SCOTTISH HOSPITALS INQUIRY

Hearing Commencing
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Andrew Poplett
Jonathan Best

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9:33

THE CHAIR: Good morning. Now, Mr Mackintosh, we have Mr Poplett this morning.

MR MACKINTOSH: We do have Mr Poplett, my Lord.

THE CHAIR: (After a pause) Good morning, Mr Poplett. Good to see you again. As you know, you're about to be asked questions but, before that, you're prepared to make the affirmation.

Mr Andrew Poplett
Affirmed

Now, Mr Poplett, you've previously given evidence to the Inquiry over, as I recollect, two days, in fact, so you'll be familiar with our procedure. As you'll be aware, we probably will take a coffee break towards half past eleven but should you wish to take a break at any time, feel free to just indicate that and we'll take a break. Well, Mr Mackintosh?

Questioned by Mr Mackintosh

Q Thank you, my Lord. Thank you, Mr Poplett. Now, just before we start, your full name, please.

A It's Andrew Peter Seymour Poplett.

Q Thank you and, indeed, you gave evidence in respect to this Inquiry in the Glasgow III hearing on 7 and 8 November last year and, before we turn to your reports on this occasion, just to remind us all, what is your experience as an authorising engineer for water systems in hospitals?

A I have spent just under 40 years in the building services industry, mainly in the NHS and healthcare. In 2010, I left the NHS and set up as an independent consulting engineer for water and specialist healthcare ventilation and, when the AE positions were established under the HTM 00 core standard, I applied through the IHEEM professional institute and became a peer-reviewed and registered AE, which I have been working as since.

Q Would that apply to ventilation at the same time? You did both simultaneously?

A More or less, yes. Water actually preceded ventilation by about six to nine months simply because, at the time, the process for peer review and for registration of ventilation AEs hadn't been fully established and, as chair of the IHEEM ventilation technical platform, I was actually responsible for creating the initial peer review process and register.

Q For ventilation?

A For ventilation.

Q I don't think we ever asked you this but, perhaps just to put your work in its context, are you able to give us an idea of the scale of your consultancy as AE? How many hospitals, how many institutions do you provide this service to, and is it just you or is there a team working with you?

A It is just me. I am effectively self-employed. I currently support 26 acute hospital boards or trusts with a further five mental health community or learning disability trusts. I support two national charities and six independent healthcare providers, either under PFI or direct commercial private healthcare. In total, clients is in the order of around 40 and with well over 100 individual hospital or healthcare provider sites.

Q Are these sites mainly located in England?

A Yes.

Q Do you have any sites in Scotland?

A I have the charities I support within Edinburgh, which is the St Columba's Hospice for water and Marie Curie which I do nationally for, currently, ventilation.

Q Thank you. What I want to do is go to the three reports that you've produced most recently and I will take you to each of them and I'll ask you whether you adopt them as part of your evidence and especially the formal part. If you go to bundle 53, they're all there, document 3, page 14. You produced an audit of the water system. Is that correct?

A It is.

Q Then at page 40, document 4, you produced an audit of the ventilation system. Is that right?

A I did.

Q Yes, and then, finally, document 5, page 62, we instructed you to do a review of some commissioning water test material. Did you do that?

A I did.

Q Yes, and are you willing to adopt these three reports as part of your evidence?

A I am.

Q Thank you. What I might do is take that off the screen and just ask you about the audits in general, because I think it's fair to say that they came out of a submission by a core participant that suggested we should review the current water and ventilation systems independently of the earlier reports that you and Mr Walker and Mr Bennett had done. Can you explain what an authorising engineer audit is? What's it trying to do in general terms?

A In broad terms, an audit, typically undertaken annually, is a snapshot and an opportunity to provide

assurance to the Board or trust that the current management arrangements and operation of the system being audited is safe, appropriate or where there are areas for improvement.

Q Is there any other equivalent or comparable process that's carried out to check the management of water and ventilation systems or is an audit really the only process that exists for external audit of systems?

A External audit of particularly water systems can also be undertaken by HSE whenever they require it. There are guidelines and approved code of practice, L8, which is required to be conformed to but, other than those, the establishment of the safety groups within the core HTM is intended to provide the assurance to the healthcare organisation.

Q So, at the risk of stating the obvious, an AE audit is a creature of the relevant hospital technical memorandum?

A Yes.

Q We would find the requirements of an audit, the definitions of an audit, in the relevant memorandum?

A To some extent, yes.

Q Then where would we find the additional detail?

A It's the individual, if you like-- Questions or topics that you review under audit are informed by the relevant section of the relevant SHTM and then those questions can lead on to further detailed questions which is, if the SHTM specifies what should be done, the audit will flesh out how things are done to ensure that they are delivering on the intent of the relevant SHTM.

Q As far as you are aware, is there any practical difference between the way you conduct an AE audit in England and Scotland, even though it's different HTMs mostly behind them?

A No, the process is identical.

Q So the water audit you carry out for St Columba's in Edinburgh will be with similar processes as the ones you carry out in England for hospitals there?

A Yes.

Q The same for ventilation at Marie Curie?

A Yes.

Q Right. Now, we asked you to carry out an AE audit on water and ventilation. In what way, if any at all, were these audits different from the conventional audits you would carry out as part of your consultancy business?

A They were different in that, under normal circumstances as an AE, I am directly involved in some of the activities, some of the recommendations for appointment, some of-- some of those appointments of----

Q Appointment of personnel as well?

A Yes. AEs are not responsible for appointment of personnel, AEs are responsible for the assessment of the appropriateness of a candidate for a given role such as an authorised person.

Q So, if a water safety group is appointing an authorised person-- or a responsible person is appointing an authorised person rather, they should consult their A----

A Yes.

Q Right. Do continue about any other differences.

A No, other than it was-- I was familiar with the systems only insofar as I have been involved within the Public Inquiry to date. Normally, because of a more frequent auditing process, you build a far deeper knowledge of all of the intricacies of a given hospital site. This audit was a one-off snapshot to the current performance and operational arrangements for the management of the water and ventilation systems.

Q So an in-house or an appointed auditor-- authorising engineer rather, like, say, Mr Kelly, who we've had evidence from, they should have a much deeper, long-term engagement with the system than even your work for this Inquiry has given you?

A Typically yes.

Q Right. In an audit, how do you ensure that you have confidence in the information you are being given by the institution you are auditing?

A An audit will typically consist of three stages – not necessarily all typically in the same order – but you will start with review of documentation, seeing what policies state, seeing what operational procedures exist and state. With ventilation, you will undertake a sample review of verifications of critical ventilation systems----

Q When you say "a sample," you don't mean carrying out your own samples, you mean within the documentation?

A Yes, it means review the independent verifications that have been undertaken on identified critical ventilation systems. You will then-- The second phase is to discuss with appointed individuals – typical authorised persons, often Infection Prevention Control and other members of the relevant safety group – to get them to confirm details, appointments, etc., and ensure that the documentary evidence that you've either reviewed prior to that or you review subsequent to that marries to the information that they provide in interview. And then you will finally do, or I will then finally typically do, a physical inspection of the areas where appropriate to see that if the information that I've been told and the records that I've

reviewed, and the policies that I've reviewed are reflected physically on the ground in terms of what I physically find.

Q So that will be whether a plant is there, what condition it's in, cleanliness, existence of maintenance materials stored appropriately, that sort of stuff?

A Yes.

Q Right. Now, this idea of doing a sample checking, you mentioned ventilation verifications. What proportion of those would you sample and when do you stop sampling?

A I would typically look to sample around 10 per cent. You would-- I would increase that if I found issues that had not been addressed which may give indication of failure of system. If you've checked through 10 per cent and everything that should be there is there and everything's done as it should be done, then I would draw a line at that point.

Q When you say "sample," are you selecting the samples or is----

A Yes.

Q -- the organisation doing it?

A No, I will typically specify what I would like to see.

Q So you might be sent a spreadsheet of all the tests and you'd say, "I want these ones"?

A Yes.

Q When you carried out these audits, did you take account of the information you reviewed and learned about during your previous work for this Inquiry?

A I think it would be impossible to say that it was completely ignored because it was-- naturally, I was aware of it. However, the audit focused very much on the management arrangements and processes that are in place at the time of audit rather than the historic issues that have been highlighted through the Inquiry.

Q But, I mean, when you went into a plant room and you saw a thing you'd commented on before, you couldn't avoid remembering that?

A Correct.

Q Would your concerns about individual aspects of the water and ventilation systems that you put in your previous reports have informed the intensity of your sampling and interest in the audit?

A No, I don't believe so.

Q Right. Let's look at the water one first, so that's bundle 53, document 1, page 14. What did we ask you to audit?

A The domestic water systems at QEUH.

Q Did that limit it to the new building or the retained estate as well or

the whole lot?

A It looked at all of it but with a primary focus on the new building.

Q Right. Why is it restricted to the domestic water system?

A Because that's what I'm an AE in.

Q Yes, so we'll look at the standard first and I'll come back to that question. What's the standard against which you are assessing this domestic water system?

A SHTM 04-01.

Q The whole of it or certain parts of it?

A It's the operational parts, which is Part B primarily.

Q So just to sort of deal with this, water is probably a bad example because we don't, I think, have any examples of bad design in the system, but you will recollect the discussions about dead legs. Now, remember, there's someone writing a transcript and so nodding makes their life more confusing.

A Apologies.

Q You remember there was discussions about dead legs?

A Yes.

Q Now, just hypothetically, let us imagine there was a particularly importantly long dead leg that was still there, and I'm not saying there is. I'm just using it as an example. What are you auditing about the water system when it comes to that dead leg?

A I am auditing the water risk assessment that will have identified any remedial or suboptimal elements and reporting on whether those elements are being mitigated, managed or eliminated at a given point in time.

Q If there was such a particular there, would you be saying, "This dead leg is not in compliance with SHTM 04-01 part A"?

A Typically, no, I would report that identified remedial actions within the water risk assessment – and I may well reference a specific dead leg – remain outstanding and to be addressed, and make reference to the risk rating of any remedial work that had been identified as part of the water risk assessment process.

Q So, am I right in thinking that what you're really auditing is the management of the system, not the design of the system?

A Correct.

Q Is there a reason why that's the focus of a SHTM 04-01 Part B audit, the management, rather than the design?

A The reason is that the design review should be undertaken at the validation or handover stage of a project. So, in theory, you get a new build building that is fully compliant, that is validated at

project completion, and the annual audit is a means of verifying continual appropriate management of those systems.

Q Can you carry out an appropriate management in terms of SHTM 04-01 Part B of a water system that does not comply with modern standards in SHTM 04-01 Part A?

A Yes.

Q Why would that be?

A Because you can mitigate, or do additional corrective actions that would address some of the non-compliances to Part A as part of the operational management under Part B.

Q To what extent is that? Because there will be hospitals around the country, or parts of hospitals, that have very old water systems.

A Entirely so. You can't-- You couldn't do a design review against a hospital that was designed in the '70s compared to the standards of today.

Q Right. So, if we go back to the question I asked you, "Why are you auditing?" you audit restricted to the domestic water system, what is it about SHTM 04-01 that causes you to restrict your audit to domestic water systems?

A SHTM 04-01 is the standard for domestic water systems.

Q So, if we jump ahead to an issue I had in mind, because it's probably easier to do it now, there are various parts of the system, or systems, that contain water in the hospital. It's been suggested I might ask you about a few of these, and the extent to which they're covered by the audit, and we'll start with, as it were, the biggest, which is the chilled beam cooling circuit. So you'll recollect that from your previous work. Again, you're nodding, which makes it harder for the transcript person----

A Sorry, yes.

Q To what extent was the management appropriateness of the management of the chilled water circuits in the chilled beams addressed within your water audit?

A It wasn't because the chilled beamed water is, for want of a better term, processed water. So, in the same way as the heating water that circulates through radiators isn't an open water system, it's a closed water system, the chilled water is a closed water system, therefore not open to the atmosphere, and therefore is not part of a domestic water or open water audit.

Q So, radiator water supply pipes in hospitals are not audited as part of SHTM 04-01 Part B audits?

A Correct.

Q Did you do any work in your audit that does address aspects of the chilled beam system?

A Within the ventilation audit, I reviewed the maintenance and cleaning processes, and raised the questions of ensuring that the water risk assessment does cover the drainage systems from the chilled beam systems, as they are technically an open water system, but the chilled water itself is part of a closed water system.

Q Right. We'll come to those comments in the ventilation audit in a moment but just thinking at a sort of high level, given your knowledge of what is said to have happened with the chilled water system in this hospital in the years before, I think it's April 2020, have you any view about whether hospital health technical memorandums should cover the appropriate management of chilled water systems for these chilled beams?

A In terms of the microbiological, or potential microbiological, risk of the water within those systems, they do not pose a risk because they are sealed, and therefore not open to the clinical environment. A sprinkler system is exactly the same. A sprinkler system, if it's a wet sprinkler system, can be full of water that sits and stagnates and it's probably full of all sorts of microorganisms, but it's not open to the environment unless it is triggered through a fire. So, in that respect, it does not pose a risk for the control of waterborne pathogens.

Q So, given that we've had some evidence which is not uncontroversial about the finding of microorganisms of concern in the water that appears to have fallen from the chilled water system, or glycol and similar oils on patients' beds and indeed possible leaks or condensation from the system, could it be that a chilled water system is rather different from a firefighting sprinkler system, in that it's not static, the water's moving through it all the time, and if it corrodes or if there's lack of quality of maintenance, then actually it's quite a dangerous source of water above everyone's head that might cause harm to vulnerable patients. You don't see that as a reason to assess it?

A It is, but it is only released through accidental or failure-- unplanned failure. It is not routinely exposed-- People are not routinely exposed within the hospital environment to the water that is contained within that water system. If you wanted to instigate water control onto closed water systems, it's possible to do but would be extremely expensive and, in a best case scenario, would never be required because the water isn't contained or released.

Q Thank you. The other little systems I want to ask about were the-- We've had evidence about renal dialysis

points and the real dialysis water supply. You've not covered that in the audits. Is there a particular reason for that?

A No, other than it is generally a very specialist area. So it falls outside of the general remit of water systems and is audited or checked through the-- a separate system in terms of water quality on giving patients-- or water that is directly given to patients for clinical intervention purposes.

Q Did you consider the aseptic pharmacy water supply, or pharmacies, because there's more than one?

A I don't believe I did in specific-- but that's principally only because the water systems in aseptic pharmacy productions are not extensive.

Q I've been asked to ask you that there was recently an incident, seemingly about the water system in the cafeteria. Would you have covered the cafeteria water system?

A Yes.

Q Did you cover those in this case?

A I would need to go back through my paperwork to confirm. I do not believe, specifically, looked at the cafeteria area.

Q Right. Let's move back to something I had noted a little bit earlier, which is, if you go to page 19, you record the personnel on water safety groups, and you name various personnel. To what extent did you interview any, or some, of these persons named on this table?

A Within the table, I spoke-- in fact, I listed the individuals that were interviewed earlier in the audit. I believe the previous page to this----

Q Yes, if we go to page 18.

A Yes, so, the audit scope:

> "The audit process involved interviewing relevant onsite personnel and (where appropriate) examination of policies, procedures, relevent inspection records, and documentation. Those interviewed included Professor Tom Steele, Hugh Brown, Mark Riddell, Kerr Clarkson, Gillian Mills, and Dr Linda Bagrade."

Q But you didn't interview, as it were, the actual authorising engineer?

A No.

Q Any particular reason?

A Principally because I wanted to ensure that the audit was completely independent, and whilst I had access to the previous AE audit report, and did include that within the review, wanted the report to be completely independent of any other audits that had been undertaken on behalf of the hospital.

Q Right. If we can go to page

22, please, which is headed, “Water Safety Plans & Water Systems,” I want to just understand what this is showing. You have a question on the left-hand side. You refer to the clause in SHTM 04-01 Part B, and then you have a column called “Evidence.” Would you have seen the maintenance records you are reporting?

A I would have seen samples of them, yes.

Q That’s starting on 10 per cent and then working appropriately?

A Yes.

Q If we go on to page 23, there’s a reference to “TMVs.” Did you see the maintenance records for the thermal mixing valves that you’re referring to here covered by the water safety plan in section 3.7.7, 7.8 and 7.9?

A Yes.

Q Would that be by sample or the whole lot?

A Sample.

Q When you sample, do you sample randomly or according to risk?

A Generally, randomly.

Q Can you tell us whether you would have reviewed the TMV maintenance in high risk areas, such as areas where you might expect to find immunocompromised patients?

A Not specifically. I may well have done, but I would, again, need to go back to see exactly which records were----

Q If we go on to page 29, you deal with maintenance, and your first row, the question is,“ Do you operate a detailed PPM system for maintenance for all water systems?” Can you remind us, in case we’ve forgotten, what a PPM system is?

A It stands for Planned Preventative Maintenance.

Q What’s the evidence source for this row here? Because you might have used an acronym. “Yes, FM first.”

A Fmfirst is the name, or commercial name, of the CAFM system, the Computer Aided Facilities Management system, that is used by the Board for their management of their PPMs.

