling Phase 3.

Q. Which year?

A. It was completed in 2006, or 2007; I can't remember clearly.

Q. For the projects using copper pipes, are the joints soldered?

A. Yes, they all use soldering to join the pipes.

Q. So, Mr Au, you have some experience in handling this matter?

A. Yes. For projects that I handled, that's the contractual requirement.

Q. Mr Au, let's focus on the Kwai Luen Estate Phase 2, this particular project. We know that approximately the work commenced in August 2010, as you mention in paragraph 7, and it was completed in 2014. It was a, comparatively

speaking, new PRH estate?

A. Well, it's the newest up to today.

Q. For Kwai Luen Estate Phase 2, there are two blocks, one called Luen Yat House and the other Luen Yuet House. How many units are there in each block?

A. I believe the two blocks altogether give 1,507 units.

One block is bigger than the other, but the two together would give us that number of units.

Q. I want to check with you some dates. Please refer to paragraph 11. It's page 55. You said the plumbing works commenced in June 2012.

A. Yes.

Q. Your colleague, Mr Wan Wai Ho, mentioned something different. Maybe I can refer you to tab 12 for his statement. It's the statement of Mr Wan. Paragraph 23, please. That is at page 90 of the bundle. Mr Wan said here:

"(Partially in English) Ho Biu Kee commenced their plumbing works in June 2013 and completed the works in April 2014."

So, with regard to the commencement date of the plumbing works, after you have referred to Mr Wan's statement, what would you say? Which one is accurate? June 2012 or June 2013?

A. Well, there are many steps involved in the plumbing

works. I think Mr Wan's statement, he put it at June 2013, I think he was talking about the formal commencement of the water supply system in the blocks. But apart from such system, in the blocks there are also some minor things underground which we also consider as plumbing works. I think that the two do not contradict. I was talking about the whole site. It may be the mock-up, starting from the mock-up flat, we have this, but Mr Wan was referring to the formal commencement, after the sample flat was approved.

Q. Please also look at the next sentence in paragraph 23 of Mr Wan's statement. He said:

"[Ho Biu Kee] had approximately 10 months for execution of the plumbing works under the subcontract ..."

A. Yes, I can see that.

Q. According to him, for the entire subcontract for plumbing works, it would last approximately for ten months. For ten months.

Would you reconsider this: do you really think the works commenced in June 2013 or there were some advance preparation works in 2012?

A. As far as I know, when Ho Biu Kee started work in full steam, on our part we needed to get the sample flat approved by the architect before they can work at full

speed. So they started to do this in June 2013, and after April 2014 they had ten months. That's for the majority of the works.

But when my statement referred to the commencement, when I talked about that, I was also referring to the preparation work. So the plumbing works I talk about was about the plumbing works in the contract, including the works in the building, in the blocks as well as underground and the mock-up flats.

Q. Mr Au, you are saying that there was the preparation before 2013, there was the mock-up flat made of wood.

A. There was a sample flat and a mock-up flat. Yes, mock-up flat.

Q. Later I'm going to ask some questions relating to the mock-up flat.

A. Yes.

Q. Perhaps we can continue.

Mr Au, in your witness statement, we can go back to tab 10. In paragraph 4, when Kwai Luen Phase 2 was underway, you were stationed at the head office, but you said that you would also undertake some construction site visits.

Mr Au, I would like to refer you to the Housing Authority works and specifications and your knowledge about these specifications.

A. Okay.

Q. Mr Au, you have done so many HA works, so you must be familiar with the specifications, especially the pipes and tubes; is that right?

A. I have an understanding.

Q. In this Inquiry, we are familiar with the material, so these specifications, some come under PLU1, some come under PLU2.

A. Yes.

Q. So, under these specifications, there is a requirement that -- regarding -- there's a requirement regarding soldering material. The lead content, there is a requirement. So I will not direct you to that.

I think you are familiar with it. You mentioned it in your witness statement.

So, put simply, it requires that the soldering material be lead-free. So let's call this the lead-free requirement.

Mr Au, you have been handling these HA projects for so long, you have been handling copper tubes; you are aware of this lead-free requirement?

A. Well, I didn't pay particular attention to this. Even though the contract specified that -- because we have two types of contract templates. We have General Specifications, and then we have particular

specifications. In the General Specifications, they call it the standard library, in the standard library, when it's launched, we will review it once. After reviewing it, if there are special requirements, we will take note. But regarding lead-free solder, we have to rely on our subcontractor. We have not received any complaint. We had used their recommended material. It complies with the contract.

So I personally, prior to the incident, did not pay attention to this lead-free solder.

Q. You say you didn't pay particular attention, but have you heard of lead-free solder in this requirement?

A. Prior to 14 July, when we received the notice of incident in Kwai Luen Estate, I had not heard of it.

Q. So are you saying that prior to July this year, you had never heard of the lead-free solder requirement under the HA contracts, it being one of their specifications?

A. I did not myself. I did not hear about it.

Q. Well, referring to the date of July, so prior to this date you, personally, were you aware that lead was harmful to humans?

A. Yes.

Q. Were you aware that solder material that you can purchase in the market, there is lead-free solder and leaded solder?

A. I didn't know that before the incident.

Q. After the incident, now you are aware that under these specifications we have the lead-free requirement?

A. Yes.

Q. If I say that this requirement -- the purpose was very simple: it was to prevent the potential lead in the solder, it might contaminate the drinking water in the tubes; do you agree?

A. Well, prior to the incident, I wasn't that aware, but now, in this Inquiry, we have a lot of documents and I have tried to improve my understanding. I agree with the point that you made just now.

Q. You agree that the purpose of this requirement is what I said just now.

Mr Au, let's refer to your witness statement. In paragraph 25, that is page 58, it says:

"(In English) The main contract (and the back-to-back subcontract) did not contain any specific contractual provisions requiring Shui On to ensure that drinking water in the completed project was lead-free and safe. I should note that we were building the infrastructure for the water supply by the [Water Supplies Department]. We were not supplying water ourselves."

Mr Au, we are aware that under the specifications

there isn't a provision that says that you need to guarantee that the water is lead-free and safe.

A. Yes.

Q. We are also aware that Shui On is not responsible for supplying water, but as you said just now, the lead-free solder, the intention -- we have a consensus.

After hearing that, would you agree that ultimately we have a lead-free solder requirement and it is to ensure that the water supply to PRH is safe and lead-free?

A. Well, in my witness statement I said that the contract, some parts require lead, so I feel if we comply with the contract or if we comply with the law, then theoretically the water should be safe. But I cannot guarantee the lead-free content.

Q. But the lead-free requirement was to ensure that drinking water would not contain lead.

A. Well, it would minimise risk.

Q. These specifications and others added -- they were required of Shui On?

A. Well, our contractual relationship with the HA, that was required of us.

Q. Mr Au, I don't want to spend too much time on this, so for the record, in paragraph 7, in paragraphs 16 and 24, we see that you say directly that Shui On, as the main

C contractor, has the responsibility to ensure that the
D works comply with the design and specifications of the
E main contract.

E So I will put it bluntly: if in Kwai Luen Phase 2 we
F discover some solder -- they had used leaded solder,
G then Shui On did not comply with the lead-free
H requirement; do you agree with that?

H A. Well, even though Shui On, we have a lot of quality
I control procedures, but we do not use lead-free solder
J as required by the HA contract, then whether it is the
K workers' fault or the contractor -- since we signed the
L contract, then we did not comply with the HA contract.

K MS CHENG: Chairman, I will now ask a separate set of
L questions.

M CHAIRMAN: Let's break for lunch and we will resume at 2.30.

N Thank you.

(12.54 pm)

(The luncheon adjournment)

(2.31 pm)

P CHAIRMAN: Please continue, Ms Cheng.

Q MS CHENG: Now I would like to take up something with you,
R and that is the plumbing works subcontractor and the
S subcontract.

S Do you have your statement in front of you?

T A. Yes.

Q. Please turn to page 55, paragraph 12. Mr Au, it says here you are a member of Shui On's procurement committee and you participated in respect of Shui On's construction projects, the selection of subcontractors. Regarding this procurement committee, is it mainly for the purpose of selecting subcontractors for Shui On?

A. Apart from selection of subcontractors, it is also responsible for selecting the suppliers, suppliers of materials.

Q. How many members are there on this committee?

A. The members would include our managing director, deputy general manager. For HA projects, I would be there. Then the head of our procurement department and also the project manager for the particular project in question, and the quantity surveyor of that project. Mainly there would be the members like those.

Q. So there are different members, because you have different contract managers for different projects?

A. Certainly.

Q. For Kwai Luen Estate projects, you were involved in the selection of the plumbing works subcontractor?

A. Yes.

Q. We understand that under Kwai Luen Estate Phase 2 project, the plumbing work subcontractor would be responsible for supplying the parts in the plumbing

works, and the subcontractor has to comply with the material requirements in PLU1 of the HA?

A. Well, it's a speciality, it's a special discipline. We are the main contractor. We don't know everything. So we would hire specialist plumbing works subcontractor, and we would ask the subcontractor to procure material. It's a back-to-back contract.

Q. Understood. According to Mr Ching's materials under PLU1 would be procured or supplied by professional plumbers, but there are also materials under PLU2 that would be supplied by Shui On?

A. Yes, showers, taps and also the equipment, the sink.

Q. Is this done on the basis of competitive bidding in the selection of plumbing works subcontractor?

A. We do this on the basis of competitive bidding for many subcontracts, but for this particular project of Kwai Luen, we have already sought the advice of Ho Biu Kee, before we put in the tender to the HA.

Q. So the procurement committee selected Ho Biu Kee as the plumbing works subcontractor? It was a decision before you submitted the tender to the HA?

A. Yes, before we did that, we submitted our bid, we already got the quotation and we have got Ho Biu Kee committed to doing this if the contract was awarded to us.

COMMISSIONER LAI: Is that the same for every project?

A. Well, not for every speciality or discipline or all the projects. In some other cases, the tendering of the subcontracts would be by reference to a tender list. So we would not engage the subcontractor like in this case in all projects. We would only consider do this if it's a special discipline.

COMMISSIONER LAI: What's so special here?

A. Ho Biu Kee, to us, is a reliable subcontractor. They have been in collaboration with us for more than 30 years and they have been very co-operative, and their performance is very competitive. So we pay regard -- we would look at their past record, and there was already an understanding before we put in our bid. We also want to have Ho Biu Kee committed before the contract was awarded, so as to avoid risk.

CHAIRMAN: So, for the majority of your projects, is it the case that you would ask for quotation from Ho Biu Kee right at the time when you enter your bid?

A. Well, not everyone, but for a number of projects we will do this; we will communicate with Ho Biu Kee.

CHAIRMAN: What's so special with these other cases?

A. Ten or eight years ago, we bidded on the basis of open tender. Ho Biu Kee won some of the contracts and they did well. In recent years, prices quoted by

subcontractors fluctuated quite a bit, because the price of copper pipes fluctuated a lot. So it would be safer for us to get a commitment from Ho Biu Kee. Well, prior to that, eight or ten years before, it was not so -- the prices did not fluctuate that much. But of course we look at the performance. If there were a lot of complaints, we wouldn't award the subcontract to that particular company.

CHAIRMAN: Was it because Ho Biu Kee's price was competitive?

A. I wouldn't say that. Even we did it through open tender or just by open discussion with Ho Biu Kee -- well, the prices they quoted were always reasonable, and prior to that, sometimes they were the lowest bidder. But recently, in recent times we would talk with them first.

MS CHENG: For this Kwai Luen Estate project, you did not actually consider choosing another plumbing works subcontractor?

A. For Kwai Luen Phase 2, it was Ho Biu Kee.

Q. (Chinese spoken).

A. We talked to them before we entered the bid. But of course, if we didn't win in the tendering, they wouldn't get the subcontract.

Q. You said you would consider a number of factors, including past performance, capability and

- competitiveness of pricing. For Kai Ching Estate Phase 2 project, on these three factors, you did not make a comparison among a number of subcontractors, a few contractors, for example?
- A. No, not in this case. I should say this. Before we entered the bid, we already did this. It was not done after we had won the bid.
- Q. But when assessing these factors, you just looked at the suitability of Ho Biu Kee? You did not compare Ho Biu Kee with other interested possible, potential subcontractors of plumbing works?
- A. I think I should say that we mainly considered Ho Biu Kee's past performance and the capability, and they gave us the quoted price so that we could enter a bid.
- Q. You said before you would submit the bid to the HA, you had already reached a consensus on the price with Ho Biu Kee, but you did not know whether the HA would award the contract to you and at what price. So how could you consider whether the price you are going to pay Ho Biu Kee would be reasonable?
- A. Well, for plumbing works, the first thing we need to consider is reliability. It is not just the contractual requirements. We have also the statutory requirements under the Waterworks Ordinance, so we would like to get

a competent and reliable and capable subcontractor. The price quoted by them would just be incorporated into the total price of the bid. If they quoted something expensive, our main contract may not be able to be accepted. Ho Biu Kee would take up \$20 million-odd out of the total contract sum.

It won't affect the overall chance of winning the bid. We are the main contractor, so we would like to reduce our risk as far as possible.

Q. When Ho Biu Kee gave you a quoted price, was there a breakdown telling you how much is for manpower and how much for material? Did you have some breakdown information like that?

A. When we engage them, it's a back-to-back arrangement. The bill of quantities, the entire bill of quantities, will be given to Ho Biu Kee, and I understand that there is no division of manpower and material. It's just a price for a particular item of work.