Q So, you looked on their system, and you put a comment here, “Schedule of PPMs provided, sample reviewed and considered as appropriate.” So what sort of sample were you reviewing of the PPMs?

A It will have been approximately 10 per cent of the PPM type rather than the individual PPMs.

Q There would have been a lot of PPMs?

A There would have been thousands of PPMs. There are thousands of PPMs.

Q When you say "considered as appropriate," what do you mean by that?

A I reviewed them. I found them to be satisfactory in terms of they contained the maintenance elements and preventative maintenance actions that I would expect to see in their respective tasks.

Q So, you've actually looked at a sample of the actual thousands of PPMs, some of them?

A Yes.

Q Again, would that be entirely random or by risk?

A Random.

Q Right. Why are you sampling randomly rather than by risk selection of the most high-risk areas?

A Because particularly for water systems, the risk is higher in high-risk clinical areas, but you want all of the system to be appropriately maintained. So you want all of the CMVs, as an example, that you've used-- It is principally an anti-scalding device. Scalding risk is not linked to clinical condition, it is linked to cognitive ability and if it's open to members of the public, whole body submersion versus partial body submersion. So you want to make sure they are all being done and appropriate.

Q If we go back to page 27, there is a reference-- I'm just going to make sure I've got the right page here. In the middle one:

> "Do you operate a water softening system, if so what system and can you evidence the operation & maintenance procedures / records?"

And then you have, "There's no water softeners on the site." You have the "potential water systems risks identified in document and currently under review." Then the "Comments / Actions," why have you made a reference to-- Are you saying there needs to be a risk assessment done, or what's the comment actually saying here?

A The comment refers to the fact that chilled beams or local air conditioning systems, drainage systems, are classified as an open water system and should be assessed through risk assessment in terms of location, risk associated with that location and therefore maintenance or inspection processes.

Q I mean, I don't think we've ever worked out where the drainage system for the chilled beams are, but there's a chilled beam in every room. Is there a drainage location in every room or are they much rarer?

A No, they'll be on every chilled beam.

Q There's a drain from each chilled beam?

A Yes.

Q Right. So this is effectively saying they need to risk assess the drain from each chilled beam. Do they do that at the moment?

A It is-- My understanding is that it is not in the water risk assessment, although they are subject to quarterly inspection and cleaning as part of the maintenance system.

Q Given the history of problematic or controversial – I think that's the best way of putting it – history of chilled beams in this hospital, how concerned should we be that there's not yet been a risk assessment of the drainage from the chilled beam units themselves?

A It is an area that, in my opinion, should be addressed. It represents probably a relatively low risk if they are adequately and suitably maintained. As I've stated in previous evidence, I do not believe that chilled beams are appropriate devices to fit into clinical healthcare environments.

Q But does that very observation create a greater need to manage the risks that they might pose?

A Yes.

Q If we go on to page 32, the last entry:

"Do you hold a comprehensive schedule for all air conditioning plant (see AE(V) audit requirements…"

And there's a system here:

"Partial, no formal risk assessment of water risk is in place for these units or the chilled beams, although the full suite of mitigation works to manage and control the potential risks is in place."

Is this the same chilled beam risk assessment that you required earlier? You're nodding.

A It is.

Q But for the air conditioning plant, those presumably would be in plantrooms?

A No.

Q No.

A An air conditioning system is generally made up of two-- made up of multiple elements, but there are two principal elements. There's an evaporator and a condenser. The evaporator cools the air down. That is normally either mounted into ventilation systems or can be mounted within a room. There is then the condenser unit, which is where you reject the heat. Those are in plantrooms or more typically outside.

Q So, in this context, it's those components you're talking about?

A It's the components that are inside the room that require a risk assessment from a clinical IPC perspective, because as part of their function in cooling the air they will condense moisture out of the air and that is the water that goes into the drainage system associated with that air conditioning unit or chilled beam.

Q So is the heart of this point that you're raising, that whilst there is a maintenance regime for the chilled beams and the air conditioning unit in the rooms, there is not yet a risk assessment of the risks they pose? Again, you're nodding. You can't do this.

A Apologies. It is that there is not an engineering water risk assessment. I do not know and I'm unaware whether there is a clinical or IPC risk assessment----

Q I see.

A -- within the environment that would have an impact on patients, but from a purely engineering perspective, as an open water system, it should be included within the water risk assessment for the building.

Q And would that require the IPC to contribute to that process?

A Yes.

Q Right. Now, within the organisation structure, if we go back to page 19, which part of the water management structure should have the obligation to carry out the risk assessment you just described or ensure it is carried out?

A Ultimately, the accountable individual is the duty holder for the organisation.

Q But in practical terms?

A Mm?

Q But in practical terms?

A In practical terms, the duty holder will designate, and in this case has designated, a designated person----

Q Yes.

A -- who takes overall responsibility at Board level for ensuring the water systems are safe and appropriate.

Q So if we go back to page 32, if we're thinking about this particular assessment and accepting it's a water engineering risk assessment, given your previous evidence about chilled beams, have you come across the need for these risk assessments to do with chilled beams and air conditioning units in rooms, in the interior in the hospitals of your audits?

A Yes.

Q Do people produce these risk assessments?

A Yes.

Q Are they particularly complex?

A No. What I would say is that

the-- the risk from an engineering perspective is very straightforward. The risk generally comes from the patient category group, though he's more IPC or clinically led rather than pure engineering. The engineering assessment needs to know where they are and provide assurance that they are being appropriately maintained.

Q Right. If we go to page 38, we have your "Action Plan," and I think this particular issue is identified third from the bottom. Am I right in thinking that the, "Review current WRAs to ensure all 'open water' systems are suitably identified and assessed," this is the one we're talking about?

A Yes, it is.

Q Yes. What I want to do is just get a feel for where it sits in your list of concerns. I noticed you graded the whole system as "green" and then we see your score on the previous page. Is that informing us of what green means? Or how should we understand this?

A It provides-- All risk assessment is-- is subjective to a certain extent.

Q Yes.

A The greater the impact and the more likelihood that it can occur obviously gives a higher number and the numbers are assessed as either red, amber, green. So whilst they are green, does not mean they're fully compliant and don't need to be addressed. What it means is that they are relatively lower risk than one that would be amber or red.

Q Well, if we go back to the next page, page 38, and we look at the second one, for example, "Ensure all Project Managers have sufficient water awareness training," you assess the impact as 3, likelihood is 2 and the overall risk is 6. So they have to do this, is your position?

A Yes.

Q And when you say "project managers," who are you talking about? People who work within the Estates department or----

A Both. Certainly people who work within the projects department of the Estates structure. But I would probably expand it to say project managers, if they are external, and I would-- I'd certainly like to see all designers have some degree of formal healthcare related water safety training.

Q So there are some people who don't at the moment?

A Yes.

Q If we go to the top entry, I see you've scored it in order of risk from high to-- not high but highest number to lowest number. If we go to the first one, "Review and expand formal protocol/procedure for the agreement and on-going

management of derogations." What do you mean by that? What sort of derogations are we talking about, is the better questioning?

A Well, any derogation, to be frank. The-- the problem generally is that a derogation is considered at a project stage – typically at design stage, sometimes past design stage. That can be agreed and it can be safe and appropriate at that time when it is agreed. However, hospitals are incredibly dynamic environments. Patient mix changes, where people are changed, the types of clinical activity that are undertaken change. So a derogation that was considered and accepted even with mitigation at a particular point in time may not remain appropriate if clinical activity changes, clinical patient mix changes.

So a derogation-- The-- the phrase I commonly use when speaking on this subject is a derogation is for life, not just for the length of the project. So agreeing a derogation at a project leaves an organisation with a potential issue that needs constant revision supervision to ensure that it doesn't increase to an unacceptable level of risk.

Q And are there any particular derogations you have in mind that are in place in the hospital at the moment?

A No, I wouldn't have said so.

Q Right. When we look to the third one, we've had some evidence – albeit this is about events in 2019 – about the amount of sessions available to the lead ICD and sector ICDs. To some extent, is this a request for more sessions for the IPC team or is that oversimplifying it?

A It's-- it's not an oversimplification of-- of the recommendation. It is-- The operational communication between IPC and the Operational Estates teams is, in my opinion, currently excellent. There are regular communications. There is open conversation.

The problem is one of resource availability. As capital projects are done, they are progressing against a programme. IPC do not necessarily always have the available resources to review all of that information or enough time to review it and consider it because they have full-time jobs and this is almost seen as a, "Oh, we're also doing this project. Can you have a look at these plans?" They accommodate it wherever they can and they are given the opportunity to comment but the opportunity does not necessarily reflect the available resource.

Q Right. What I want to do now is simply to look at your conclusions, which are on page 34. Now, you've previously expressed concerns, and we'll

come back to what they are at the end of your evidence, about the way the water system was in 2015, 2016, 2017 and so on. From the point of view of a user of the system, whether that's a patient or clinical staff, how do you assess the way the system is being managed now?

A I would say that the system is currently extremely well managed.

Q And are you able to draw any contrast between the way it's managed now and the way it was at the times that you have had concerns, which we'll talk about later?

A I would say that there's been significant improvement.

Q I want to just pick up a couple of other little questions that have come in. Did you look at the quality of the water coming into the campus from the public supply as part of this audit?

A No.

Q Why not?

A It's outside the remit of the audit. The quality of the water being supplied to the site is governed by separate water bylaws and legislation.

Q So it's not within the SHTM 03-01 Part B?

A No.

Q Right. We've obviously heard evidence that there are still point-of-use filters on a lot of the taps in the hospital and showers and outlets. Did you consider the appropriateness of having those in place as part of this audit?

A I did.

Q What's your view on the appropriateness of continued use of point-of-use filters in this hospital?

A I think the remaining deployment of point-of-use filters is a clinical IPC risk assessment. It does, or should, provide assurance that the water that comes out the taps is clean and safe. It is a significant expense and it does actually potentially have a detrimental impact to the overall water safety because it reduces flow rates and therefore it increases the potential risk of stagnation with any-- within the water systems.

That said, the Health Board have developed a comprehensive procedure for the assessment and removal of point-of-use filters, which is appropriate given the clinical activities undertaken by the trust.

Q Have they started doing that?

A I believe so.

Q Did you see any documentation about it?

A The procedure for doing it was shared with me, hence why I'm confident that it is comprehensive and appropriate.

Q So, broadly, what format does that procedure take?

A They have set action levels of

acceptable water testing, they've stated that there requires to be a minimum of at least three clear samples of any outlet and a assessment of the risk----

Q That's the outlet with the filter removed to test it, effectively?

A Yes.

Q Yes.

A Yes.

Q So, once you've got three clear samples, that's when you can consider permanently removing the point-of-use filter?

A If all other elements are also satisfactory, yes.

Q Can you help us with what the other elements are?

A The-- the patient risk, the clinical and IPC acceptance that it is appropriate to remove it.

Q Are you aware of a timeframe for the removal of the point-of-use filters?

A My understanding is that it's done almost on a-- on a outlet by outlet basis, subject to the Water Safety Group's identification and recommendation.

Q Now, we'll come back in the second half of your evidence to the question of biofilm or microbial perflation or the nature of the contamination of the system, but I suspect you'll understand why this question gets asked. I've been asked to put that. Even if you have, from a particular outlet, three clear samples and an assessment by IPC and you remove the filter, is there not a risk that, somewhere else in the system – higher up, as it were – a piece of biofilm will become dislodged or discharge microorganisms that will then effectively re-seed that outlet that you've now removed the filter from?

A Is it possible? Yes. Is it likely? It would be subject to the maintenance of the whole system and the question of whether colonisation is systemic or outlet-located.

Q Right. (After a pause) I'm going to read this question to you because it's quite complicated but I think it should be asked. So the infection mitigations like tap filters and TauroLock in central lines have been in place much longer than they should have. Now, I'm not sure about the "should have" in terms of the evidence I've heard for TauroLock but I accept for taps, there's some basis for that. To what extent is it true that the longer a short-term mitigation fix remains in place, that risk should still remain with a high potential to cause harm, and so the mitigations need their own risk assessments because they're creating a risk?

A Right. Sorry----

Q I'll rephrase that question.

THE CHAIR: Okay----

MR MACKINTOSH: Yes. No, I think I'll rephrase the question, my Lord. (To the witness) Would you accept that, if you put a mitigation in like a point-of-use filter, that point-of-use filter itself doesn't change the quality of the water behind the filter, so to what extent does your audit help assess whether the risk behind the filter has reduced?

A The audit doesn't make that assessment. The deployment of a point-of-use filter brings with it maintenance obligations for that filter. So whilst the filter is deployed, it is subject to testing, regular replacement, so on and so forth, so it-- it brings with it additional maintenance obligations whilst that filter is in place. It does, as I've said, potentially slow the flow of water and potentially increase the risk of microbiological growth or proliferation behind it, so it is better to have them removed, but only once we've proved through three clear sample results that there is not a proliferation of organism from the water beyond the filter.

Q Thank you. If it was the case, would your audit have reviewed individual taps that are out of use in Ward 2A or the individual concerns about individual leaks?

A No.

Q No, why not?

A It covered the approach that the organisation took with issues such as little used outlets or flushing of little used outlets, but didn't specifically focus on any given area. It is an overview of the water systems in totality, not a specific investigation into a single outlet or area.

Q So, if we go back to your process in the third stage when you go into the hospital, to what extent are you looking for the equipment about which you've read as opposed to just looking around to see what you can see?

A Well, I go into areas where I specifically look at the equipment----

Q Having previously read about it in the maintenance?

A Yes.

Q So, if your sample says, "I'm going to look at the maintenance in ward X, room Y, a sample of the documentation," you might choose to go and visit ward X, room Y to, as it were, confirm on the ground that it is as you would expect if that maintenance had been carried out. Or is that oversimplifying it?

A I think it's oversimplifying it and a visual inspection of a thermostatic mixing valve is practically impossible to say, "Yes, that's recently been taken apart, cleaned, the strainer basket's in and its temperature's taken," so you're-- you're trying to suggest a visual inspection will denote whether

maintenance has been carried out or not. If I visit an area, and this wasn't the case at Glasgow but certainly has been in my career, where I've reviewed a load of TMV testing records that say, "All of these have been maintained in the last three months," and I go into a disused shower room with the Christmas decorations and cobwebs on the showerhead, then that is noted as a non-compliance and would raise serious concerns about the truthfulness of the maintenance records.

Q To what extent did you have to go beyond the 10 per cent sample in this exercise?

A It was entirely at my discretion----

Q No, no. What I mean is, I think you might have said to me in a consultation that, when you go beyond the 10 per cent, you might keep looking because it doesn't quite satisfy you. To what extent did you have to go beyond that 10 per cent because you weren't satisfied as part of this audit?

A I didn't.

Q Well, what I want to do now is turn to the ventilation audit which is on the same bundle, document 4, page 40 and, again, if we go to page 42 and the executive summary, what are you auditing and to what standard?

A I am auditing the ventilation systems to SHTM 03-01 Part B.

Q So, given that we know that parts of the ventilation system are not compliant with Part A, and you're nodding again----

A Sorry, yes.

Q -- how does your audit process deal – or indeed not deal – with the fact that you know that – and we'll come back to which bits of the hospital this is true for – certain parts of the hospital have ventilation systems that were not compliant with SHTM 03-01 Part A?

A Part B is specifically written for the operation of all ventilation systems irrespective of age or design standard, so it refers to how those systems are being operated rather than whether the original installation was fully compliant to the current SHTM. I'm trying to think of-- of the best example. Air handling units now are required to all have direct drive fans. Part of net zero carbon-- As part of energy efficiency and part of resilience, belt-driven fans are no longer permitted. There are literally thousands of ventilation systems throughout the NHS that still operate belt-driven air handling plant. They can be verified, they can have their performances checked, they can have maintenance done on them, but they wouldn't conform to Part A because they-- Part A didn't say that you couldn't use belt and pulley fans at the time----

Q But you can still----

A -- but you can do the audit using Part B because it has been specifically written to accommodate all ventilation systems irrespective of age of design.

Q So, when you say whether there's been an executive summary in the first paragraph, you're assessing, at the top of this page, page 42, whether the system is being appropriately managed. What is appropriate management of a ventilation system that is not compliant with SHTM 03-01 Part A?

A It is that if it is deemed a critical system, it is being verified and its air flow performances are meeting the required standard – say an operating theatre – but if it is a non-critical system and is not subject to annual verification of air flow performance, that it is being managed and maintained to maintain its original design intent rather than the ideal or preference-- desired air change rates.

Q So, if we think about two areas, one of which is the general wards, which we understand was designed back in 2009/10, built for '15, that would deliver 40 litres a second, equivalent to 2½/3 air changes an hour rather than 6, is that a critical system?

A Not necessarily, the----

Q Does this hospital treat it as a critical system?

A No, general wards are not treated as critical.

Q Is it entitled to take that view?

A Yes.

Q Why?