CHAIRMAN: Sorry, I have a question. You talk about \$20 million-odd? 1,500 units for 20 million-odd?

A. They will have to provide all the pipes, PVC pipes and copper pipes and also the drainage pipes. So for drainage and plumbing included.

CHAIRMAN: How much for the supply?

A. We did not have any breakdown.

CHAIRMAN: You talk about water supply and drainage. What about pumphouse?

A. It's not included. Plumbing works was the responsibility of another subcontractor, Shun Cheong, a nominated subcontractor.

CHAIRMAN: It means more than \$10,000 for a unit. 1,500 units, \$20 million-odd, that works out to be more than 10,000 per unit.

A. (Chinese spoken).

CHAIRMAN: We have heard that some subcontractors would only get \$3,000-odd for a unit.

A. I am not sure. I am more talking about our contract.

CHAIRMAN: So Ho Biu Kee charged you something rather expensive; right?

A. Well, we also have some reference for comparison. I talk about water supply and drainage. Apart from those in the units, there's a common area and other pipes.

CHAIRMAN: Yes, the same for other contractors.

Please continue.

MS CHENG: Do you do the calculations based on each residential unit --

A. As I explained just now, we supply them with a BQ and they fill it in, and we do calculate how much it comes to per residential unit.

Q. You said that you do have some reference, and the chairman had calculated it's some 10,000 per unit. Compared to your other subcontractors' price, it's high, low or reasonable?

A. It should be reasonable. I don't remember now. The contract also included a park. Besides drainage and pumping there was a large garden, so it included the drainage and pumping for the garden. So if you divided it, it's not 10,000 per residential unit.

CHAIRMAN: So far, the amounts referred to do not exceed \$4,000. Some estates, they have a shopping mall, car park, and so on.

It doesn't matter. Please continue.

Just on the face of it, it seems very expensive.

MS CHENG: Mr Au, you mentioned that Ho Biu Kee would include the plumbing material, and you said that the price fluctuates. In fact, if you ask Ho Biu Kee to provide you with a quote, do you ask them how much does labour costs and how much does the material cost? How would you verify whether their material costs are reasonable?

A. We can check that with the suppliers.

Q. Have you done that?

A. If the procurement department feels it's expensive, they will do that.

CHAIRMAN: Well, this \$10,000 per unit, does it include the material? They have to include the material; you don't have to do anything?

A. Correct.

MS CHENG: The subcontractor's contract has a clause related to our discussion, so let's take a look at that. Please refer to B4.5. It's on page 6825.

Mr Au, do you have in front of you -- please proceed to page 6846. I understand that is a part of a subcontractor's contract.

A. Yes, I see it.

Q. So these are the clauses under the price, description, and in point 2.4, at the bottom of page 6846, this is a new clause:

"The subcontractor, when they submit the tender, they need to indicate the brand name of the material and the country of origin of the material and include the relevant information such as sample, colour sample, instruction manual, specifications, testing certificates, design diagram, and the contractual records of the material that has been used in previous contracts for the company's of reference. If a different brand or model and the prices do not match, then the contractor needs to indicate that in the tender."

So we see this clause but as a matter of fact, when Ho Biu Kee submitted their quotation, did they undertake this step, as far as you recall?

A. In Phase 2 of Kwai Luen Estate, when they submitted the tender, the material had not been provided. But they had a pledge, a commitment, that they would provide contractually compliant material.

Q. So step 2.4 had not been undertaken in the Kwai Luen Estate?

A. Not before the tender.

Q. They did not do that before the tender submission. Before you signed a contract with them, did you take that step?

A. We did not do so even before signing the agreement.

Q. So, in other words, prior to signing the contract, or even at the moment when the contract was signed, you had not asked for the information as required by this clause?

A. Well, Ho Biu Kee has been working with us over some 30-plus HA projects. We have an understanding that they would do this step. So, when we signed the contract with them, we had not undertaken that.

Q. Mr Au, don't you think clause 2.4 has its inherent importance? You have said that you have a back-to-back arrangement with Ho Biu Kee; they are also responsible.

But that does not reduce your responsibility under the contractual agreement with the HA?

A. Yes.

Q. So you are reliant on a pledge by Ho Biu Kee that they would use compliant material, but you don't have detailed information regarding what brand, what country of origin, what sample of material they are using. So how would you be confident that you would be complying with the HA requirements?

A. We have a step. Before Ho Biu Kee uses the material, they will notify us, even though we didn't do that before signing the contract. But before they start works, we require a sample, we will inspect the samples, and then we will even seek approval from the HA before they can use it. This step will ensure that the material they use complies with the contract.

As I said just now, that step might have been just postponed. It didn't mean it was omitted.

Q. Okay. Let's examine this procedure. Regarding solder material or solder, it's under PLU1 of the HA requirements. So the HA don't require the main contractor to submit a sample; that's not a necessary condition?

A. Well, I have worked with HA projects for so long. If we were to submit a sample, they would say so under the

specifications, and we don't see this requirement.

Q. We are aware. We heard that.

I am aware Shui On, regarding Kwai Luen Phase 2,
they have submitted a sample of the solder material.

A. I checked our records, yes.

Q. In your witness statement, paragraph 32 --

A. Yes.

Q. -- you have mentioned regarding solder material you
would submit samples?

A. Yes.

Q. In your last sentence, in the last two sentences, the HA
did not express this request but as a matter of general
practice you would do so.

So, Mr Au, you have done so many HA projects. Then
submitting a solder sample, what do you think the
intention would be?

A. Well, Shui On has done so many HA projects, if we comply
with the contract, that being the case, we still would
like the HA's understanding, so we will submit them to
the HA.

So this process is notification that we are using
this material or using this brand.

Q. Perhaps the HA specifications, there's a clause that is
relevant to our discussion. Let's look at it together.
Let's refer to bundle B4.2, page 3528.

A. Yes.

Q. Mr Au, you will find, in the lower half of the document, it talks about samples, "Samples of materials -- general requirements", and here it says:

"(In English) Submit samples of materials as requested by the [contract manager] and do not confirm orders until approval has been obtained. Keep approved samples at the place agreed by the [contract manager] for comparison with materials used in the works, which must conform with the samples set aside."

So, after reading that sentence, will you agree with me that the samples that you submit to the HA, one important significance is that when the procurement department procures the material, it matches the samples submitted to the HA?

A. Well, let's put it this way. When the HA drafts these contracts, our understanding is that they have a batch of materials, and if they say we need to submit samples, then the intention is that, as you said just now, counsel, yes, we have a consensus.

Q. They don't require you to submit solder samples but you have done so as a general practice. So what I am saying is that one of the purposes of doing so is to comply with the spirit of that clause. You want to ensure that the material procured matches the sample you submitted?