A Because they've assessed that it's-- The criteria or definition for critical systems is laid out in SHTM Part A and there are a list of specific areas, and then the final catch-all is any other system where the loss of the ventilation would have a detrimental impact----

Q Wouldn't have?

A Would have----

Q Right.

A -- a detrimental impact to the clinical activity.

Q So, if you lost the ventilation system in the general wards of this hospital – it's a closed system – what effect would that have on the clinical activity?

A That would be a risk assessment that the clinical team and IPC would need to make.

Q Because we've had evidence from Professor Steele, if I remember correctly, that there hasn't been a formal risk assessment of the general wards' ventilation. I think I remember that correctly. I hope I'll be corrected if I've got it wrong. Is that consistent with categorising this as "non-critical"?

A Yes.

Q Right, why?

A Because, if it-- if it hasn't been risk assessed as critical, it-- it is deemed as non-critical.

Q But does that not mean you can avoid getting into trouble by not doing the risk assessment? Because if you don't do the risk assement, it's not critical. Your risk assessment might be critical. So, why are they being overly cynical?

A I think it's a question of, is the glass half full or half empty?

Q Right.

A If you're asking, should the risk assessment be done, my answer would be, yes, it should be.

Q Right.

A If it hasn't been, then from an engineering perspective, they are treating it as a non-critical system because it hasn't been identified as a critical system.

Q If we take that to the other example which seems appropriate, which is the corridor within Ward 4B, which is not HEPA filtered, and indeed the air change rate of 6 rather than 10 in that ward, now we've had lots of evidence about who thinks this is a good or a bad thing. We're just sticking with this issue. Is that assessed as a critical system in this hospital?

A I don't have that information to be certain of, but it may well be treated as a non-critical system if it's serving a transitional space rather than a clinical space.

Q I understand. Right. Have you in any way changed your views about the compliance of the SHTM 03-01 Part A of any part of the hospital from the earlier reports?

A No.

Q No. If we go again to the introduction, do we, again, see on page 44 who you interviewed?

A Yeah----

Q A couple of weeks ago-- Right, yes. Before we go to your conclusions, the derogations you refer to in both reports, are these derogations from SHTM standards or a different sort of derogation?

A The comments made regarding the management of derogation is any derogation but, within the context of the report, there would be specific examples about either ventilation or water systems.

Q Have you seen a formal derogation document for the various non-compliant with SHTM 03-01 Part A systems that you reported on in your earlier report? So, we'll take it through. Have you seen a derogation document for the general wards?

A No.

Q Is there a particular reason why you haven't seen it?

A There is a derogation process, or protocol, which the Board have developed and are using, which I have seen, which is not inappropriate but I believe could be expanded further because it is still, in my opinion, limited to the project timescale rather than the operational use of a given facility.

Q So, it's whether we should derogate in this project rather than what will be the long-term effect?

A Correct.

Q Have you seen actual derogation documents as setting out a reasoned case for derogating for SHTM 03-01 Part A for any of first floor pediatric ICU, general wards, Ward 4C, or Ward 4B?

A I do not believe so, no.

Q Is there any particular reason why an audit wouldn't have resulted in you finding those? Did you ask for it?

A I asked for the derogation protocol and process, not examples, because that wasn't-- there were no current derogations under consideration. So it wasn't a live issue. What you are referring to, I believe, is historic----

Q Yes. I mean, one of the things that occurs to me, just the way you're talking about this – and I'm slightly doing this without too much planning ahead, so I'll think about it carefully – is that you've explained how your process was to audit the process for deciding on new derogations. Have I got that right?

A Yes.

Q It could be improved?

A I believe so.

Q Because it could look ahead outside the scope of the project into the middle distance, effectively?

A Correct.

Q Right. And that applies to both water and ventilation?

A It does.

Q You've previously reported to this Inquiry about how certain parts of the hospital ventilation system were not, and remain, technically non-compliant with guidance. Again, you're nodding.

A Yes.

Q To what extent would it help to assess risk from this-- sorry, the impact of these ventilation systems on patient safety to have access to any derogations that do exist, and their reasonings and logic?

A Any historic derogation would form part of a risk assessment process for any clinical environment for any clinical activity. So, yes, if something had been derogated, the reason for it, and the justification or indeed mitigation for it, is recorded, that should be kept as evidence for the live document, which is the derogation, and it'd be kept under constant review to ensure that it is still a

safe and appropriate derogation to have agreed.

Q But you haven't actually seen any on this occasion?

A No.

Q Right. It's been put to me that there's a perception that some of the rooms in Ward 2A and 2B are cold. Would that be something that would be covered by this audit?

A Not specifically, no.

Q Why not?

A Because it doesn't capture the general environmental conditions over time. It looks at the maintenance of the ventilation systems and the performance thereof.

Q Thank you. If we go to your conclusion, which is on page 34, you've set out your principal conclusion at the top. Now, I think it might be difficult for some people, possibly including me, to conceptually understand how one can appropriately manage a system that's not compliant with guidance. I realise you've explained it already, but I think it probably needs revisiting simply because it's----

THE CHAIR: Mr Mackintosh, we're now back on water, are we?

MR MACKINTOSH: No, we shouldn't-- Sorry, wrong page, yes. Not page 34 at all. That's entirely wrong. Thank you, my Lord. Page 55. Thank you. (To the witness) So, can you help those who might be watching, who might well be anxious because they've had the experience of being in a Unit 2A that, prior to the decant and then the return in '22, didn't have compliant ventilation? So will, I think, perhaps be confused – I hope that's not too strong – by the fact that you feel, in summary, relatively content about the way this ventilation system is being managed. Although 2A has been brought up to standard, there are other parts of the hospital that haven't. How is it possible to be content about the management of a ventilation system when you haven't actually seen derogation assessments for those non-compliant elements of the system which you've previously identified?

A The audit is intended to report upon the efficacy of the management arrangement, not the current or the historic design. So, if you have-- If this was a validation review, or a design stage review, it would recommend against the use of chilled beams. They're there, they exist. They are being appropriately maintained but that hasn't eliminated the fundamental design issue, but they are currently being appropriately managed and maintained. So, a ventilation system that is below the design requirements is still being maintained and appropriately managed, but it won't miraculously turn those ventilation systems into compliant

because they were never designed to be so.

Q You've got some comments about resources. Now, you do have a concern about working relationships. That's on the middle of this page 55. I want you to look at that because you've been quite fulsome, I think, about the working relationship in the context of water. You're nodding again.

A Sorry. Yes.

Q We can zoom into the middle of the page, so "Communication & Personal Resources" is on the screen. There's the three paragraphs below it. Thank you. You observe here you have one principal concern from the audit:

> "The working relationship between the Capital Projects team and Operational Maintenance and IPC teams is not effective as that above."

Above, you talk about the relationship with Operational Estates and the Infection Prevention and Control team. So, what is your concern, and what's the impact of your concern, and how should it be addressed?

A The potential concern is that, whilst Operational Estates maintenance and Infection Prevention and Control have a very effective close-working relationship and lines of communication, the Capital Projects team do not have the same level of communication or cooperation always, with Operational Maintenance or IPC. I don't believe that this is a specific issue with any party at fault, but the time/cost pressures that Capital Project managers work under can limit their willingness or ability to coordinate and communicate with the Operational Maintenance and IPC teams.

Q To some extent, is this something that might be addressed by further training?

A And I believe that point is raised within the action plan of the audit report----

Q Yes.

A -- for this, yes.

Q So, if we go to the action plan, I want to look at the actual list of actions, which is on page 50-- 59, rather, sorry. Do you have it listed here?

A Yes, item four.

Q Yes. Now, whilst we're here, we should probably talk about the first row because it's the time that a colour other than green appears in your risk assessments. I know you've always been keen to point out that green doesn't mean you can do nothing. Amber's there for a reason. So, what is this concern that you have about fire and smoke damper inspection?

A Fire safety and the part that

the fire and smoke dampers play as part of an integral element of the ventilation system are critical that they are adequately and appropriately tested, maintained and serviced. Specific guidance was issued to this end, but we need to ensure that, where testing results show less than optimal results, that rectification works are assessed and prioritised. That process is ongoing but is yet to be concluded, is my understanding.

Q Whilst it's not an unimportant field, does it have any connection to the issues around Infection Prevention and Control impacts on ventilation that we've previously been discussing in this Inquiry?

A No, it doesn't.

Q But I suppose it is patient safety----

A Yes.

Q -- ultimately. Right. What I want to do now is to turn to your report on commissioning results. So, if we can go to bundle 5, document 5-- document 3, sorry. Same bundle, document 5, page 62. We have the next page, please. So, what was the objective that you were given for this report?

A To review and provide comment outlined by the letter of instruction received from the Inquiry.

Q Yes, and in a sense, if we go to page 9 of the same bundle, do we see an email sent to you, on 7 August 2025, that sets out the instructions?

A We do.

Q And could you summarise, in essence, what you thought you were being asked to do? We'll take it off the screen.

A We-- I was asked to look at the records provided from the-- what was described as "sterilisation water test results" and make comment on their appropriateness in terms of commissioning and putting into use the water systems.

Q How does this relate to your earlier report? Because did your earlier report cover a period that started after handover?

A Parts of it, yes.

Q Yes. And so did we ask you to look at these commissioning test results as part of your earlier report last year?

A Not in the level of detail that was provided with the documentation of this report.

Q Were you provided with some information of what Mr O'Donnell of Mercury had said in his evidence?

A Yes.

Q So, in essence, when were these tests done in the hospital, the ones you were looking at?

A I would need to refer to the documents that you sent----

Q That's fine.

A -- but it was December-- I can't remember.

Q Right, let's go and look at "Executive Summary." It might make life slightly easier for everybody. So if we go to page 66. Now, I mean, you've not put the dates in there.

A The dates were in and around January 2015 through February 2015.

Q What I think I wanted to do was to-- Well, why don't we look at one of the particular reports just to sort of talk about it in its context, because I think it might help us all understand. If we go to document 6, which is page 91 of the same bundle. 91, thank you. So is this one of the reports you were asked to review?

A Yes, it was.

Q And it's for Plantroom 21?

A Yes.

Q And the certificate is issued in January 2015?

A Yes.

Q Now, you didn't have results, access to any samples or anything? This is a document exercise?

A Correct.

Q Right. Albeit this is one particular plant or one particular certificate, do you have any concerns or issues about what's being certified in this document?

A There were concerns and within the body of the report, I've made specific reference to what they were. If you can bring up that section of my report----

Q I can.

A -- so I can talk you through it, that would be----

Q So I think probably what we want to do is to look at page 73.

A Yes.

Q So I think we're looking at the same document. So the page we were looking at before is the one for Plantroom 21.

A Correct.

Q So just using Plantroom 21 as an example, it would be quite good to understand your process and what any concerns you have are about what you derive from that certificate – if we go back to page 91 – and the testing schedule that follows it on page 92, and then the certificates of analysis that follow afterwards of which there are a number.

A Yes.

Q So if we go back to the report and we go back to page 73, what was your process?

A Right. My process started by reviewing the certificates and the information provided, cross-referencing the individual results sheets with the tracker document----

Q Which was the table we just glanced at?

A -- which was the table of-- of the reds and greens that we looked at. I then made comment on this case in terms of what the sterilisation certificate stated and how it was dosed, for what concentration and for the period. I referenced the lab tracker summary, which identified the locations where water samples had been taken and noted that the original sterilisation undertaken on 2 December with the results identified on 3 December, which raised a concern about the period of time between the disinfection process and the time when water samples were taken. There should be a clear 48 hours between disinfection and initial water samples.

Q And that's what you're saying in paragraph 1.11.10, at the bottom page 73?

A Yes.

Q And, over the page, you complete that comment. So, effectively, in this particular plant room, they did the process they've called "sterilisation," but you don't think it's sterilisation?

A I don't.

Q Why do you think it's not sterilisation? Would it help to look at the certificate?

A It-- it makes no real difference. The-- There is no absolute defined terminology in-- in differentiating sterilisation from disinfection or arguably even cleaning. However, within the NHS cleaning manual, for example, and within other-- the US CDC standards, there is a definition of what sterilisation means and there is a definition of what disinfection means. And when it comes to water systems, they are disinfected not sterilised.

We do not eliminate every-- If you are undertaking an orthopaedic hip implant, you want that implant to be sterile. You want no microorganisms to be present because you are doing a deep wound insertion. Disinfection will remove potentially all, but certainly the majority of bacterial contamination. So the certificates, in my opinion, should be called "certificates of disinfection," not "certificates of sterilisation." That could just be me being a pedant and being overly sensitive about those things.

Q Yes. If we just accept for a moment that you are being a pedant and just focus on the dates, your position is that they carried out, in this plantroom, the process that they call "sterilisation," and you would prefer to call "disinfection," on 2 December. You're nodding again. You've got to stop.

A Yes.

Q And the sample is then taken on what date?

A According to these, 3 December.

Q Which is not long enough?

A Which is not 48 hours from the completion of the disinfection process

Q Why is that a problem?

A Because residual disinfectant could be left and you will get a false negative result, or you could get a false negative result.

Q You might not?

A You might not.

Q And what can you do to remove that residual disinfection?

A The system would be flushed through.

Q And some time would be allowed to pass.

A And some time allowed to pass.

Q In essence to allow the----

A The bugs to grow if they're there.

Q If they're there, they can recover to whatever they feel happiest about? They need to find them if they were there?

A Correct.

Q Again. Right. So does this issue around taking in the samples too close in time to the sterilisation/disinfection event occur elsewhere in these testing results?

A Yes.

Q Does it occur in all of them?

A I believe so, from memory.

Q What's the consequence on the value of these testing results if this is indeed what happened?

A It brings into question the-- the accuracy, potentially, of those results.

Q Is it just a theoretical or is it a practical problem?

A It doesn't follow the prescribed standards laid out in SHTM?

Q And what are they?

A To leave 48 hours from disinfection to sampling. So I cannot say for certain that the results are inaccurate. What I can say is that they appear, if the dates are accurate, to have not allowed that sufficient fallow period between disinfection and sampling, which may have impacted the results.

Q The next question is, is there any concerns you have about the methodology adopted for sterilisation/disinfection according to the certificates?

A According to the certificates----

Q Well, let's go back and look at them. It might be helpful. So that would be page 91.

A According to the certificates, a particular chemical treatment was used.

Q That is San----

A Sanosil.

Q Super 25.

A Yes. At a concentration of 150 parts per million for a period of 1 hour. From research on the Sanosil website, it would appear that that concentration was below that recommended by the company and the contact period was also shorter than that recommended by the provider of the chemical.

Q Is it possible that, in 2015, Sanosil was requiring a shorter period of contact and a lower intensity of disinfection for that product? I mean, Mars bars have changed size, so couldn't Sanosil have changed?

A I couldn't comment on whether that was or was not the case. However, the microorganisms haven't changed ostensibly. So unless the kill time and-- and dwell time of the chemical and the concentration of the chemical have suddenly got worse and therefore need a longer time period to operate, I find it doubtful.

Q I mean, it does occur to me that in many fields of life, we've all become a bit more risk averse. I mean, not necessarily in 2015, but in the recent decades, could it simply be that the company decided, "You know what, we should probably have been more risk averse and encourage this material to be used at a higher concentration for a longer period than we were in 2015"? Is that possible?

A I couldn't comment but, yes, it's possible.

Q But your principal concern is the time difference between the disinfection and the sample?

A Yes.

Q Right.

THE CHAIR: I'm sure it's my fault. I can't see a reference to the concentration.

MR MACKINTOSH: I think it's in the "Remarks" section.

THE CHAIR: But I see a reference to the pH range but----

A No, the-- the second line, "Sanosil was then drawn through at each outlet at 150PPM."

THE CHAIR: Right. Thank you.

MR MACKINTOSH: Then it was allowed to stand for an hour. Then was "flushed from the system." Right. So before we look at what you might have been told about the way the system was commissioned and you have thoughts about that, if we simply look at these results of all the tests that you've reviewed in isolation, I think some of the witnesses in the Glasgow IV Part 1 hearing were of the view that this provided a method of comfort, that the hospital system was not handed over in a condition where there was – depending how you slice it – systemic contamination, widespread

contamination, microbial proliferation, or any of these phrases. Do you feel that you are entitled to draw a level of comfort from these test results?

A Personally, no.

Q And why is that?

A Because they didn't follow the prescribed process that should have been followed.

Q Do you have any other comments about the testing process they seem to have carried out, albeit that we've recovered this information years after the event and I haven't got the evidence of Mr Weir and Mr Waters, and so on, listed here? I just have the documents. Do you have any other concerns about the process that was carried out to carry out testing in December and January '14 and '15?

A Not other than what I've already raised within the report.

Q Right. But let's talk about the way the system was commissioned in general. You seem to have some concerns about the way this system was commissioned based on what you've been told. Let's go on and look at those. So if we go back to the report and if we go to-- I think it's page-- if I find the page number, sorry. Well, let's do your conclusions first on the water sampling. So, that's page 77. So you made an observation there was a lack of a clear

document control process but, to be fair, we have only just recovered information from lawyers so that may have been lost, but if we look at the next paragraph, 1.122:

> "The water sampling undertaken and the range and extent of micro-organisms tested for is in my experience the minimum required by SHTM and given the intended clinical activities [over the page, please] and patient groups involved I would have anticipated a greater degree of testing as outlined in section 1.6."

Well, let's go back to 1.6, so that's page 69. No, that's not 1.6. Your numbering system has got a little bit confused.

A It may well be, yes.

Q I think it's 1.9, so that's page 71. So what's your concern about the water sampling standards that have been applied as far as you can see from these results?

A Given the high-risk clinical profile of the patients, I would normally have recommended more than a single satisfactory test result before taking the systems into operation, and that is indeed reflected by the current water management arrangements within the hospital of requiring at least three clear

standards prior to removal of the point-of-use filter or putting it back under normal levels of control.

Q When you say you would have normally required three samples, are you applying today's standards or the standards you were operating in 2015?

A The standards I would have operated in 2015.

Q Does this section of the report deal with those standards, the 2015 standards?

A Yes.

Q So, I'm going to page 72. I think there's been a breakdown in your colour coding but, if we look at 1.9.8, are you listing what you thought should have been tested for?

A Yes.

Q Was it tested for?

A I don't have that information but I do not believe the full spectrum were.

Q Sorry, the observation has been made by a number of witnesses that, at this point in time, the legal standard for managing water systems focused only on Legionella and Pseudomonas hadn't come in. Do you recollect that, '15/'16?

A By 2015, I believe the Pseudomonas testing would have been in-- in place. I accept that Mycobacteria may not have been.

Q Is there a particular reason that you have listed more than effectively total viable counts, Legionella and Pseudomonas? Where did the other ones comes from in the history of the development of this field?

A That, I would need to do research on to give you accurate information on, but it's-- it's certainly water sampling and issues that I've experienced over my career that have caused issues and problems, which is why these would be the recommended tests for projects prior to handover.

Q But, in any event, if we go back to page----

THE CHAIR: Just to understand that answer, that would have been your recommendation in early 2015?

A Yes.

THE CHAIR: Right. Sorry, Mr Mackintosh.

MR MACKINTOSH: Sorry, I was going to just jump ahead back to page 78 but, in essence, is the key point in paragraph 1.126 that this testing process can still use a single clear path and----

A Yes, it is.

Q -- that's your principal concern?

A Yes.

Q Right. What I want to do is look at section 1.13, which is on page 81 – it's quite short, it's just over a page –

because we told you that we had evidence of the water system being filled in '13 and being filled sequentially via plantrooms. What are your concerns that arise over that?

A The problem with sequential-- and certainly an extended period sequential fill is, how do you maintain the quality of the water that is in the filled sections if it cannot be appropriately flushed, managed and maintained?

Q When you say "flushed," that means that the outlet's flowing?

A Yes, you don't want the water to stagnate within that system.

Q Does "maintained" include running the heating and the cooling systems that are designed for the system?

A Yes, insofar as you want to avoid a temperature range of water that is above 20 and below 50-55 degrees centigrade. So, if the whole of the hot water system is filled with cold water and the hot water clarifiers are not working, as long as the system is circulated and flushed, you are unlikely to see a significant proliferation of microorganism. If you partially heat the system or you heat it and then cool it, and heat it and then cool it and do not take it to an adequate-- and maintain it at or above an adequate temperature, then you are likely to encourage the potential for

microbiological proliferation.

Q What's the lowest temperature of that range when Legionella grows well?

A Legionella is generally accepted that it will start to grow at around 20 degrees centigrade, specifically for Legionella, and it stops growing and starts to die above 50.

Q To what extent does the summer, albeit in Scotland, pose a risk to a pre-filled water system if there are days when the temperature in Glasgow in 2014 rises over 20 degrees?

A If the water is kept flowing and moving and flushed out to simulate in use activity, then there is every chance that it would be kept below 20 degrees for Legionella. Pseudomonas will multiply anything above half a centigrade, so you can't take a single temperature and a single microorganism as all being the same, they're not. But, if you are operating that water system in a high environmental temperature, then heat gain may well occur, particularly during periods of no flow, which could give rise to temperatures to support microbiological growth.

Q Because of my recollection of the evidence of, I think, Mr Donovan – I can't now remember the name of the Multiplex commissioning engineer, my apologies to him – was that the system

was being regularly flushed by a team who did literally nothing else. That, in their view, was that that's a perfectly respectable way to manage a water system on an "under construction" hospital. Do you have any views about that?

A It is not an uncommon way to manage the water systems on a construction site. However, it is not sufficient in a acute, high clinical risk healthcare facility. L8 specifies weekly flushing for non-healthcare buildings and twice weekly for healthcare buildings. There is a reason why they double up. Flushing should really simulate in use activity and, if you have a large district general hospital with 2,000 staff washing their hands probably every 20 minutes, that is not going to be easily replicated by a couple of guys going around flushing outlets once a week or even twice a week. The aim, therefore-- Sorry, but the aim is, therefore, the water systems should be kept dry and clean for as long as possible and then wetted at the last possible moment and then kept wetted and in use as soon as it is wetted.

Q I mean, I think you say something similar here in 1.13.3:

> "Once all of the commissioning and validation processes have been completed the installer will typically be responsible to operate and maintain the systems until practical completion or handover to the operational team, at which point the systems can be deemed as operational and in use."

Now, I won't take you to it, but we've read debates in the meetings between the Project Team and the contractors about when to fill the system in 2013. I suspect that there's a view that you want to check the system is working rather earlier because you can't put the walls on around the pipes unless you know the pipes are complete and don't leak, so you're testing the system by hydraulically-- by air pressure first and then you hydraulically test it, and then you're satisfied, "I built a system that doesn't have holes in it." Do you not see there's something reasonable about the contractor wanting to test they built it properly?

A Yes, but that's why we recommend pressure testing using medical grade air rather than water.

Q Is that in SHTM 04?

A Yes.

Q So, in this case, if it was the case that the system was filled sequentially, starting in the summer of 2013 and moving into 2014, plantroom by plantroom, does that in any way affect your views about the state the system

might well have been in, in the summer of 2015?

A I would say it probably increases the likelihood of contamination being present.

Q Why do you say that?

A Because I haven't seen evidence of (a) exactly a programme of when the systems were filled, how they were filled, when they were disinfected, and then the flushing records of simulated use prior to full validation.

THE CHAIR: Mr Poplett, when you use the word "contamination" in that particular context – that's the, I am assuming, wetting in 2014 – what do you mean by "contamination"?

A Microbiological growth.

THE CHAIR: Thank you.

MR MACKINTOSH: (To the witness) How do you respond to the view that the word "contamination" is inappropriate to use for something that's in the water that wouldn't normally be there, perhaps in lower concentration? So there might be some microorganisms, perhaps faecal microorganisms, about which you could use the word "contamination" legitimately because they really shouldn't be in the water at all, and there are some microorganisms, which there's always some of them there. It's therefore not contamination to have them. How do you respond to that as sort of a critique?

A It very much depends upon your point of view and-- and everybody has different-- you-- you will not eliminate all environmental contaminants from the system and certain levels are deemed not to represent a risk. It's why there's no single prescribed limit for TVCs or "total viable count."

Q Right.

A So-- so you can have levels of microbiological activity but they do not pose a risk. It-- it is really getting into the realms of theoretical debate rather than engineering installation and practice.

Q While we're talking about terminology, later on, after the coffee break, I'm going to take you to the paper in the water research journal that was produced by Dr Chaput a few weeks ago – also, other authors include Professor Steele, Mr Kelly and Mr Clarkson – and it talks about microbial proliferation. Again, in the context of a debate about what the right language is, what do you understand to be meant by "microbial proliferation"?

A I understand it to mean the growth or multiplication of organisms.

Q Is there any distinction that you can see being drawn between contamination and microbial proliferation in this context?

A I personally wouldn't see the

difference in it.

Q (After a pause) Looking at your report as a whole, we go to your conclusion section on page 82. We have a discussion of the staged approach and your view that that's suboptimal. How would you have filled, wetted and commissioned this system?

A I would have used medical grade air to pre-assess the whole system and then filled it in a single exercise. Once I had ensured that all of the relevant maintenance processes were in place and the individuals who would be undertaking those processes up to handover had been suitably trained, records produced, and a water risk assessment in place.

Q That would have included Planned Preventative Maintenance schedules?

A Yes.

Q When you say "a water risk assessment," that's a document similar to what was carried out by DMA Canyon after handover?

A Yes.

Q We've already discussed 1.14.2, the disinfection process, so we'll skip over that. We've discussed the sampling of microorganisms in 1.14.3. 1.14.4, is that you referring to the current Water Safety Plan and drawing a contrast between the two?

A It is.

Q I mean, I think it's been well observed by Greater Glasgow and Clyde that this is probably the highest intensity water testing programme that they're aware of in any hospital in the UK.

A I would tend to agree.

Q Yes, so you think it's entirely fair to compare what was being done by the contractors to run the system beforehand over with the current water safety plans for the same hospital?

A You always want to compare practice against best practice even if they are worlds apart. So I-- Whilst it may be unfair – and that is not the intention of this report – the intention of this report is to highlight what has happened in the past, as far as I could tell, compared to the current management arrangements, as best I can tell.

Q I wonder if we can go to 1.14.5, because we asked you to tell us whether the systems were, at handover, contaminated about microorganisms or biofilm at handover. You don't feel you can quite answer that question. Again, that was a nod.

A Yes.

Q Yes. So, can you tell us what you feel you can say around about the state of the system at handover, based on this additional information on these reports?

A I don't believe I can draw a precise or accurate conclusion. I can state that, in my opinion, they were suboptimal. There were clearly some contamination or microbiological activity within the systems at handover. I have concerns regarding the accuracy of the clear readings, given the close proximity to the timescale when disinfection occurred and then water samples were taken. The presence of biofilm is a result of microorganism activity, and I can't say that whether there was or there wasn't. It's likely that there probably was, but I couldn't say to what extent or how extensive it was through the systems.

Q Is that partly because of the failure to multiple resample?

A It's both the failure to multiple sample but also the sampling-- If-- if you want to try to establish extent of any-- and forgive me, I will continue to use the word "contamination" because that's what I'm used to using, you really need to look at pre- and post-flush samples. You need to look at multiple samples from close proximity to establish whether any contamination is local to an outlet or is further back in the system and more likely to represent systemic.

Typically, if you take a pre-flush sample, so you collect the first litre of water out of a tap, and it has a high microbial count. If you then flush that outlet and take a further litre, a post-flush water sample from exactly the same outlet, and the first outlet sample, the pre-flush was 1,000 and the post-flush was 25, the likelihood is that the contamination was centered around the outlet. Because you have moved through fresh clean water, you've got rid of the point of contamination in the tap, and you are now getting much lower results.

It doesn't mean that you've cleared the problem, because you still had a high pre-flush, but it would indicate that it is likely to be an outlet contamination rather than a systemic. If the reverse is true and you take a pre-flush sample and it comes back at 25, but you take a post-flush sample at 1,000, then more liquid has passed through, or over, the source of proliferation has been released and has therefore been collected at the tap. That would be indicative of a more systemic colonisation of the water system rather than a single outlet.

Q I think probably we should, just before we go on a break, do this topic in more detail. I recollect, I think it may have been your evidence, but there's been evidence around the idea that taps get contaminated – particularly taps because there's recessional contamination – either from the users or from the cleaning or from splashing, or aerosol off the drains. Is that roughly

right?

A Correct.

Q Right. How do you get recessional contamination? Is it easy to get recessional contamination on a site that's not operational? Because there's no one cleaning them, there's no one putting the wrong stuff down sinks.

A There is someone flushing them.

Q Yes, but not very often.

A And there are people, I would suggest, putting things down sinks that shouldn't go down sinks, in a building site possibly even more so than in an operational hospital. Half-drunk tins of fizzy drink should not be poured down drains if you then use them to flush because you've provided nutrients and sources for any bacteria to then plume out of that plug hole and back onto the outlet. It is probably fair to say you are less likely to see localised contamination from outlet to system in a non-operational environment than you would in a operational environment.

Q Right. (To the chair) I wanted to do one more question before we have a coffee break, my Lord, which is to go back to page 82, final paragraph on the page, 1.14.6. (To the witness) I get the impression that you're drawing a conclusion that there might well have not been a whole system flush. Is that what you're saying?

A Yes.

Q Can you explain how you work that out? Because I don't quite get it.

A Well, we've got conflicting statements about when the system was wetted and-- over a period of, I believe, 13 months in total. We know that the whole system was wetted by January '15 because water samples were taken from the outlets. So it must have been full by the time you did the disinfection and took water samples. But there's no clear evidence of a plan as to how the system was filled or over what period of time.

Q Right. So, you're therefore inferring that it probably wasn't flushed. Is that a little bit of a step too far?

A I have no evidence to show one way or the other but if the system wasn't flushed because it wasn't filled, I would not be worried.

Q Yes.

A If the system was partially filled and partially flushed and then a bit more of it filled, how-- the efficacy of the overall flushing, I've got no evidence of it----

Q So, you're not saying that you know for certain that something's happened----

A No.

Q You're just increasingly nervous because you don't know.

A Correct.

Q Right. My Lord, this might, I think, be an appropriate time to break, and after the coffee break, we'll move on to the topic of risk.

THE CHAIR: Can I just take the opportunity of asking a very basic question? We have heard evidence, from which I've taken, that some degree of biofilm development is close to inevitable in a large water system, such as we're discussing. Do you have a view on that?

A I think it is incredibly unlikely that you will have a system of this size or complexity without some degree of biofilm being present. Biofilm is-- The problem with biofilm, as I understand it, is that it acts as a shield for bacteria underneath to proliferate and multiply, and then if that biofilm is stripped or bursts out the organisms underneath it, it will then be carried around the water system. Some disinfectants are more effective than others, and one of the reasons for contact timescales is to allow chemical disinfectant to penetrate biofilm, because biofilm will act as a protective layer to microorganisms underneath.

THE CHAIR: So, that's an explanation of why. I think the way I put it, which may be overly simple, is that some degree of biofilm is inevitable even in a well-run system.

A Yes.

THE CHAIR: Right.

MR MACKINTOSH: My Lord, can I just follow up with one question----

THE CHAIR: Yes.

MR MACKINTOSH: -- because it saves coming back to it? (To the witness) We've had some evidence, I think, from Dr Chaput about the difficulty of working out whether you actually have biofilm in a system, and she gave some quite colourful evidence about, you'd have to cut up your pipes to work out-- and testing one location doesn't tell you what's going on three inches down the pipe. Would you accept that?

A Yeah.

Q Or are there other ways of working out whether there's biofilm in the system?

A The general accepted way of working out whether there is biofilm present is the water sampling test results, but they are an indicator of it, not an absolute definite.

Q So, the greater number of total viable counts you have in your water system, the more suspicious you should be. Would it also apply differently on a bigger system, the more likely it is to be there?

A Yes.

Q Presumably, all the stuff we previously discussed about, whether the temperatures are being run correctly and all the other risk factors?

A Yes.

Q Right. Thank you, My Lord.

THE CHAIR: Well, we'll take our coffee break now and perhaps, could you be back for ten to twelve? Thank you, Mr Poplett.

(Short break)

THE CHAIR: Mr Mackintosh.

MR MACKINTOSH: Thank you. I might take the opportunity of asking a few clarification questions that colleagues in the room have suggested. If we think about the strategy for the removal of point-of-use filters, I'll mention a few things that we've heard in evidence and you can tell me whether you recollect these as we go. So we heard in evidence that when the filters were fitted in Ward 6A and Ward 2A, there was some concern that non-tubercular Mycobacterium was not being successfully controlled by the chlorine dioxide system. Do you recollect that?

A Not specifically but, yes, go on.

Q And that, therefore, whilst water that was post-filter didn't have in it that particular Mycobacterium, behind the filters there was a concern there was a non-tubercular Mycobacterium of various sorts. If it's the case that – I think Dr Inkster gave evidence about this – chlorine dioxide and other biocides are less effective at controlling non-tubercular Mycobacterium, how would the removal of filters protect patients from such Mycobacterium that can't or may not be being controlled by the chlorine dioxide system?

A With the filters in place, if they are appropriately monitored and changed, then they prevent the mycobacteria or particles in general getting through to the patient environment.

Q Yes.

A If you remove those filters then, yes, you will potentially have particles which are in the water getting through to that outlet unfiltered. However, it's about exposure and concentration and one of the issues with a filter of any sort is that it tends to concentrate the contaminants on the dirty side of the filter whilst allowing the-- the clean fluid through. I wouldn't see the removal as-- as detrimental unless the clinical-- And this is really a clinical IPC issue, is that the patient profile is such that the water should be sterile and not just mains or disinfected water. So if any level of contamination is potentially harmful to an individual, it is normal custom that they would be only exposed to sterile water, bottled water that had been sterilised, rather than mains water.

Q Is another way to perhaps

consider it that if your three testing process for removal of the filters includes a test for non-tubercular Mycobacterium, would that also provide some reassurance?