A. That's one of the reasons. There are other reasons. We need to indicate to the HA what materials were purchased, we have verified -- since we are all operating together, we needed some trust.

Q. So you agree the first reason? In other words, regarding some material where you have submitted a sample to the HA, but when the material has been delivered you have not checked whether it is the one approved by the HA. So then you cannot ensure that the delivered material is the same as the sample submitted.

A. Well, in my witness statement, I said that at the construction site we have thousands of materials. They come in different sizes. So we will analyse -- even samples, we have hundreds of samples -- we will analyse the risk, the probability of failure, based on our experience.

So we will include that in our project plan, and our project manager will draft that plan.

So, regarding solder material, we admit that we did not put that in the PQP, but we have done a basic requirement. We know what material Ho Biu Kee intends to use. They had submitted that material, and it complies with the contract requirements.

Q. We will follow up on the project quality plan later on. First, I would like to refer to your witness statement,

paragraph 24. It mentions Ho Biu Kee have provided us a sample to you first, and you mention they provided you with a fax. You can see this on page 72 of the bundle. Please turn to that page.

A. I can see it.

Q. This is a facsimile transmission sheet, dated 31 October 2011. We can see it's from a Mr Kevin Kwong of Ho Biu Kee. He said attached is the information on lead-free solder wire and Powerflow flux, for your submission purposes. Brand: FRY. Country of origin: Holland. Manufacturer, the name is mentioned; supplier, Prosperity Building Materials Company.

This is an attachment to your statement. Behind this sheet, there's some information on FRY 99C lead-free solder wire, some elaboration of the specs, and then starting from page 75 there are some test reports.

On page 72, in the upper half of the page, the number of pages is stated as one. So, when Mr Kevin Kwong gave you the information, did he attach the test report and so on and so forth with this fax?

A. It was given to a colleague of mine, Kelvin Yeung. If the physical sample is included together with the test reports, they would do it by hand and then supplemented by a faxed copy.

Q. Well, when Ho Biu Kee gave you this, would they be also giving you the sample of solder at the same time, at around the same time?

A. Well, Ho Biu Kee submitted many samples, some very large samples, and they would by hand give us the samples with the test reports.

But if you are talking about this particular case, I'm not sure.

Q. So you have no personal knowledge?

A. No.

Q. For Phase 2 of Kwai Luen Estate, did Ho Biu Kee submit any solder sample?

A. I'm not sure.

Q. Maybe I can ask your colleague.

Back to paragraph 24 of your statement. We have seen the fax. We are now on page 58.

A. Yes.

Q. In that paragraph:

"(Partially in English) Based on Ho Biu Kee's submission, we submitted a sample submission and approval form ... to the Housing Authority."

A. Yes.

Q. Let's take a look at that as well, the form, bundle B4.4, page 5203.

A. Give me a minute.

Q. We can see, in the upper right-hand corner of the submission form, it says 18 February 2013. So why it took so long for the form to be submitted? As you can see from Mr Kevin Kwong's fax dated 31 October 2011. So I just want to know why it took so long for you to submit the form to the HA. Do you have an answer?

A. I don't know. I'm not sure.

Q. Please turn to page 5204. Your colleague, AQCC, Man Kwan Wa, prepared this. The approval date is 20 May 2013. This one covers a number of materials. We can see from 5203 a number of -- the fourth item, "Brazing alloys & soldering alloys for copper fittings system".

For this form, I don't see any detailed information on the soldering material, if we just look at this form. But behind this, in some attachments, we can see there is some information on FRY solder. Page 5283, for example, the fax from Kevin Kwong, and some information is contained on FRY.

A. Which page?

Q. 5283.

A. Yes, I can see it.

Q. From your colleagues' statement, Mr Ching and Mr Wan's statements, we know that after the Housing Department gave the approval, they would inform -- the word they use is "inform" -- Ho Biu Kee. How would Ho Biu Kee be

informed; verbally, in writing or what?

A. We would send a memo, normally. Sometimes, we will use email. So it's either in the form of a memo or email.

Q. But I don't see any record about this in the bundle.

A. I will have to ask my colleague of the relevant department.

Q. For Phase 2, Kwai Luen Estate project, you informed Ho Biu Kee that the sample had been approved. To whom did you send the notification?

A. For this Ho Biu Kee contract, I believe it was Kevin Kwong.

Q. We learned from Ho Biu Kee that there's another person in charge, a man called Wong Kwai Hung. When this project was being completed, did you know him?

A. Wong Kwai Hung? I might have met him when I did my visits to the site, but I didn't know him well.

Q. According to Mr Wong, Mr Wong's testimony is that he was the one to make the decision on procurement of material. Did you know that at the time?

A. Not at that time.

Q. Did you have any communication with him concerning procurement of materials for this project?

A. I did not communicate with Mr Wong Kwai Hung in respect of this Kwai Luen Estate project.

Q. We will now turn to another subject, project quality

plan. Paragraph 13 of your statement is relevant.

You say there will be a project quality plan specifically designed for each project.

For the Kwai Luen Estate Phase 2 project, it was prepared by Mr Ching, your colleague?

A. Yes, he was the project manager.

Q. Did you take part in the preparation of the plan?

A. I did not participate in the drawing up of the project quality plan of Kwai Luen Estate Phase 2.

Q. In that case, I will put my questions on the project quality plan to Mr Ching. But you know that there is a project quality plan for each project, so I believe you can answer me some general questions?

A. Yes, because I was also a PMO myself.

Q. You state in paragraph 23 of your statement -- well, please turn to that page 23. Your project quality plan did not require our, meaning your, site staff to check the soldering material delivered to the site or conduct quality control on the soldering jointing to copper pipes.

A. Well, soldering material, for various reasons, was not covered.

Q. I know that. The project quality plan is about how your company carries out your monitoring duty. You can see something about that in 6660.

A. Yes.

Q. Please turn to page 6666. There are a number of items here, for different project activities. The most relevant is 6, "Material Control". If a material is covered by the project quality plan, then in respect of that quality you have to do the steps under 6; correct?

A. Yes, you can put it like that.

Q. Let's quickly go over the steps. First:

"(In English) Identify company materials to be inspected and sampling plans to be used."

What do you mean by "company materials"? What materials are covered?

A. Materials procured by the company.

Q. By Shui On?

A. By Shui On.

Q. For plumbing works, generally speaking, PLU2, the shower head, and so on and so forth?

A. Yes, they were procured by the company.

Q. Second:

"(Partially in English) Confirm delivery date and arrange storage space.

3. Prepare material inspection forms for employer supplied material, company purchased materials and domestic subcontractor purchased materials."

What are employer-supplied materials?

A. In the past, some materials were supplied by the employer, for example, fire safety hose, the HD would ask us to get some from the government warehouse. So it would cause a loss of trouble if you lose any of them.