A It would; however, there is no current national standard for the testing of mycobacteria and the mycobacteria, as I understand it as an engineer, is very slow growing or can be slow growing and water samples can take six weeks or more to come back. So, it would slow down any change to the system in order to achieve three clear samples for, in particular, non-tuberculosis mycobacteria.

Q Thank you. Now, I wanted to go back to your evidence that you would have hydraulically tested this pressure test of the system with, I think you said, medical grade air.

A Yes.

Q Could it be the case that, in 2008, SHTM 04-01 Part A didn't actually require medical grade A? It was just actually silent. I can show you the relevant section.

A I can well believe that it was silent.

Q Let's go look at page 18, volume 1. The document is document 15, but it's actually page 1508, and if we go to 1508 we should find there a section on "Pressure testing." Yes, 1508.

THE CHAIR: I think we're being told that there are only 179 pages.

MR MACKINTOSH: What bundle are we in? 18, volume 1.

THE CHAIR: I think we're in bundle 21.

MR MACKINTOSH: So 18, volume 1 is one of our largest bundles, my Lord, and it causes great problems to all our computers.

THE CHAIR: Mm-hmm.

MR MACKINTOSH: So it's 1508. Then we are 16.3.1, "Pressure testing." It's rather a short section. (To the witness) Do you accept that, back in 2008, there might not have been a requirement to use medical grade air?

A I do.

Q But, in essence, your position is that they should have air pressure tested it and then waited with the system closed until much nearer the time of use and then filled it together, with everyone ready and trained, able to manage it?

A Yes.

Q Given that you've been looking in your audits at the Project Team and their work and how they deal with other teams – it occurs to me you might not be able to answer this question that someone's asked me – what awareness do you have of current major rectification projects in the water system for the hospital?

A None.

Q And what about current ventilation systems in the hospital?

A None.

Q None. Let's look at the paper we talked about briefly before by Dr Chaput and her colleagues, which is bundle 44, volume 8, page 141 – at least I hope it is. It is. So did you have an opportunity of reading this paper in Water Research 282, 2025, 123748 some weeks ago?

A I did.

Q Now, firstly, do we notice that the authors include a number of people with whom, firstly, we've had evidence from in the form of Dr Chaput, Mr Clarkson, Mr Kelly and Mr Watson and Professor Steele and Professor Leanord, but also with the exception I think of-- Because quite a lot of these people you've actually interviewed as part of these audits.

A Yes.

Q Yes. What in a sense do you understand this paper to be discussing or describing?

A It is describing how a-- an approach has been adopted in a unused or-- or area undergoing refurbishment or out of clinical use to manage to trace where microbiological proliferation occurred, and to identify the efficacy of different approaches to address that proliferation, ultimately concluding that a multiple-stage approach was, on the evidence of-- of the findings, effective at controlling microbiological proliferation in a ward area which was taken out of use for a period of time.

Q Is there an element of-- I'm not sure "surprise" is the right word, but a developed understanding that multiple stages are needed in this?

A Not on my part, no.

Q No, no, what I mean is the authors, they're describing a learning process as they try various things.

A I have the impression that they were aware that that was likely the case.

Q Right.

A And this was used to produce evidence based off that approach being effective.

Q What can you, or can we, take from this paper when we come to thinking about the current management of the water system in this particular ward – that's 2A and 2B – as discussed by your audit? Is there anything we can draw from this that helps understand the same field that you were looking at in the audit?

A I think it provides reinforcement or evidence that the current team are going above and beyond the guidelines or standards set to ensure a proactive management approach to water systems.

Q Does this paper help you or

the Inquiry understand the difficulties that exist in rectifying a water system that has in the past had high levels of microbial proliferation or contamination? Does it help us with that?

A I think it highlights that the extent of works to be considered and undertaken are in excess of the minimum standards as outlined in SHTM.

Q So, effectively, you need to do more than the SHTM 04-01 Part B standards to recover a system?

A In the appropriate clinical environments, potentially, yes.

Q Does this paper help us understand some of the processes that might have been going on in the water system, in the hospital as a whole, in that period of its construction in '14 into '15 when it was refilled and it was being managed, or does it not help us with that?

A Not directly, no.

Q And how does it do it indirectly?

A It demonstrates on a single occurrence-- This is a single article demonstrating improvement or achievement of standards. It would suggest that this was not the process that was followed at the time. If this process had been followed at the time, may that have resulted in less water-related issues? Quite possibly but, again, this is a single research article, it-- one right result, it shouldn't be sufficient to change the entire approach. It needs to be taken in the round with everything else.

Q Thank you, and would you take it off the screen? Before we talk about risk management and safety, I want to take you back and imagine that you were in post as the authorising engineer (water) for the Queen Elizabeth at a couple of locations, points in time. I appreciate in at least one of these points there wasn't an authorising engineer (water), so it might be easier for you to imagine you were. It's April 2015. Imagine you were then the authorising engineer (water) for the Queen Elizabeth and you had actually in your hand, unlike the chair of the Water Safety Group, the 2015 DMA Canyon L8 risk assessment which you reviewed, yes?

A Yes.

Q You also had the water testing results that you had considered in the report we've just discussed, and you also had the knowledge that you have of the issues that seem to exist at that point around lack of PPMs, what was or wasn't in the Zutec system, and, if you remember, that suite of discussions that you considered in your previous reports. So with that state of knowledge, what would have been your assessment at that point of risks posed by the water system

in April 2015?

A It is always difficult because I have the benefit of hindsight. However, I would like to believe that, at that point, I would have raised serious reservations and concerns about progressing and occupying the hospital.

Q What would be the basis for those concerns?

A The evidence as outlined: the water risk assessment; the multiple issues flagged in that water risk assessment as being suboptimal; the lack of scheduled maintenance and-- and PPM programmes; and the water test results given the clinical nature of the facility in question.

Q What's the outcomes you're apprehensive about?

A Well, my concerns would have been that the review and AE engagement should have taken place at design stage, not occupation. It should have taken place at design, then throughout installation, commission, planning, validation, which didn't take place in the traditional sense, and then through to occupation.

Q I mean, I don't really want to go through the whole document and you may not be able to help me but, if we look at SHTM 04-01 Part A from 2008, will we find a specific instruction to involve an authorising engineer (water) in the design of the hospital?

A No.

Q Do we find that now?

A You find it in SHTM 00 core standards, but the AE role as a defined role didn't exist until the core standard was first produced.

Q When was that?

A I knew you were going to ask me that and I can't remember off the top of my head.

Q But around about the time the hospital was opened or----

A Round about the time it was----

Q Right.

A -- opening, yeah.

Q So, in a sense, it's a slightly unfair criticism to say there wasn't an authorising engineer (water) at design stage in 2010 because no one had thought of the idea then?

A There wasn't the defined term of authorising engineer. There were specialists with water knowledge who could have been engaged.

Q Right. Now, if we go back to April 2015, what would have been your advice to the Board Water Safety Group other than the concerns you have about occupying or operating the hospital? Would you have given any other particular key pieces of advice to the Water Safety Group in April '15?

A I think the-- Again, as an

authorising engineer, I would have liked to have offered and played a significant role in coming up with a strategy to address the identified shortfalls and concerns.

Q I mean, you've obviously done an audit now and you have experience and practice as an authorised engineer (water). Have you ever come across another hospital with problems as bad as the ones described in the DMA Canyon report? I'm not going to ask you which one, don't worry.

A I-- I would venture to say I've come across some that were potentially worse.

Q Right, so what would you have said-- Obviously, you tell the Water Safety Group, "I have concerns about operating and using the hospital," and you'll say to them, "I want to be part of fixing this," but what other major action points that you see were the sort of top three things that should have been done in April '15? Was it just there's too many to think about?

A Yeah, I mean, that-- that is a near impossible question to answer. There are some fundamental issues that should have been put in place, accepting that, at that point, some of the systems existed and-- and it wasn't possible to change or wasn't practical to change, but there was potential mitigation, additional testing, additional screening, additional filtration that could be considered, and those would all be available for consideration to address some of the concerns and issues.

Q Right. Well, I mean, you weren't there, so let's move on to the next scenario. This time it's April 2018 and, again, imagine you're the authorising engineer (water) and you're attending the meetings of the Water Technical Group that Mary Ann Kane chaired. I'd like to look at the minute of the 13 April 2018 meeting while we do this, so that's bundle 10, document 2, page 9, and if we just jump ahead as well – we look at the people who are present – to page 14 as well. We again see that there's no authorising engineer, so you're it. So let's go back to page 9. I think I asked you to have the opportunity to review these in the last few days. Have you looked at these two minutes?

A I have.

Q So, based on what is known, not only by the members of this group but also in the 2015 and 2017 LA risk assessments-- so I appreciate the evidence is that some of the people in this list might well have known what's in the DMA Canyon assessments and some of them definitely didn't, but if we just give you all the knowledge, knowing what's in these minutes and the previous one,

describing the testing results that they're doing and the two DMA Canyon risk assessments and, indeed, Dr Chaput's report which you've reviewed of the water testing results, what would have been your advice you were giving at this time in these meetings? What would you have said about what was going on and what should be done?

A Again, hypothetically, I would like to believe that I would have advised on options for a corrective course of action and immediate mitigation and further investigations as to how the apparent issues could start to be either verified and established and then addressed or, if already clear, addressed to a satisfactory solution.

Q Given that you know what happened, is that roughly what then happened?

A As far as I can-- can tell from the minutes, it was certainly the direction of travel that----

Q Right.

A -- was being taken, yes.

Q Now, when we go on to the next page, and they have recorded here where they're going to do testing:

> "Agreed to:
>
> POUF to continue in 2A and 4B...;
>
> All risers to be tested further back and towards the tanks [and a long list of testing locations]."

They've carried out random testing of taps and they say, just after the second bullet points:

> "It was noted that every floor had positive and negative readings thereby this would indicate a widespread water infection."

If we go to page 20, which is in the next meeting, if we go back one page, back another page-- We've gone too far, sorry. About one more page. Back another page. Back another page. Back to 14, yes. So this is the meeting of 20 April and there's a statement:

> "Every floor is showing some contamination with various species so we can assume there is a widespread contamination in the buildings."

Now, you weren't there, you weren't involved in the discussion, but I suppose I should ask you this question, what would have been your assessment at the time? In fact, what's your assessment now, looking back at the time? So use all the information you've got about whether what was being faced in April 2018 was a widespread contamination across the whole water system, or limited to perhaps a large number, but limited to outlets? Can you help us from all you've learned

over this whole exercise about where the balance lies? I should say, of course, that you know that HPS in this year, they couldn't work it out. They picked both, but where do you stand on that debate?

A Because I am unaware of the nature of the sampling being undertaken, i.e. whether it was pre-flush, post-flush, because it demonstrates a range of microbiological activity, then both answers are possible. If it was a systemic colonisation, I would expect to see high counts both pre and post, post-flush probably higher than pre, and a whole range of microbiological strains identified.

If you-- as I said before the break, you get a pre-flush sample of a high level and a post-flush of a much lower level, that tends to indicate a local colonisation or contamination. The varying types of microorganism identified also lends itself to multiple local colonisations more than systemic but, given the size and complexity of the system and the number of floors, I'm not saying that systemic wasn't present. I'm just saying that I couldn't be definitive about it.

Q Is that still true now, knowing everything you know?

A Yes.

Q Right. We can take that off the screen, please. What I want to do is move on to risk management. Now, we received a report from Dr Mumford in Part 2 of the Glasgow IV hearings and it's in bundle 44, volume 6, document 1, page 4, and I wondered if you had the opportunity to review it?

A I have, but not in great detail. I haven't gone through it line by line.

Q No, no, I just want to make sure you've read it because I'm going to look at----

A Yes.

Q I'm going to ask you to use one of the tools she gave us in order to have a conversation because, if we go to page 8, she provided us with a risk matrix, which she took from an NHS England document----

A Yeah.

Q -- which, presumably, you're familiar with, the principles for assessing and managing risks across integrated care systems in England?

A I am.

Q Right. If we take the top half of that page, please, and zoom in because we're going to stay here for a bit. Yes, thank you. So, what I want to do is to firstly understand your understanding of how risk is understood in the context of this matrix, at the risk of discussing something that I'm relatively sure you understand very well, but let's understand what you understand. So, from your point of view, not as a clinician, how do

you use a risk matrix to understand the risks arising from a water system or a ventilation system?

A It is, as-- as detailed there, the consequence of something going wrong and how likely it is that it will go wrong. The two are basically multiplied together to get a simple numeric ranking.

Q We asked you a question, or a series of questions, in the earlier parts of the Inquiry in key sessions 1, 2 and 3, which defined the term “unsafe” as the presence of an avoidable risk to patient safety. Is that definition consistent with the way that safety and risk is conventionally analysed in the health service?

A As I think I stated at the time, the black and white, or definitive “safe” versus “unsafe” is not a simple heads or tails. It is a sliding scale, and that is effectively what risk assessment gives.

Q So, given that you’ve already made clear the particular colours on a risk assessment grid do not mean don’t act-- And, again, you’re nodding.

A Sorry, yes.

Q Are you willing to associate any part of a conventional risk matrix like the one on the screen with the concept of something being unsafe, or am I comparing two things that aren’t related to each other?

A I would say I can compare it to

something that is relatively safe, i.e. something that is extremely rare and has a very low consequence----

Q Yes.

A -- to something that is very potentially unsafe, i.e. it is very likely to occur and have significant consequence.

Q So, you would add more descriptive language to the concept of “unsafe.”

A Yes.

Q Potentially. So, if you look at that chart, top right-hand corner, it has to have a severe consequence that’s almost certain to happen before it gets into that territory.

A Yes.

Q Right. Now, with that in mind as a sort of tool, what I’d like to do is to try and discuss it because we didn’t do this before – I feel that’s an oversight of my part – to try and discuss with you your conclusions from your previous reports and all the information you’ve learned since, about where the water system at various times and the ventilation system in various places and times might sit on those charts. But before we do that, we have to recognise that you’re not a clinician. Again, you’re nodding.

A Sorry. No, I am not a clinician or a microbiologist.

Q We start with water. You’ve discussed, at various points in evidence,

concerns that arise from, in simple terms, badly managed water systems. How do you understand likelihood and consequences, given that you're not a microbiologist and you're not a clinician? What's your method of getting to a useful understanding of the topic so you can do your job?

A I would say that I have – through near 40 years' experience of working in healthcare and working with microbiologists, consultants of all manner of clinical discipline – an understanding of-- a basic understanding of microbiology and the risks that it poses. As an engineer, I am able to bring the practical elements of, is that going-- is that, if it exists within, say, a water system, going to come into contact with a vulnerable clinical group? And if so, what can be done to minimise exposure or reduce or eliminate exposure? Correct maintenance and management of the water systems is one of those elements.

So, whilst any risk assessment, particularly relating to ventilation or water, is not a single discipline process, the British Standard for water risk assessment clearly states that it is a multidisciplinary approach which has to take advice and considerations from multiple sources to assess ultimate risk. So it may be that I do a risk assessment and categorise something within the matrix, but then a clinician or microbiologist will bring a different viewpoint, or a different level of knowledge, which would then influence where that ultimate risk score, for want of a better term, actually ends up. So, one person doesn't decide it's this or it's that.

Q Might it be fair to say that your understanding of likelihood and consequences is informed as an engineer by the cases you've dealt with?

A Yes.

Q It's a practical lifetime experience rather than an academic----

A Yes.

Q I mean, tell me if this isn't a good analogy. Could you be more comfortable in assessing risk for Legionella than you are in assessing risk for atypical mycobacteria?

A Definitely.

Q Why would that be?

A Because I have far greater experience and exposure, for want of a better term, to Legionella and its controls than I do to other microorganisms.

Q Again, if we think about the process of managing water systems that's found in L8 and HS274 and ultimately SHTM 04-01, you've explained before, has a long history.

A It does.

Q Is there any difference between the level of-- "understanding"

isn't quite the right word, but the depth of understanding, so the quality, the colour of understanding of these risks amongst engineers in water and ventilation? Is it fair to say that water is an area where engineers know a lot more than they do in ventilation, or am I getting it wrong?

A It almost comes down to the individual engineers, and we use the term-- I use the term as-- "engineer" as an umbrella term. If you were to ask an electrical engineer, their knowledge of Legionella, it will be likely very poor, unless they've done the specific training and experience of that. A mechanical engineer who deals with medical gases won't be as familiar with it as a water engineer. So "engineer" is, to some extent, an umbrella term that covers many specific specialties and disciplines.

Prior to 2019, the level of knowledge within water among engineers was considerably higher than that of ventilation-related-- or airborne pathogens. Post-COVID, an awful lot of stuff has been read about, an awful lot of people have educated themselves, an awful lot of people have looked into it, and it is increasing exponentially. But Aspergillus, as an example, was a relatively unknown microorganism for engineers to worry about before the '90s.

Q Do you have any particular experience of Aspergillus yourself?

A I do.

Q How does that arise?

A In Newcastle, during the early '90s, there was a significant incident resulting in multiple patient fatalities that was linked to Aspergillus. As such, I was tasked to look at precautionary measures that could be used to protect patients, during which I spent a great deal of time with consultant microbiologists and clinicians of particular clinical groups, and instigated and delivered protection methods for a number of areas around the hospital estate. As a result of that experience, I was lead author on the primary standard operating procedure for prevention of aspergillus within Newcastle. That document was then used as part of the reference document for the Irish standards for the control of Aspergillus, and I've gone on to act as an informal adviser to, at the time, NHS Estates on Aspergillus, and I'm now currently working with the Healthcare Infection Society on production of the first UK standards for management of Aspergillus risk and control.

Q What I want to do is to try and see – not quite what you're willing to say, that's the wrong way of putting it – how comfortable you are about working in the context of this matrix in respect to the various parts of the systems we have talked about over the last two years. So

if we start with the water system, as it was in April-- Well, let's make it actually when the patients arrived, so in June 2015. Where does it sit, in terms of the risk of healthcare acquired infections, in that matrix from your perspective as a water engineer?

A I think it would certainly sit within the yellow/amber area. It's interesting that the definition of the table and the principle of this is RAG rating, which is red, amber and green. It's meant to represent traffic lights. I've never yet seen a four lighted traffic light. Although it is not uncommon, and I am aware that, within the industry, additional colours have been added to, to indicate risks even greater than extreme. So, all of these things are sliding and subjective, but I, if pushed, would certainly have ranked the water systems at the time of occupation as probably scoring a 12, but that is major impact with "possible."

Q Does that vary? Is that a whole system opinion or are you able to narrow it down to immunocompromised patients?

A If I was looking at subdividing the site down into the clinical areas, it would certainly alter it----

Q Right.

A -- in that the general area's admin offices, where nobody is particularly immunosuppressed or vulnerable, the likelihood would drop significantly.

Q So, it might well drop into the green----

A Yes.

Q -- later, but for the immunocompromised patients, might it change?

A It would push it to certainly orange and potentially red.

Q Right. If we step forward to the next time we ask you to think about, which is that moment in April 2018. We'll actually make it before the point-of-use filters come on, just for simplicity's sake. Again, for the whole system, where would you place the whole system in this back then, knowing what you know, particularly about infections and concerns around testing results and stuff like that?

A I would have said that it had a higher overall risk rating because there was more evidence to support that, in terms of the sampling results and the infections----

Q So, higher than in '15?

A Higher than in '15.

Q If you were again to narrow it down, would the sort of administrative area still be down there in the green or would they have moved as well?

A No, they would be down in the green.

Q Right, and the areas with

immunocompromised patients? Particularly, we're thinking about 2A because that was the focus at that point. Where would that have got to?

A Almost certainly 20 to 25.

Q Right. I had thought of asking you lots more complicated questions about when the chlorine dioxide comes in but actually I realised that it doesn't actually help. So I'll just ask you about it when you wrote your audit. So if we're thinking about the system at the time you wrote the audit you've just reported on, where does the system sit now for the whole system?

A For the whole hospital, I think it probably sits at a six.

Q Right, which puts it in the medium category in the middle there.

A It's medium but unlikely in terms of-- Because of the level of control measures, because of level of focus, then I personally think six would be reflective of the whole system risk.

Q Now, knowing what you know about the new system in 2A and 2B-- We should repeat the exercise. So, where would you put the 2A, 2B risk now?

A I would probably put it somewhere around an eight. So, it's more likely to have a major consequence because of the exposure risk to the individuals but it is still unlikely, in that it is-- has the precautionary measures that it has in place.

Q Then where would you put the administrative public areas?

A Probably somewhere down near to possibly-- possibly a four but in the green area.

Q How would you respond to the suggestion that this is a very vague exercise and a very, very soft exercise, there's----

A I would agree. One-- as-- as one individual doing it, it is subjective onto that individual's opinion and knowledge. The advantage of a multidisciplinary approach and trying to reach a consensus through risk assessment is that you take all arguments and all aspects and come up with a more balanced, considered opinion without prioritising one view over another.

Q Thank you. If we can now do something similar for the ventilation system, but rather than going across the whole hospital for all the different features, I think I really want to look at-- I'm not going to ask you about Ward 4B and its brief visit to the hospital because we have the views of the clinicians at the time and they left and I don't think-- that's a multidisciplinary team assessing risks.

There's no point-- You're nodding again. No point in in doing that with you. But let's look at the ventilation system of

Ward 2A from opening to decant or, if you want to take it over a slightly greater period, the ventilation system of the Schiehallion unit from opening until the new unit was built in '22. Now, are you comfortable you recollect what the ventilation systems were in that period?

A I would appreciate some background to it to refresh my memory.

Q What I recollect your report saying – and we can go to it if necessary – is that from opening 2A had BMT rooms which had HEPA filtration and various levels of other features, but the rest of the ward was not HEPA filtered, no pressure differential and 3 air changes of air, where the guidance provided 10 in some people's views. Then 6A was exactly that, but the BMT rooms in Ward 4B were available to those patients who required BMT rooms.

Now, in that context, is it possible to come up from an engineering point of view with a location for that ward in that risk matrix?

A Yes, it is possible to come up with a position, which I will do in a moment. What I would state is that ventilation in that kind of environment is only one potential route for contamination entering a clinical space. If you have HEPA filtration and, for argument's sake, the right air change rate for dilution in the room and the pressure cascade so

you've got door protection to prevent particles entering on air stream, then you have got a relatively speaking safe environment for that clinical group.

If, however, you are bringing materials in cardboard boxes that have been wheeled over the car park and into the ward area, you will get potential contact transmission from those. So airborne contamination is not only transmitted potentially through the airborne route. If we look at and-- and apologies for going slightly off topic, but if you look at HCID guidance on this very issue----

Q HCID?

A Sorry, High Consequence Infectious Diseases.

Q Right.

A So you-- they-- they categorise HCIDs into two categories: contact and airborne or pure airborne. Now, if you have contact and airborne, that is considerably higher risk than airborne alone but airborne can settle and then become contact depending upon the type of organism that you're talking about. So it-- it becomes more complex. It's not as simple as.

But, back to your question. The ventilation in the rooms that are HEPA filtered, that have the appropriate air change rates – albeit the pressure cascades and door protection were not

always present – were relatively safe environments for the patients at that time, subject to the patients having to leave those environments for treatments or people going into those clinical environments for whatever reason.

Q What about patients leaving because they're children and they're going to the playroom or the family kitchen or whatever?

A If they are well enough clinically to be discharged to those sorts of common areas across the ward, then they shouldn't be allowed to do that until such time as their immune systems are clinically assessed as being appropriate.

Q In that you are an engineer. So how do you feel comfortable about giving that view?

A I spent ten years running the SCIDs unit at Newcastle and spent a great deal of time with the clinical nursing teams and know that for the example given, play specialists used to into the rooms and do 1:1, and go to the extent of decontaminating and disinfecting, as well as, in some cases, sterilising the toys that the children were allowed to play with.

Q Right, but if we think about the areas-- If you don't know about the clinical operation of the Schiehallion Unit in sufficient detail to this question, I would encourage you to tell me. But thinking about the fact that we have had evidence of patients moving around the ward, where does the experience of the rest of the ward, the other rooms, the corridors, the Teenage Cancer Trust room, the playroom, the family's room, where do they sit if you can help us in this matrix?

A They would represent an increased risk to that patient category, in my experience, and would move more into the ambers and oranges rather than into a green session, but that is very much subject to clinical microbiological assessment rather than pure engineering.

Q Now, if we move away from 2A just to the general wards, if we think about the facts that we seem to be clear about, that the general wards in the hospital had – have still – 40 litres a second, 2½ to 3 air changes, no pressure differential, there's a small pressure differential, there's no design pressure differential and no HEPA filtration, they're not required their HEPA filtration and SHTM 03-01 6 says 6 air changes. How can you help us about understanding how the risks in those wards fit on this matrix?

A The position of any individual ward on this matrix would be determined by their clinical usage. If you had a fracture clinic – so, there are people in there with broken legs, broken arms, fractures that are repairing – then whilst it is not achieving the required standard of SHTM, which design is 6, in operation

would be 5, it is still suboptimal.

However, the risk of those individuals cross-contaminating or picking up contamination from within the space is they are relatively fit and healthy other than their broken limb. If you had a respiratory ward where you had considerably older generally patient category susceptible to infection and pulmonary issues and already suffering from an airborne related infection, then that would put it considerably higher on the risk matrix. The same environment, different clinical group means that it-- it sits different places of that matrix.

Q And that would probably be a clinical assessment by the clinicians involved?

A Yes.

Q Given that you're not a clinician, how does this conversation connect to the evidence I put to you earlier that there hasn't been a formal risk assessment of the general air change rate across the general wards of the hospital?

A It doesn't change the fact that one would be recommended.

Q Now, what I wanted to do, almost before we wrap up, was to put to you something that you've just actually just touched on. I think we want to be clear about something that I suspect is the case from listening to you and

reading your reports, but I feel it's important to nail it down. You just said that a 6-air-change system would practically produce 5.

A It would pass the standards of in use at 5.

Q Is that because the standards in use recognise that you often won't achieve the design per cent air change?

A No. A facility should be designed to achieve its stated air change rate. So we'll use a ward and say 6 air changes. So when it's fresh out of the box and brand new, it achieves 6 air changes. There is a tolerance built into SHTM 03-01 Part B for up to an 80 per cent drop in overall performance in use.

Q An 80 per cent drop?

A 80 per cent of its original design intent.

Q So drop to 80 per cent?

A Drop to 80 per cent----

Q Sorry, that would be a drop to 20 per cent, the way you said it.

A Yeah.

Q That's fine.

A Sorry. It-- it's a drop of 20 per cent, so it-- it has to achieve at least 5 air changes in terms of its overall performance.

Q How long do those drops take to come to----?

A It-- it depends and-- and there's a couple of caveats because

when we write these things we never like to make them straightforward. There are minimum air change requirements under, say, an operating theater. So an operating theatre, whilst it is designed at current standards to 22 air changes, must not drop below 18, which is not 80 per cent of 22.

There are also the requirement that if the design featured an air change rate above the minimum specified in SHTM, then it must maintain that required design standard without tolerance. So if you were ventilating a space to a – classic one – MRI scanner at 35 air changes an hour, not because of anything to do with what you were doing with the patient and not because of a microbiological risk, but because of heat dissipation within the room to protect the equipment, it must do 35 air changes at every verification.

So the SHTM standards, as specified, are minimum standards for given clinical areas. If they are designed using-- I think it's Appendix 8 within the Part A document, to be designed to above those standards, it should achieve the commissioned or validated standards throughout each verification.

Q But if it's designed below those standards, what does SHTM 03-01, any of the parts, tell us about what it should continue to deliver throughout its working life?

A It doesn't because the SHTM isn't written around "If you ignore us," to start with, what to do in future years.

Q Yes. So if we had, as we do, a ventilation system that is repeatedly designed to deliver 40 litres a second, and as Ms McCluskey explained, if you count up the number of patient patients and staff that like to be in the room, that can come to 2½ to 3 air changes, will that system, the system that's in place, will it still be generating 2½ to 3 or will it be doing anything less now?

A You would need to verify it to be able to comment on that.

Q Is there any risk that at some point in the working life of this hospital-- Well, what is the minimum standard in building regulations?

A Again, building regulations are-- are date dependent upon they are the-- the standards that were in force at the time of construction, not if any future variation takes place. However, 10 litres per second per person is the current building standard for ventilation. So-- And this is where we need to be careful that the air change rate in air changes per hour is not directly linked to the number of occupants and the litres per second. It's linked to the room size and the total air movement within that room for-- to be counted as an effective air change.

Q And so I suppose what I'm

wondering about here is that if the rooms and the system is designed to deliver 40 liters a second and the building regulation standard is 10, is there anything you can say that's evidence-based as opposed to just pure judgement about whether there is a risk that the ventilation system will, in the medium to long term, generate so little air that it becomes actually not just an infection risk debate to have, which we've had for weeks and months now, but actually just an air supply risk?

A Potentially, yes.

Q Is that something you've come across in your practice?

A Certainly.

Q Without giving away the details of which hospitals you're talking about, can you give me an example of how that might happen?

A Probably the most common time I've seen it is where a room that was designed for one purpose becomes used for something else, a store cupboard that suddenly turned into a treatment room. so it wasn't designed with any specific air change rate. It may have some or it may not, but it starts to be used for something that does have a defined air change rate requirement. That is not, I'm sad to say, uncommon.

Q Then someone will have to refit the ventilation-- boost the ventilation?

A Well, what normally happens is the Estates department receive a complaint that it's very poorly ventilated, they go out to find out what the room's being used for, there's lots of meetings and shouting and then capital investment has to be made to make the room more appropriate, or you stop doing that clinical activity in that space.

Q If we think about this hospital and if we think just about the general ward and those parts of the hospital that are sitting at 40 litres a second, which is quite a lot of it, and we look into the future, what view do you have about whether there is a point in the future where the ventilation ceases to become just a debate about infection risk and risk matrices, but actually becomes a debate about the sufficiency of ventilation for the number of patients who are in the room just in terms of air supply?

A Yes, it will, and-- and, over time, the ventilation will tend to degrade. Good maintenance and good cleaning regimes, replacements of any flexi connections that are in place, servicing of air handling plant can minimise the impact of that and can, to some extent, negate that. On most systems, you can also look to increase air movement by things like fan upgrades but that is not an option because of the design-- the base design to utilise chilled beams, because you cannot increase the airflow through

the chilled beam systems above a certain limit, which is what they've been designed to operate at.

Q So you can only go down?

A Yes.

Q Right. My Lord, I think those are all the questions I have for Mr Poplett. I'm sure there may be questions in the room, and I wonder if we might take a few minutes?

THE CHAIR: Yes. Mr Poplett, what we'll do, and you'll probably recall this, give Mr Mackintosh an opportunity to check with his colleagues whether there's any additional questions. Before we do that, can you just help me again on a very basic matter? I think you've used the word "validation" in the course of your evidence this morning. Now, I understand that word properly to be used, in the context of construction of a new building, to describe the process where the client assures itself that the client has got what it thought it specified. Now, am I----

A You are correct.

THE CHAIR: I'm right about that. The other thing, or the detail, I want your assistance on is, on my reading of SHTM 04-01, at least in the 2014 version, in contrast to SHTM 03-01 in relation to ventilation, would not seem to mention validation. Now, am I wrong about that?

A No, you are not. You are quite correct.

THE CHAIR: So I'm right about that? Thank you. Now, we'll take a break to allow Mr Mackintosh to find out if there's any other questions.

(<u>Short break</u>)

MR MACKINTOSH: I just have five questions, my Lord.

THE CHAIR: A few more questions, Mr Poplett.

MR MACKINTOSH: So, we return, Mr Poplett, to the topic of whether it's a systemic contamination or outlet-led contamination. I'm reminded that, in 2018, positive samples for concerning microorganisms and high variable counts were found in both main water tanks post-filter and also in expansion vessels in the system-- in the domestic system. Would that not tend to suggest that the problem was widespread across the whole system by that point?

A Not necessarily. The tank, yes. More so, it would indicate likely potential systemic because it could act as a seeding source throughout the rest of the system. Expansion vessels, depending upon the nature of the design of the expansion vessels, can be, in effect, dead legs or dead ends.

Q Well, these ones were. So, they weren't through-put. They were a

single point of entry.

A So, you have a single or-- a single source of contamination, proliferation, and then discharge into the system, possibly at multiple locations. But it's whether that represents a systemic colonisation or individual location colonisation.

Q When does a systemic contamination-- or, rather, is there a point when having lots of individual contaminated outlets becomes indistinguishable from a systemic contamination?

A There is, but it generally is a judgment call case by case. There is not a defined, "If you get six, it's then systemic."

Q Right. I want to ask a question about the taking of samples and what it means about whether it's local or systemic, but I wanted to make sure I heard you correctly. So, just in terms of the type of microorganisms being found, could you explain again when you flush an outlet, which-- if there are multiple different types of organisms in the sample, is that suggestive of systemic contamination or local contamination? If there are small numbers of different organisms, is that suggestive of systemic or local?

A You can have multiple organisms available or present in a local

contamination. If-- It's more about levels of concentration pre and post or other primary indicators for whether it is local or systemic.

Q So, does it matter-- if, for example, you take a sample - first flush sample - and you have multiple different types of organisms, then you take a second sample. It's the difference between the two that matters more than the sheer quantity? Have I got that right?

A Yes.

Q I want to turn to an aspect of your audit. I think I asked you this, but I want-- someone to just be clear. When you working at which wards to consider, or which parts of the hospital to consider as part of a review of maintenance records or any other part of the audit, were you picking specific wards to look at or were you randomly selecting?

A Randomly selecting.

Q How do you do the random selection?

A You look at the files or you flick through the computer records and you pick which ones to hold on and examining---

Q So, you're effectively ticking boxes on the spreadsheet?

A Yeah.