Q. So if the employer is the Housing Department, you mean the materials supplied by the Housing Department?

A. Yes.

Q. For domestic subcontractor-purchased material, do you mean materials purchased by Ho Biu Kee?

A. (Chinese spoken).

Q. And also number 4, "Receive incoming material; 5. Perform sampling inspection."

A. Yes.

Q. Your colleague, Mr Wan, in his statement, elaborates on this. Please turn to H1, page 12. Sample inspection. It's in paragraph 34, and that is at page 96 of the bundle.

A. Yes.

Q. In the lower part:

"(In English) Visual checking was conducted to ensure that the materials were the same (in terms of brand, size and colour) as the materials approved by the Housing Authority."

A. Yes.

Q. That is in accordance with your understanding. That is,

the procedure used to do with sampling inspection?

A. Yes, we have to take delivery and conduct a visual inspection.

Q. So you will compare the delivered material, whether it is the same as the HA-approved material?

Then in B4.5, page 6666 -- perhaps we don't need to go through in such detail. It just talks about how you handle the inspections.

Let's now take a look at page 6669. On page 6669, there's a list of materials requiring inspection upon delivery and their inspection levels. We see a, b, c, d, four inspection levels. I would like to go through them one by one.

What do you mean by "normal inspection"?

A. It means that it requires a check, but it's a medium-level risk, so we can use a normal inspection.

Q. How frequently do you check under a normal inspection?

A. Well, we have to check each batch. Whenever there is a batch delivered, we will conduct a check. So what do we mean by normal? These four inspection levels, it's correlated to the sampling plan. They are correlated, so each inspection level in each batch. Let's say they deliver 100 units. We have to pick a certain number of units. We cannot check all, aside from the 100 per cent checked items.

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

B Commission of Inquiry into Excess Lead Found in Drinking Water Day 28 B

C Q. (Chinese spoken). C

D A. So for each batch we will sample a certain quantity. D

E Q. So how is that different for tightened inspection? E

F A. For tightened inspection, they take more samples. F

G Q. The maximum is 100 per cent. G

H A. Yes. H

I Q. So 100 per cent means that for each item, they have to I

J be checked. J

K A. Correct. K

L Q. What about reduced inspection? L

M A. In line with the sampling plan, we take less samples. M

N So each inspection, it's based on the sampling plan. N

O For 100 items of each goods, the number of sample items O

P are different. P

Q Q. So, Mr Au, you have been a project manager, so is there Q

R any black and white document that indicates the R

S quantity, how much? S

T A. Yes. In page 6671, there's a sampling plan. T

U Q. The frontline staff will have to conform with the U

V sampling plan. V

A. Yes. V

Q. So for a material, how would you classify which Q

R inspection level should it come under? R

S A. When I was project manager, we have items in the S

T contract where you had to submit a sample in PRE.9. So T

U

V

those will have to be inspected. And let's say we had an alert issued in the past regarding certain material, so we will take a closer look; and for prefabricated units, if we don't conduct 100 per cent check and if you install it on site, and if you find a problem, then it will affect the RC, the reinforced concrete structure, and we have to inspect it, otherwise it will affect the whole construction. So those will have to be inspected very tightly.

Q. So you can say that it's a basket of criteria?

A. Well, it's based on our experience and guidelines.

Q. So for each project quality plan, is there a discussion what material should come under what category?

A. Well, our project managers, they will consider these factors, and of course there are other criteria, such as the contractual criteria, because each contract is different. As I said this morning, in the General Specifications, we will include certain items, and we also have Particular Specifications for that particular project. For example, that project might be related to slopes or demolition, but you don't need to submit samples for demolitions. So there would be special considerations.

Q. I am not aware that, under the reduced inspection, you have the most materials. I have done -- you have

a total of 96 items, and 68 of them are under "Reduce inspection".

A. Right.

Q. Let's take a look at "Reduce Inspection", item 22.

A. Item 22.

Q. Yes, it's "Copper pipe and fittings".

A. Yes.

Q. So, according to you, copper pipe and fittings does not include solder material.

A. Correct.

Q. So copper pipe and fittings doesn't include solder. Is that unique to Kwai Luen Estate or is it the same for other projects?

A. The same as other projects. We just checked copper pipes and fittings. Because copper was expensive at the time, we have to check. Even though it is not installed, Ho Biu Kee will ask us for payment. So we have to check everything, that it conforms to the specifications.

Q. So could we say that it's a cost consideration?

A. Well, it's not cost consideration. In construction, a lot of materials are expensive. When the subcontractor purchases the material, we need to pay them. So if we inspect and it conforms with the specifications, then we will pay them so they can pay

suppliers.

Q. Copper fittings does not include solder material. Was there a conscious decision saying that we wouldn't include solder material?

A. Well, we didn't think about checking solder material. There wasn't a special discussion on whether we should check solder material.

Q. Let's refer back to your witness statement, paragraph 23, page 58.

A. Yes.

Q. You say the PQP does not include the solder material, and you gave us three reasons from paragraph 20. Let's go through them paragraph by paragraph.

A. Okay.

Q. Paragraph 20 says that soldering material has a minor nature in the plumbing system and it's not a high-risk item.

A. Right.

Q. I understand that we call this metal filler.

A. It's a miscellaneous sundry item.

Q. You still have the PQP, B4.5, page 6670? I see that in the reduced inspection, it seems that we have other metal filler.

A. I see it.

Q. At item 15, the flush bolt and the push handle, and on

item 12, the kicking plate.

A. I see it.

Q. My understanding is that -- why do you not inspect
solder material?

A. This is not a sundry item. It's a metal filler, filler
of metal. But these samples have to be submitted. We
will submit it for HA approval.

Q. So is it included in the reduced inspection category?

A. Well, according to my understanding, sundry items or
miscellaneous items we will not include here. There are
just too many of them.

Q. It's confusing. Do we have some sundry items included
here?

A. I don't think so.

Q. I need you to compare a document. Looking at
paragraph 21 of your statement, it says here:

"(In English) Furthermore, Shui On was not required
to test the lead content in water under the main
contract or under the legislation for issuance of the
'water certificate' ... and the 'occupation permit' by
government control bodies."

A. Yes.

Q. Well, of course we are aware that this year, before the
Water Supplies Department issued a circular, there was
no legal requirement that there should be lead tests for

testing water. So, in paragraph 28 of your witness statement --

A. Yes.

Q. -- you mention that it is not just solder material. It seems that other plumbing material might contain lead, and you have listed that in the table, and of course you just say that as long as it exceeds a certain threshold, it's safe.

So let's take a look at the pilot type pressure reducing valve, item 4 in your table. This pressure reducing valve, in the reduced inspection, it's item 43, you have inspected that?