Q When you say it's random, it literally is just click, click, click, click, click?

A Pretty much.

Q You don't think about it at the time?

A Not consciously.

Q This is a part of your idea you're looking for the whole system? Right.

A Yes.

Q I've been asked to put to you that there-- Well, firstly, did you see maintenance records for chilled beams?

A Yes.

Q Would you have seen the maintenance record for chilled beams in the cystic fibroisis ward?

A I couldn't answer that. I don't know.

Q But your system for selecting which maintenance records for chilled beans to look out was random?

A Yes.

Q Once you saw 10 per cent, did you look for any more or would you have gone out to look at them on the ground as well?

A No. If-- If-- I started by looking at the risk assessment method statement advice notes for the maintenance. I then got the individuals who I was talking to to describe how they did it, the process, made sure that what they were doing matched the instructions that were being given. I then sample checked the maintenance records to demonstrate that they had done them.

When it came to chilled beams, there is comment in the audit that, operationally, there were times which were challenging to gain access because they required patients to be moved out of a room whilst the chilled beam was serviced and cleaned, or they deployed an access arrangement, which is a device called a HEPA cart, which involves providing a HEPA filtered airflow in an enclosure whilst they undertake the maintenance to prevent anything that is being cleaned out of the chilled beam being released into the patient environment.

Q So, effectively, you clean into a big bag.

A It's a bag that you put a person into, and they go up a set of steps, and the bag has a HEPA filtered fan arrangement, so it-- yes----

Q So----

A You're working inside a vacuum cleaner to clean----

Q So the cleaner and the ladder are all inside the bag?

A Yes.

Q We went and looked-- to discuss risk, and I've been asked to put a particular risk to you. I don't know whether you can help us. If you think about-- what's your familiarity with the risks in terms of ventilation? Are those to

cystic fibrosis patients?

A Limited, I would say.

Q Are you able-- comfortable about placing them in a-- we've discussed different sorts of risks. So, you discussed risk to immunocompromised patients, you discussed risk to people who have broken their legs, you discussed the people in respiratory wards. Are you comfortable about placing cystic fibrosis in that-- patient in that sort of continuum?

A As a non-clinician, I would classify cystic fibrosis patients likely to the "high" end of the risk category and similar to severe immunosuppression.

Q Have you got any concerns about the placement of cystic fibrosis patients in the ward with the general two and a half to three air changes and chilled beans?

A I don't feel, as an engineer, that that is an answer I can give.

Q Thank you. My Lord, I have no further questions from around the room. I'd like to thank Mr Poplett for his help to the Inquiry team.

THE CHAIR: Can I repeat that, Mr Poplett? Not only in your attendance to give oral evidence, but in preparation of reports and the investigation that has gone in behind these reports, we're very grateful for that assistance. However, you're now free to go with the thanks of the Inquiry.

THE WITNESS: Thank you.

THE CHAIR: Thank you.

(<u>The witness withdrew</u>)

MR MACKINTOSH: My Lord, the next witness this afternoon is Mr Best. I don't know whether we'll want to start a little bit later.

THE CHAIR: I think so. I would have thought that we could accommodate the witness even with a quarter past two start.

MR MACKINTOSH: Yes, that'll be fine.

THE CHAIR: Yes. Well, we'll sit again at 2.15.

(<u>Adjourned for a short time</u>)

THE CHAIR: Good afternoon, Mr Connal. Our witness for the afternoon is Mr Best.

MR CONNAL: Mr Jonathan Best.

MR BEST: Good afternoon.

THE CHAIR: Good afternoon, Mr Best. I'm sorry we're starting a little later than was probably advised to you. It was a reason of time taken in the morning.

Now, as you appreciate, you're about to be asked questions by Mr Connal, sitting opposite you. But, first, I understand you've agreed to take the

oath.

MR BEST: Yes.

Mr Jonathan Best
Sworn

THE CHAIR: Thank you, Mr Best. Now, I don't know how long your evidence will take. You've been scheduled for the afternoon, but if at any stage you want to take a break, please feel free just to give an indication and we can take a break. Now, Mr Connal.

MR CONNAL: Thank you, my Lord.

Questioned by Mr Connal

Q I have quite a few questions for you, Mr Best, and of course I have questions that have been suggested to me by other parties that I need to put to you, and there may be some more later on. First of all, the formal question, you've produced a witness statement. Are you content to adopt that as part of your evidence?

A I am.

Q Thank you. Then the next question is this: have you done your best to assist the Inquiry by answering the questions as fully as possible?

A I have.

THE CHAIR: Can I take it the choice of words is your choice of words?

A They are, yes.

THE CHAIR: Thank you.

MR CONNAL: Now, I'm going to use the witness statement as a sort of guide to topics and where we've got to, not always in a logical, chronological order but nevertheless that's what we'll do. On the first page of your witness statement, which is on page 135 of the witness bundle, I see you set out the post you held. Perhaps most significantly for our purposes, either COO or interim COO----

A Yes.

Q -- from a date in 2016, and then you were asked, "Well, what did that mean?" and you said, basically, you were responsible for all the acute services----

A Yes.

Q -- and reporting directly to the chief executive. Is that right?

A Yes, that's correct.

Q Now, just in light of-- Sorry, let me restart that question. I'm not going to ask you about everything in the witness statement – we have the witness statement and we can all read what's said – but I do want to ask you one or two things.

If we go on to page 136, in Question 3, you were asked what I suspect is not a very good question because it's got a lot of bits to it, one of which is focused on the procurement of the hospital, to which

your answer is, “I was not involved in the procurement process for the new hospitals.”

A Yes.

Q Now, there are a whole series of other questions asked in Question 3 and, as far as I can see, apart from a brief reference to the Project Management team being responsible for procurement, the rest of it is answered by a single sentence at the bottom:

“Any changes or issues would be taken through the appropriate governance group as noted in the published structure.”

A Yes.

Q It might be suggested to you that that’s not a particularly helpful statement put in that way. Do you see the point?

A I do-- I do see the point, yes.

Q If I go on to 137 – and this arises from something that we were touching on with other witnesses very recently – you were asked about informal or formal meetings outwith the structures, and what you mention is:

“The Project team established a governance/meeting structure, which reported into the Board Governance structure as published.”

Now, two questions about that. Is that something from within your own knowledge, if you weren’t involved in the procurement, or is it something that’s simply been reported to you?

A No, it’d be general knowledge from at the time because I’d been in a different role, papers would be published, structures would be agreed through the Board process. So, for example, I think there-- I recall there are-- there were proposals about the project governance structure with various organograms, which would have needed to be approved by the Board’s governance arrangements and they would be pretty common knowledge to all the directors, those who were less involved and those who were heavily involved within the-- the new hospital project.

Q The reason I ask is that we’ve seen the organograms, and I’m not going to unearth them again for us, but one of the issues that did arise is there was a box marked “Project Team,” and there didn’t seem to be any formal minuting process like is sometimes found in other structures where, you know, Group A meets, minutes are produced and then they are passed on up the line----

A Mm-hmm.

Q You were very dependent on what the project director told anybody in some form. Now, do you know anything about that or not?

A I don’t think so because I think, up until-- I was the chief executive at

Yorkhill and then moved to director of regional services and I think the only service that we were moving was the renal service from the Western Infirmary into the new hospital. So I would have limited involvement in some of the-- the bigger issues around structures and-- and meetings, etc., but I would have been involved in some, but I would have expected minutes to be taken.

Q Again, it's quite often easy to blame a poor question. If we look further down that page, Question 7:

"What procedures were put in place by the Board to ensure monitoring, progress and resolution of issues related to [the list of topics had taken place]?"

You say, "Well, all progress was reported through the agreed system." Now, it probably doesn't tell us very much about how the system operated to make sure that matters were resolved once they'd been raised. Again, do you see my point?

A I do see your point, yes, and I would have expected anything of significance to go through the agreed product structure to the management structure and, if there was something that required a Board-- either knowledge or decision, that would then go to a formal public board meeting or a private session of the Board, should there be any commercial-sensitive information

involved.

Q At the foot of page 137, again, I suspect the drafting is deficient. Basically, what the questioner is trying to find out is, when you were told that a decision had been taken-- if you ever were told a decision had been taken to build this hospital with air change rates that match government guidance.

Now, your answer to the question as put was, "Well, I wasn't involved in the procurement process," but were you told about that at some point?

A No.

Q Not at all, even when you were chief operating officer?

A I think my first involvement in air changes and issues were when problems arose later on in my career.

THE CHAIR: What time would that be?

A Going back to my roles and remits, there's a-- there's bit you'll see when I was interim chief operating officer or chief officer----

THE CHAIR: Beginning in 2016?

A Yes, and it was a slightly complex issue because the then chief operating officer had several long periods of absence due to illness and then I was asked to step in on several occasions. So, during these occasions, I would be picking up issues and picking up problems that had to be dealt with that

would have been part of that person's remit.

THE CHAIR: So, going back to the question, when did you first learn about----

A Probably when I was in that interim role.

THE CHAIR: From some time in 1916 (sic)?

A Yes.

THE CHAIR: Thank you. Sorry, Mr Connal.

MR CONNAL: No, no. (To the witness) Now, if I go on to the next section of your witness statement, which started on 138, you were being asked, as were a lot of witnesses, about the commissioning of the building and-- and validation and so on, and you pointed out that, at the time, given your position, you weren't directly involved in that process. Is that correct?

A That's correct.

Q So we come to the top of 139. Now, what you're asked there is:

"The Inquiry understand that no validation was carried out in respect of the ventilation system. When did you become aware of this? [Then] how did handover come to be accepted without it? Who was responsible for this?"

Now, you say, "Well, it's not part of my remit."

A Yes.

Q Now, I think one can readily understand, Mr Best, you're not there at the time of commissioning so it's not your job to go round and check if validation has been done but, given the issues that started to emerge, which you must have started to become aware of at least sometime in 2016 onwards, did you learn that validation hadn't been done?

A I probably did when I picked issues up and-- and, just to be clear, it was late 2016. I-- I was at the Royal Infirmary from '15 to late '16 and, early '17, began to take on the role of interim, so I would have-- I would have picked these things up as they emerged.

Q The reason I wanted to ask about it was that-- you know, views no doubt can differ but, on one view, not doing validation at all was a significant issue and one that some might suggest you, as either interim or otherwise chief operating officer, would want to get to the bottom of. Did you manage to do that?

A Not personally, no, because, at the time, I would expect the project director and those with technical and those charged with the commissioning and validation to be reviewing what has happened and reporting into the management process to see what went wrong or if anything went wrong.

Q Well, I can understand you're not doing it----

A Yes.

Q -- you're not the guy who's----

A Yes.

Q -- digging through the paperwork to see----

A Yes.

Q -- what's happened but, as chief operating officer, is it not the kind of thing that you'll want to know, "Well, what have you found, what's the answer?"

A Absolutely.

Q Did you do that?

A I-- I can't recall the detail but I would have participated in discussions, updates and meetings about that and-- given the-- the importance of maintaining patient safety and patient services during that time.

THE CHAIR: With whom did you have these discussions?

A Well, there'd be normal discussions in management meetings, information provided to the-- the operational side of the service. If they're moving into an area or something had gone wrong with an area, it might be part of the snagging, etc., so everyone worked pretty closely together on these things on an operational side.

THE CHAIR: Do you have a recollection of discussing this specific matter – that's the absence of validation of the ventilation system – with anyone?

A No.

THE CHAIR: A recollection?

A No.

THE CHAIR: No. I mean, it is understandable after some time that you may not recollect things. If you can't recollect things, please tell us.

A Yes.

MR CONNAL: Probably well-illustrated by the next question, Mr Best, because, if you can't remember something or you can remember it only generally but not in detail, we need to understand that to understand your answers because, in the next-- you were then asked another question about handover.

Now, of course, you're telling us that you weren't the person in charge at the time of the handover of the building, which took place in January 2015 with occupation in the months following that. So, you're asked, "Well, how were you satisfied that everything was as it should be to accept the cohorts of patients?" Now, your answer is:

"The Project Management Team along with relevant clinical and technical staff worked with operational staff to ensure areas being handed over were ready for occupation."

Now, in giving that answer, would I take it from your previous answers that you're simply suggesting how it should have been done, not how you know it

was done?

A That's correct. In-- In previous experience, all the relevant specialists – Technical, Clinical, etc. – would work together to a point where an area, a ward, the department was declared fit for occupation and then handed over to the Operational team to stock the ward, to staff the ward, staff the area and then there would have been agreed a time for that to become operational and accept patients. That was, or I think is, the standard way that we would be operating within the NHS, certainly when I was in post.

THE CHAIR: You do understand Mr Connal's question: there's a distinction between what should be done----

A Yes.

THE CHAIR: -- and what might have been done?

A Absolutely.

THE CHAIR: Right.

MR CONNAL: (To the witness) So, just so I'm absolutely clear, you have put that answer in on an assumption that what you thought would normally be done was being done?

A Yeah, and based on my previous experience in other roles.

Q Yes. If we go further down that page to the foot, you're asked about HAI-SCRIBE. Now, first of all, are you familiar with that concept?

A I am, yes.

Q The question was:

"Was an HAI-Scribe assessment carried out at any point regarding the proposed site development, design and planning, and new construction of the new hospital (including at the time of completion)? If not, why not?"

Now, your answer to that is:

"This would be the responsibility of ICT colleagues working with the new Project Team…"

To which the question might be, well, yes, we probably know that you wouldn't personally be involved in doing it. Do you know if HAI-SCRIBE assessments were done at any stage?

A I don't personally know, but I would have expected it to be done.

THE CHAIR: This may be really taking too much from the words you've used, but do you mean quite literally that the responsibility for carrying out HAI-SCRIBEs is that of ICT colleagues?

A Perhaps not a good choice of words, my Lord. I think there would be a team of people led probably by the ICT team working on that particular issue and producing what was required under the standard format.

THE CHAIR: I mean, if one looks at the relevant documentation, the emphasis seems to be on a project team bringing together a number of disciplines.

However, the Inquiry has heard evidence that, on occasions, not necessarily just in Glasgow, it has been seen as an Infection Prevention and Control responsibility. Now, on a literal reading of your answer, that might suggest that that was your view, but was that your view or was that not your view?

A I suppose the wording is careless and should read "Coordinated by ICT(sic) colleagues" because they alone could not do that. They would need operational colleagues, they would need other technical colleagues to feed into the standard documentation, which I don't have knowledge of the standard documentation.

THE CHAIR: I mean, the IPC colleagues might have to be advised at what stage a construction project can reach.

A Yes, yes.

THE CHAIR: Sorry, Mr Connal.

MR CONNAL: I'd like to turn to a discreet topic which has, I'm afraid, moved under our feet in the last few days, given some other evidence that we've had, and that's the move of the Bone Marrow Transplant Unit from the Beatson----

A Yes.

Q -- into the new hospital, and everything that happened about that. Just taking this very generally, the issue of why they'd moved in, had to move out, were they going to move back in again, was live over a considerable period, including the period when you were COO in one form or another. Is that fair?

A Yes.

Q Okay. Well, let's see if we can take this in sequence and understand what you know or don't know about it. First of all, the decision that it was to happen at all, that the Bone Marrow Transplant Unit was to be put into the new hospital, no one suggests that was your decision. We know there was a lot of discussion about it, and a decision was finally reached. So I don't need to worry about that point.

What I would like to ask you about, first of all, is the change order request that you signed. So, if we could have bundle 16, page 1699, please. Now, I don't think there's any issue that this is a document that you signed on 9 July 2013. Can I ask you, first of all, what did you understand the purpose of this document was?

A So, if I can go back a wee bit to----

Q Please answer the question as you think fit.

A Thank you. To the genesis of getting to this point. So, at the time of the build of the new hospital, within the Bone Marrow Transplant service, there were a

number of national and local and regional issues going on. So, national services division, who commissioned services from boards, NSD as we call them, they had an ongoing review of Bone Marrow Transplant and donor cell services, and there are-- there are minutes, and our-- and our staff from GGC, particularly the regional services director who hosted Bone Marrow, participated in that review, and that review-- I think there should be minutes from that from National Services Division from around 2013 at some point. I don't have access to systems since I retired, so I've been trying to figure this out in the-- in the last couple of days.

So, in one respect, there was a national review going on, and then, within Glasgow, at that point, regional services were only transferring the renal service, the renal transplant service, over to join Haemato-oncology on the fourth floor of the new hospital. But also, at the same, there was new accreditation work and new accreditation standards being developed by something called JC accreditation. Now, I can't remember what "JC" stands for. Apologies----

Q That's all right. We've had those initials----

A Thank you.

Q -- on a number of occasions. I can't remember either but doesn't matter for present purposes. Carry on.

A So, I believe there was work on national standards in 2012/'13, where the new standards were coming in for all health boards, and that would mean that if you're providing bone marrow transplant haemato-oncology services, you needed to be near an intensive care unit and various other services that are required for those very specialist and high risk services. So that was going on at that time and, also at that time, the clinicians were concerned with the fact that services were moving to the new hospital, that there was new accreditation requirements, and that they were trying to provide a service, and there was a-- only a high dependency unit within the Gartnavel complex.