A. Yes.

Q. Why is that included in the inspection process?

A. First of all, we have to commit for approval, and these materials are quite expensive, the PRV. So when Ho Biu Kee deliver this material, they will collect money from us, so we need to check. Because if we pay them and the item is not up to standard, that wouldn't be too good.

Q. Well, Mr Au, you said twice that it is a costly item. Aside from whether it's costly or not, you have to see what the risk is, if there's a problem?

A. Well, of course. It's because when they deliver the material to the site for installation, it has to conform

with the sample they submitted. Then second, the second consideration is that they will invoice us and we have to pay them, therefore we need to check the item.

Q. The last reason you gave -- let's go through this -- is on paragraph 22. You say:

"(In English) Ho Biu Kee had been Shui On's plumbing subcontractor for many of Shui On's Housing Authority projects."

A. That's correct.

Q. So, Mr Au, the inspection list has 96 items. You said that you would consider whether there were any complaints. For each item here, you couldn't have had a complaint for every item; right?

A. Of course not. I have said that which material needs inspection, there are a lot of criteria. Some require sample submissions by the HA. So we are required to check the material. And some items had rental problems before in our company, and then sometimes we need to check an item in order to do the second procedure. So these are the reasons.

Q. Okay. Let's move on to the next subject, the delivery of material. In the project quality plan, under the heading "Material control", there is one step called confirmed delivery date and storage space. So you have to make sure that there is space to store the materials,

and whether it's covered by the project quality plan,
you have to do this step. Before something is
delivered, you have to find some space to accommodate
it.

A. But this step is put there because, whether the material
is procured by us or by the subcontractor, we don't want
the material to be lying around, because if there's no
space they would just clog up the site area. It will
affect the operation on the site. So we want to
exercise some control. When delivery is made, we will
have to make sure there is enough storage space.

Q. Okay. So I was saying that whether the material is
covered by the project quality plan or not, you have to
do the same; you want to make sure that the flow of work
is smooth and you can store the material?

A. If there are really sundry items and small items, the
subcontractor or my company may not be doing this,
because we want to exercise control over bulky items and
expensive items.

Q. Soldering material is not covered by the plan. What is
the procedure involved by Ho Biu Kee, for soldering
material?

A. Well, I asked my colleagues afterwards. My colleagues
didn't know whether the soldering material arrived on
the site. Ho Biu Kee did not inform us.

Q. So there's no request that the subcontractor should inform Shui On staff that it was being delivered to the site?

A. If it's bulky or it's very important, they would inform us. We would ask for the documents, the bill, to be submitted.

Q. But there's no notification for soldering material?

A. Ho Biu Kee, as the plumbing works subcontractor, did not inform us; they did not present any bill to us.

Q. Wouldn't that create some problems for you? Maybe to assist you in --

CHAIRMAN: I have a question. When you talk about presentation of bills, let's say you awarded the subcontract to Ho Biu Kee, say for \$10,000 per housing unit. You would not just pay them after the work was completed or in three instalments, and basically, when the materials were delivered, they would ask you for payment?

A. If it's expensive, yes. The subcontractor had to take care of the cash flow. So, if some expensive materials had been delivered, we will pay them first.

CHAIRMAN: So after the completion of the project, you paid \$20 million?

A. The total sum.

CHAIRMAN: If there's anything in excess, the subcontractor

C would have to take care of it themselves? C

D A. Well, not necessarily. If other work processes suffer D
E from a delay and they have to expedite their work, they E
would inform us and we would reasonably handle the case.

F CHAIRMAN: (Chinese spoken). F

G A. If there's no variation, that would be as what I have G
H said. Then we will do it under the contract adjustment H
and pay them accordingly.

I CHAIRMAN: If the pipes are more expensive than expected, at I
J the end of the project, if they want to make a profit, J
they may have to cut costs in other areas?

K A. Ho Biu Kee have been in co-operation with us on many K
L projects. In some projects, copper pipes became more L
M expensive in the process. They did inform us and we M
N would make suitable adjustments. Because what we wanted N
O would be a long-term partner, because if the copper O
P wires became more expensive, we can rely on the cost P
fluctuation, costs in the contract with the HA, so we
can recoup some of the money.

Q CHAIRMAN: In other words, Ho Biu Kee would certainly make Q
a profit and never make a loss?

R A. Ho Biu Kee is a very experienced subcontractor in R
S plumbing works, and we are in a long-term partnership S
T with them. Many subcontractors for many different T
U specialities would require assistance from the main U
V

contractor in many scenarios. We have to give them reasonable treatment, because we rely on our professional subcontractors in order to complete the whole project.

MS CHENG: You talk about some minor items for which there would be no need for the contractor to inform you. How would you communicate with the subcontractor as to what should or should not be covered by the notification system?

A. For those for which samples have been submitted, more bulky, bigger items, then notification would be required, and also for items requiring storage space, they would need to inform us.

Q. What do you mean by bulky or bigger items? It's rather abstract.

Let's take a look at the invoices and delivery notes from Prosperity, after the incident. That may assist us. Please go to bundle S1, page 103.

A. (In English) Okay.

Q. After this lead in water incident was imposed, did you order anything from them?

A. After the incident -- well, this is the first time

I know that Prosperity is in possession of these documents.

Q. The first one is an order from Ho Biu Kee. The address:

Kwai Luen Estate site. There's more than one material covered by this invoice. The delivery note is the next page and they don't just cover one material; there are quite a few here.

The first item, UK 50 per cent lead flat tin sticks. Have you heard about this before this incident?

A. No.

CHAIRMAN: Ho Biu Kee, in the past -- for a very long time, Ho Biu Kee was in co-operation with you -- did they ever submit these UK 50 per cent lead flat tin sticks to you?

A. No. They always gave us FRY for sample submission, for the ten-odd projects involved.

MS CHENG: Have you heard about the solder material can come in the form of a tin stick?

A. I didn't pay attention to this before.

Q. This note is about delivery of a number of materials.

For example, this is page 104. Would the subcontractor be obliged to inform you of the delivery?

A. We didn't know when it was delivered, but all these items are so-called minor sundry metal items. We didn't exercise control under the PQP.

Q. So there was no need for them to inform you.

A. No, they are all sundry items.

Q. We were discussing whether something should be regarded as bulky or not. According to Prosperity, item 1,

UK 50 per cent lead flat tin sticks, it comes in this package (indicating). You can see the label and I will show you the content. There's more than one stick, I believe. It looks like this (indicating).

If a few boxes are delivered, do you regard this as a bulky material or small material?

A. If you don't pay attention on the construction site, you wouldn't have noticed that they have been delivered.

Q. (Chinese spoken).

A. If we are talking about big items, it will be precast external wall or something like that. Sometimes, when the pipes are delivered, PRE, it's that big. One item will be that big (indicating), and when they are delivered it's in large quantity, and of course they would also give us the bill, and we would make arrangements for these materials. They would unload a few boxes and they would take away quite a few other items, and there are always people coming to unload things and take things away from the site. It's difficult to control the movement, and for these so-called filler metals, it's not in the PQP.

Q. When the subcontractor was obliged to inform you, what information would be required?

A. For bulky items, there's a form to fill in. They have to describe what would be delivered, and the general

foreman would put down a record, whether access is allowed and where it's stored.

Q. So the form will describe what is going to be delivered?

A. Yes.

MS CHENG: Chairman, would you like to take a break?

CHAIRMAN: We will take a ten-minute break now.

(3.43 pm)

(A short adjournment)

(3.59 am)

MS CHENG: Mr Au, summing up from what you have said, was

the subcontractor required to tell you that some material had been delivered, it would depend on a number of factors: whether it was in the PQP, whether there was sample submitted for that particular material so the HA, and whether it was a bulky item or not?

A. More or less like that.

Q. So whether a form is required to be filled in to inform you, it's very much discretionary, and it's to be exercised by the subcontractor or by Shui On as regards whether a form should be submitted?

A. Actually, the basic issue is the availability of space. If there's no space or the material would get in the way, my colleague would not allow access into the site, whether there's a form filled in or not, and of course, if it's a very expensive item, they would present the

bill for payment and we would check. But for sundry items, if it's nuts and bolts, not very expensive, and they are not bulky, the subcontractors would not inform our colleague and our colleague wouldn't know that they have been delivered.

Q. So, in most of the circumstances, you would depend on the frontline officer's judgment or the subcontractor's judgment, and there's no established system to control this?

A. Well, there's a system, but for smaller items, the matter is left to our colleagues on the site.

Q. But there's some discrepancy between what Ho Biu Kee has stated in their statement and yours, so to be fair I would like to refer you to those places. Please refer to bundle K3, page 2244.

A. Yes.

Q. Starting from tab 6, it's a witness statement of Mr Wong Kwai Hung prepared for the purpose of this Inquiry. Page 2244, it's a page containing his answer to one of the questions.

At (d), it talks about the delivery of materials:

"(In English) Further, we had to inform the main contractors as well as the HD staff of all materials delivered to site for incorporation into works."

It seems to say that they would inform you for all

materials delivered to the site. So what's your response to this statement?

A. This is for Kai Ching Estate.

Q. Maybe I should provide a context here. Mr Wong Kwai Hung said, for Ho Biu Kee, he is the person in charge for Kai Ching Estate projects, for Ho Biu Kee.

Please refer to page 2236.

A. I see it.

Q. At letter (d), he explained his status.

A. I see it.

Q. Let's now return to page 2244. I am going to go over this paragraph with you. He said he would inform you of all the materials delivered to site and:

"(In English) If they requested copy of delivery orders ... issued by Prosperity, I would give to them."

We can ignore the part for Kai Ching Estate.

"(In English) ... to the best of my recollection, Shui On/HD staff did not request for such in Kwai Luen Estate. In any case, I verily believe that the foremen of Shui On should have been well aware of our use of solder strips in the Kwai Luen Estate. However, I could not remember of the name of the Shui On foremen."

So a number of things here. First, they would inform the main contractors of all the materials delivered to site, and he confirmed that for Kwai Luen

C

Estate Phase 2, Shui On did not request for the presentation of delivery orders. So this is

C

D

inconsistent with what you say in your statement.

D

E

What's your response to the first point here made by Mr Wong?

E

F

A. Well, that's what he said. When materials are delivered

F

G

to the site, for example, for the notes we have seen, we are not talking about a lot of things. It may be just

G

H

a box. 120 nuts and bolts, it can be the size of this

H

I

cup, and if they don't inform us, there's no way for us

I

J

to know. If we don't know, how come we would ask for the delivery orders to be provided?

J

K

So, as a matter of fact, we did not ask for the

K

L

delivery note. If they inform us of the delivery,

L

M

there's no reason we would not ask for the delivery

M

order. But that's his side of the story.

N

CHAIRMAN: So you don't agree with what he has said?

N

O

A. I don't agree that they informed us.

O

P

MS CHENG: If you had been informed, you would certainly ask

P

for a delivery note; that's the established procedure?

Q

A. If they informed us, they would inform us together with the delivery note.

Q

R

Q. They still have to give you a form, you mentioned

R

S

a form?

S

T

A. The form would have to be prepared in advance. For

T

U

U

V

V

example, if the delivery was to be made the following day, they would inform us and we would need to find a space, and then they need the form to enter the gate, and then the material would be stored in the designated place, and then the form will be given to our executive officer on the site for checking.

Q. So this is the procedure: if they informed you -- if they didn't inform you, this procedure would not be followed?

A. If there's something minor and they did not inform us, we wouldn't be aware of the delivery and the procedure wouldn't be implemented.

Q. I have a last question for you concerning delivery of material. You did mention that subcontractors, and I'm talking about mainly plumbing works subcontractors, where would they store their materials?

A. It's usually close to the workshop, the so-called "ga bo" or workshop.

Q. How many workshops are there?

A. There's only one for plumbing works. I'm not sure about this. Well, I did see one. There may be another one up the park, on a different platform, a big site for the park. There may be another location for storage.

Q. But would Shui On staff go to the workshop or enter the workshop?

A. No, they wouldn't work there. They may have walked past the workshop during their work days.

Q. Mr Au, you said you were not aware of this particular soldering material.

A. Yes, you are right.

Q. Did you know this FRY lead-free soldering material? (Indicating)?

A. I didn't pay attention to this before the incident.

Q. You were stationed at the head office, but you also conducted site visits. When you did your site visits, had you ever seen workers doing the soldering work?

A. No. I have no recollection.

Q. This morning, you said the plumbing subcontractors were also responsible for the mock-up flat, and there will also be some sample flats to be constructed.

A. That's in accordance with the contract.

Q. How many sample flats were constructed? Because there may be different specifications, there may be more than one sample flat. For Kwai Luen Estate Phase 2, how many sample flats were made?

A. There would be a sample wing and there are some typical -- several types of flats. It would be specified in the contract. Usually, we will construct the whole wing. But if you ask me about the number, I don't think I can remember. It would be four or five,

sometimes more.

Q. So for each block you have four or five flats, several flats?

A. It will be specified in the contract with the HD. For example, 1P, 2P on 4th floor; several types of flat to be constructed.

Q. We have Luen Yat House and Luen Yuet House. The sample flats will be where?

A. In one of the blocks.

Q. In constructing the sample flat, did you make any inspection?

A. I did see it but not when they were making it. When the chief architect went there, I would accompany him.

CHAIRMAN: Chief architect of HD or yours?

A. HD's.

MS CHENG: Did you witness the construction process of the plumbing works subcontractor?

A. Usually, when we were there, the works would already have been near completion.

Q. What about the mock-up flat?

A. I did see the sample flats. For Kwai Luen Phase -- whether we have a mock-up for Kwai Luen Estate Phase 2, according to my recollection there's none.

Q. Well, I have some information to show you.

A. I can't remember actually.

Q. This is not a memory test. I have checked some information. It's at B12.4, page 39970.

Mr Au, this is from the lawyer representing the Housing Authority, a letter to the Commission, providing some information in the following page. The affected housing estates, there's a list, and when they completed timber mock-ups and when the sample flats were completed.

Please look at number (4), "Shui On, Kwai Luen Estate Phase 2". It seems that there were timber mock-ups and sample flats?

A. Well, that is what they state here.

Q. And you said that you have no recollection of any timber mock-ups?

A. No.

Q. I have another question also on soldering materials. We looked at the HA's specification. It's in another bundle. Page 3528.

A. Yes.

Q. We look at this part, "Samples". Now we want to look at "Samples of materials":

"(In English) Submit samples ... and do not confirm orders until approval has been obtained."

Maybe we can look at bundle S1 for the invoice and delivery notes, pages 103 and 104.

A. (Chinese spoken).

Q. You can answer "no" if you have no recollection, because the invoice and delivery note, that's the first item.

We have UK 50 strength tin strips, and it's on 24 April.

So you can take it for granted that, at the time, the

HD, on 20 May 2013, they had approved FRY as the

approved solder material.

So Ho Biu Kee -- before the approval, you should not confirm the material orders?

A. The subcontractor contract with Ho Biu Kee, it's

back-to-back with our main contract, so they should be aware of the contractual requirement.

Q. But it seems that on this occasion there was a batch of solder material that was procured and delivered before approval.

A. Well, the approval was FRY, and this delivery note, we don't see for 99C.

Q. So not only did the material not receive approval, even the date and specifications were not in accordance with the HD's requirement?

A. Well, if FRY 99C was approved, then they should order FRY 99C -- well, then they would have ordered it in advance.

Q. Pages 103 and 104 is the first set of delivery notes, notices we found.

Let's take a look at the next batch, at page 105.

We see the invoice here.

A. Yes.

Q. I have a question here. We see, in the second item, the UK FRY lead-free. That is the approved soldering material, and 20 rolls were ordered. But at the same time, on the same invoice, we see UK 50 strength, 50 per cent, lead tin strips.

Now, during the construction phase at the time, it seems that this invoice had ordered lead-free solder FRY? Well, you can take it from me.

A. As I said, in the process, and even when we asked Ho Biu Kee for the invoice -- I have only seen these invoices at the Inquiry.

Q. Have you investigated why does the FRY item appear?

Let me tell you what happened before, behind the scenes. In Kwai Luen Phase 2, the mock-up flat and the sample flat -- let's look at the completion date. It seems that those two dates were earlier than this invoice date. So it seems that the solder ordered was not used to construct the two, the sample flat and the mock-up.

A. As I said just now, these invoices were only obtained at the COI, and Prosperity did not give it to us and Ho Biu Kee did not submit it to us. So, when I see the

dates, I did not investigate.

And counsel, you said that what was it ordered for, the construction of the sample flat; was that your question?

Q. No. Well, I have a question that if you look at the dates of the invoice and the construction dates of the sample flat, do those dates match? And it seems that the completion of the sample room was earlier than this invoice date. So it seems that it should not have been used in the construction of the sample flat.

A. Well, as you said, it was approved in May 2013, and this is 14 June 2013, so that was not the case. It was not used for the sample.

Q. Well, we can now discuss the site workers, information that they received. I'm aware that the plumbing subcontractors, Ho Biu Kee workers -- I know that your colleague, Mr Wan, is more familiar, so I will ask him more. But I have two general questions for you.

First of all, in your witness statement -- let's go back to bundle H1, paragraph 49.

A. Yes.

Q. Paragraph 46. Here, it says:

"(Partially in English) Special Conditions of Contract Clause 133 ..."
(Chinese spoken).

C "... of the specification required all plumbers to C
D be either registered skilled workers or skilled workers D
E holding a full trade test certificate issued by the E
F Construction Industry Authority ... ('CIC'). To obtain F
G such a certificate, the workers would be required to G
H pass certain tests, including tests on using soldering H
I materials. In this regard, I refer to paragraph 93 of I
J the report prepared by the Hong Kong Institution of J
K Engineer ... which states that the CIC training K
L 'stipulated the use of lead-free solder and trainees L
M were reminded of using of such throughout'." M

K So we have received this notice from the Hong Kong K
L Institution of Engineers, and I understand you are also L
M a member of the Institution of Engineers, but you did M
N not draft this circular? N

M A. No. M

N Q. So I would like to ask, the CIC training, they instruct N
O the workers to use lead-free solder, and they would be O
P reminded of such a requirement. So I would like to ask: P
Q were you aware of this requirement, or were you just Q
R quoting from the Institution of Engineers? R

R A. I was quoting the Institution of Engineers, but the R
S report had explained -- and I remember, they also S
T contained exam information. T

T Q. So your knowledge was based on that report, so were you T
U
U
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aware that CIC training included this material?

A. No, I am not aware.

Q. The next question, about workers. In Kwai Luen Estate Phase 2, Shui On, as the main contractor, did they arrange briefings for workers, or regarding the arrangement of work skills and so on?

A. Well, all the workers received briefings when they enter the site. For important jobs, and I mean whenever we encountered a mistake, we would remind them of how to avoid those mistakes.

Q. So let's focus on the plumbing subcontractors. You would provide a briefing for them. So which staff member of Shui On would be responsible?

A. Plumbing subcontractors?

Q. Yes.

A. Well, previously we would have a safety officer. He would conduct a site-specific induction talk. They would tell them where the exits or entrances were and what to do in case of a fire, and so on.

Q. Do you recall the name of that?

A. I can't remember off the top of my head. If you give me some time, I can answer you.

Q. So aside from safety training, the location of workshops, would you remind them of these materials?

A. No. I had asked my colleagues and it was not mentioned.

But we have remedied the situation.

Q. I just want your confirmation -- if you look at the PQP, B4.5, page 6667, the PQP item 9 is "Training". So this training and the briefing you mentioned, is it the same thing, or was it something else?

A. That should be something else.

Q. What is this then?

A. It's for our colleagues on how to implement the company operating procedures and the activities they need to conduct.

Q. So it's not for workers, construction site workers.

A. It's not for workers.

MS CHENG: I have a few more questions. Perhaps we can continue tomorrow morning.

CHAIRMAN: We will resume tomorrow morning. Perhaps other counsel have other questions as well. So we will resume at 10.00 tomorrow morning. Thank you.

(4.26 pm)

(The hearing adjourned until 10.00 am the following day)

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