So, all of those things combined led to a briefing paper being produced, I think, around June 2013 within the regional services directorate, or division, which was-- set out all these issues, and then I believe the issue was then taken through what they called the On the Move Programme Board, and the On the Move Programme Board was obviously for the move to the new hospital, and there was various things like the-- the bed planning was taken there, etc.

Now, there was quite a big paper taken there which, if I can recall, described all the different services – acute services – that were moving from

various sites to the new hospital, where they would go, where they would sit, bed numbers, etc., and I believe the bone marrow transplant proposal to move was included in that paper, and therefore approved, which led to the change document being signed, which would then be submitted in through the Project Team to go through their process of any changes to the-- to the facility.

Q Okay. Well, thank you for that answer. We have got a lot of material on the discussion of the----

A Yeah.

Q -- reasoning behind the move. I think what I was just keen to understand was perhaps the last part of your answer. When you signed this, what did you think you were doing by signing it? What was the purpose of signing this document?

A So, the purpose was that, clearly, this was not intended to be transferred initially to the new hospital. So, therefore, there's an agreed change control procedure, and if there are any associated costs or any changes that require further discussion or planning, then this was the starting point. So, after that, the detail would then have to be done, the work between the service and the Project Team and the contractor to then provide the final planning and all the associated risk assessments, etc., to then create the service that was required.

Q So, if we just try and get the timing. You're sitting somewhere and someone says, "Okay to sign this," you go, "Yes," you sign it. Where did you think it was going?

A Well, I think I didn't just say it's okay to sign it. I think we had all the previous documentation that I described, and there was also some very detailed discussions and involvement with the clinicians involved, and Dr Jennifer Armstrong actually met with them, and there was-- there were some briefing papers prepared round about clinic-- clinical risk, etc. So all of-- all of that together, and through the governance process being approved, then led to submitting as other things. So, for example, I think, trying to remember correctly, that the infectious diseases service moved to the new hospital. Wasn't originally planned to move. It would have-- would have had to have a similar directorate change control form signed to then go to the next stage of that-- of that planning or any change to-- to the costs, etc.

Q Okay, let me just try again. Once you put your signature on----

A Yes.

Q -- this document, because this seems that this is what they would now call a wet signature, I think, what was the next step in this document's journey as

far as you understood? Who did it go to from you?

A Well, I'd assume the Project Team in their regular meetings with the contractor. Now, I don't know-- I've not seen any of these regular meetings. Would have had regular discussions about any changes that are happening to the project as the-- as the hospital was built, or if things were built, what that meant for the changes, and then similarly, within the operational side, then the team would then make the necessary planning arrangements, work with-- with the hospital project to produce the final requirements. So this was the authorisation to move to the next stage.

Q Okay. I understand that answer entirely as a matter of principle, Mr Best, that you see this as the start of a process.

A Yes.

Q We've had----

THE CHAIR: Can I take a step backwards? My understanding of the timescale is that Dr Armstrong and Ms Grant made a presentation to the GGC Board in relation to this proposal, and got the agreement of the Board to locate what was a national service in the Queen Elizabeth. Have I got that step right?

A So----

THE CHAIR: Or am I wrong?

A No, no----

THE CHAIR: Sorry, Mr Connal. Just so I understand the timescale.

A You're not wrong but there was----

THE CHAIR: I mean, tell me if I am.

A The-- It was the-- When the national part of the bone marrow service-- The donor matching part was national. There was still regional transplantation and haemato-oncology as part of this package going over, and I think it was from B7 or-- I can't remember the exact words, in the Beatson but, yes, this was-- this was mainly the national programme that was going to be located there, but with some of our original programmes as well.

THE CHAIR: I'm grateful for that correction, and the reason that your signature appears in this document is that, at that time you were the regional director----

A Yes.

THE CHAIR: -- and therefore responsible----

A Yes.

THE CHAIR: -- as I would understand it, for services that GGC was providing beyond its own borders, both regionally and nationally.

A Yes.

THE CHAIR: So this was about the relocation of a service which you were responsible for.

A Yes.

THE CHAIR: Right. Mr Connal.

MR CONNAL: If I can pause on this document for a moment. I can see, in one sense, why there's a section headed "Business justification," although, on one view, that's of no interest to the contractor or the Project Team. They only know what they're being asked to do, and one can see there:

> "Business justification...
> (1) to move national unrelated donor bone marrow transplant program and regional related donor program (and potentially [another one]...
> (2) to meet accreditations ... standards..."

Which are the kinds of things that you've touched on. So, who drafted this document? Did you draft it?

A No, I think it was probably-- been drafted by the-- the planning manager for regional services.

Q Right. The next question I have really focuses on what's above the words "Business justification," because obviously you've got, as a regional service, considerable experience in the Beatson of, for instance, the kind of environment that you need to protect the vulnerable patients, the specifics of that, every detail, which no doubt was gone over in the Beatson. Now, do you know if thought was given to recording the protective environment requirements on this document?

A I don't think so. I would probably think that would be further detail that would need to be either produced or worked up based on what we had at the Beatson and what we were moving to. So, I think the director of change control procedure was a fairly standard form at the time, that was used for many things. So, I presume that's why there is-- there is not a lot of detail in this. It's the high-level issues----

Q Well, that's what I was going to ask you about. Sorry, I didn't mean to interrupt your answer there but, if you look, I think it says "Description of change," and then a further description, then a series of numbers. Could we just expand that a little bit for me as much as anybody else?

Now, one can understand if this form had said, "We're moving the BMT Unit. It's going in space X. Details to be discussed or worked up or covered by a design but," in fact, you get everything here from a, you know, "Form a breakthrough at Wheelchair Bay ... add Hold-open, fire door ... two further fire doors," and so on, which doesn't, at least on the face of it, match the notion that this was a general start a process with details to be worked out. It looks as if

there's a whole list of almost fairly minor details listed there. Do you see the point I'm making?

A No, absolutely, I see the point, yes.

Q Did you understand the point at the time you were signing the form?

A I can't recall specifically questioning any detail, but having looked and-- and been aware of the-- the more strategic papers towards this, this is-- this is where it came to and probably some of the planning team might have added some of the detail in there, but I can't, hand on heart, say that I questioned that particular-- or those particular minor issues at the time.

THE CHAIR: My fault, because I interrupted, Mr Connal. Were you asked the question, "Where does this form go after you sign it?"

A I'm-- I'm not sure where it went, my Lord, but I would assume that this would go through the-- if-- and presented to the Board and approved. And if it's gone through the On the Move Project Steering Board, then it would be handed over to the Project Team to work with the contractors and then we would bring the Operational Team in to work on the detail. Well, I'm not quite sure. I can't honestly say that I know, I knew, or can remember the process of where the change forms went to.

THE CHAIR: Right. That does raise the question, are you signing a document that you don't know its function of?

A No, I-- I knew its function. What I'm saying, I can't remember where-

---

THE CHAIR: Where precisely it went?

A -- where precisely, which part of the governance structure it went to next.

THE CHAIR: Right. Without any background information, and I'll be corrected if I'm wrong about this, this might be a two-stage document and the first stage is seeking financial approval internally within the GGC structure and that approval having been given, it is then-- or maybe sent to the contractor. Now, I may be entirely misconstruing this document but that would be my reading. That may not be a universal reading, but can you help me with this?

A So I think two further points to that. Firstly, and-- and it's a minor point in terms of the financial side of it, because it's a national service, National Services Division, NSD would be involved because they-- they provide the funding via all the health boards on a proportional basis of use for the National Service on an ongoing basis. So that part of the funding would be-- from other boards'

part would be from-- from GGC, apologies.

THE CHAIR: Right. No, that's useful----

A Yeah.

THE CHAIR: -- because I think up to this point I'd rather assumed that it was, as it were, a request for funding which would have to be met by GGC----

A Right, right. Yes.

THE CHAIR: -- but you correct me on that.

A Yeah. And just to conclude that, my Lord, the National Service Division would have an oversight of the service and would monitor standards, monitor performance, etc., and we would meet with them on a regular basis and with other boards about that.

MR CONNAL: Well, I wonder if I can just ask a question about this.

THE CHAIR: Mr Connal, maybe I should just hand back to you. As I say, just as I haven't-- Well, I'll hand back.

MR CONNAL: Okay. One of the questions I was going to ask you, Mr Best, was, okay, so a lot of talk has taken place; a decision has been made; the justification of the decision has all been laid out; you're asked to sign a form that you think one of the planners has probably filled up. What did you then do to ensure that this possibly quite important change was properly done?

A Well, the team at the Beatson then would-- would work with-- hopefully work with the Project Team and the-- the contractors to bring together all the detailed planning and then start the-- a process of trying to build up what was required to move the service in to make sure it was safe and functioning well.

Q Okay. Can I just come back to the question again? I understand you think the team should be doing things, but were you doing anything? Were you following up, pursuing this at all?

A Well, I'd be receiving regular reports from the general manager at the Beatson. I would be-- you know, be in discussion with-- with colleagues. I would be-- There would be reports back to regional services division, etc. So there should be, I would hope, minutes and other things on file on regular progress on this.

Q Right. One of the challenges we have – we're looking back a fair old way now – is that if you read the piece of paper we have in front of us----

A Yes.

Q -- just as it stands, what it says is, "Changes to Haemato-Oncology and Renal." Now, it's what we're now calling "4B" and the two isolation rooms and the renal high dependency area and there's a list.

A Yes.

Q So, on the face of it, it appears to be intended to be a communication saying, “Please make these changes in this area.” Do you agree?

A I can understand why-- why it appears like that with one form, but there was a whole lot of, as I described, previous papers, previous analysis, options appraisals, various things undertaken to get to this point. So perhaps having one single form doesn’t tell the whole story round about it because it’s not just done in isolation.

Q Well, no, I understand what precedes the form.

A Yeah.

Q I suppose what we’re trying to get to is if, for the sake of argument, you’re right and this is then handed to a firm of contractors, “Here’s a form signed by our director of Regional Services, description of change list,” now, at least on the face of the form, it doesn’t ask them to do anything else.

A No, I can see that. However, the-- those with the operational responsibility would then work with the-- the Project Team and-- and the contractor on the detail to work out what they-- what they needed to do. So it was a-- it would have been a-- hopefully a continuous process.

Q Maybe I could ask you, because you may have the advantage of it, have you ever seen a document subsequent to this but relating to the move of the BMT Unit which spells out all these further details that you think should have been worked out?

A I haven’t had access to any.

Q Yes. We haven’t found one.

A Yeah.

Q That’s why I’m asking just in case you remembered its existence even if you hadn’t remembered seeing it.

A But one comment I would make is that Gary Jenkins, who was the general manager at the time, is an exceptionally detailed individual and I-- I would-- I would assume or presume there would be notes and there would be correspondence available from the GGC system regarding the subsequent detailed work that was done. I’m absolutely sure of that.

Q Okay, well, I’m going to come to Mr Jenkins just in a minute----

A Yes.

Q -- because I’m trying to understand what you do or don’t know. Just to do the sequence, can I go back two pages in this bundle to 1697? Now, this is not a document with your signature on it.

A Yeah.

Q You may not even have seen it before, you know?

A Was it in the bundle? I----

Q Probably.

A Yeah. Yeah. I may have read it, yes.

Q Yes. Now, this is what's called a project manager instruction, which you can just take from me is a means by which the employer under the contract communicates to the contractor that the project manager has decided something, and this is what the decision is. And it says:

> "Further to the drawings and information previously provided by Heather Griffin [who was the assistant project manager in charge of the adult hospital] identifying changes to NSGH level 4 the Board request..."

Then it says, "Stop what you're doing, tell us how you've got, and then go and talk about the detail of the design." So far that matches what you thought would be happening.

A Yes.

Q And the date of that document-- well, actually, it's dated 2 July, which isn't entirely consistent with your change form, particularly since it says that detailed meetings commenced on 8 July, but let's leave that for the moment. I mean, you'll appreciate why I'm delaying a little bit the BMT Unit, because it became quite a big issue----

A Yes.

Q -- later on. Now, what we for the first time have been able to add to this is, as you say, Mr Jenkins, the detail man that you mentioned, he told us earlier this week that what then happened was that whether you gave him the document or somebody gave him the change order, he knew more detail was needed and, he, together with the lead consultant and his manager, went to see the Project Team chaired by Heather Griffin. He told us that he went through all the special requirements of the BMT Unit, the change rates, the pressure gradients, the need for sealed rooms, HEPA filtration, how it wasn't just the same as a haemato-oncology ward, it wasn't just a neutropenic ward, it was different and he went all over that, over a series of about five meetings. Now, that would accord, if I understand it correctly, with what you thought should have happened.

A Yes.

Q Have you ever seen any output from these discussions in any written form anywhere?

A No, not that I can remember.

Q Now, what Mr Jenkins told us was that he and his colleagues were quite satisfied that they'd laid this all out in clear terms and they'd had nobody saying to them, "No, you can't do that.

What are you talking about? You've got that wrong," or any such thing. It's no pushback, if I can use that colloquialism for the moment. Therefore, when problems arose with the Beatson, which I accept initially arose when you were in another post----

A Yeah.

Q -- he was – and I suspect he was carefully selecting a suitably calm word – perplexed----

A Yeah.

Q -- when it appeared that things weren't as he had anticipated. Now, he told us that he explained his puzzlement to various people, including you. Do you remember that?

A I can't remember the details precisely, but I-- I do remember that Gary Jenkins was concerned and raised the matter through the various managerial lines.

Q The reason I ask is quite simple because taking it as read for the moment that the whole issue of what had or had not happened with this unit and what should happen with it remained live for some years.

A Mm-hmm.

Q Can we take this off the screen now? Thanks. On the face of it, if Mr Jenkins and his colleagues-- just assume that the narrative he's given us is correct, if that's correct and he lays this all out for the Project Team, there are presumably a number of possibilities: one, he was somehow not getting his message across or their message across and they just didn't understand what he was asking for; two, they just didn't pass it on to the contractor; or I suppose, three, they passed it on to the contractor and the contractor didn't do what they were asked to do. These are the kind of possibilities that might arise, do you agree?

A Yes.

Q Now, once you're back in this hospital as interim COO, did you get to the bottom of that?

A I don't think we ever did. I can't remember any further detailed meetings about it because I think, by that time, the BMT service had moved back. I can't quite remember the dates there but-- I would have to see any meetings or any papers that pertain to that particular problem.

Q Well, I think I think what we-- We have got papers about about the options----

A Mm-hmm, yes.

Q -- for the BMT unit----

A Yes.

Q -- what was described as an "options appraisal"----

A Yes.

Q -- but that was in 2017. No decisions were taken until after that so do

you know what steps were taken to find out what had happened to what might have been Mr Jenkins and his team's clear identification of what was required?

A I don't.

Q Why not?

A Partly because I'm-- I'm unable to recall that far back, but I would need to look at any meetings or minutes there were with the Project team, with the contractor. I assume they all exist and this issue was raised.

Q Well, I suppose I just have to suggest to you that, you know, in your role, if you discovered, for instance, that-- take a silly example, Heather Griffin had written it all down and then lost her notes or forgotten to give it to the contractor or told you that they'd definitely given it to the contractor at a meeting, would you not remember?

A I mean, that-- that example's very pertinent, but I had not, or I have not, seen anything about this being discussed. There would have been lots of discussion about it because, obviously, I'd be keeping in touch with all my direct reports in terms of what their issues were, but no, I agree-- I agree with your example.

Q I'm just asking----

A Yes.

Q -- because it seems a little odd because you've got possibilities there ranging from, "Oh, here's a good case to sue somebody," to, "Here's a good case to fire somebody," depending on how it all played out.

A Yes, I know, yes.

Q We don't know but you were the COO----

A Yes.

Q -- so should you not know?

A I would know all about it, given the clinical service we've got to provide and-- and the national service we've got to provide, but I would be expecting, if there had been some sort of error or something happened within our project Department, that there would be a mechanism with the project Team, the project director, the director of estates, others say-- to tell us what has happened.

Q Yes. Well, one can see that, and it might not have been for Miss Griffin to explain it, it might have been for whoever was her immediate supervisor, someone like Mr Lowden, to explain it, but would it not be an explanation that would come to you?

A I would hope so.

Q Did it?

A I don't I don't recall receiving an explanation.

Q (After a pause) I'll move on to some other questions, if I may. Do you know if a HAI-SCRIBE should have been

done for this alteration to the plans for the new hospital?

A The BMT plan?

Q Yes.

A That would have been done as part of the-- the work with the management Team with-- with Dr Parker-- I think it was Dr Parker who was the lead clinician, would be the lead nurse, the service manager.

And if they were having these meetings with Heather Griffin and the team, then they would put a package together, which would be-- would probably have the HAI-SCRIBE and bringing in any relevant clinical experts or Infection Control experts to-- to help them but that-- that team would be tasked with putting that package together for the move, which would include things like the financial side, the staffing side, the risk side, etc., etc. That would be their operational responsibility.

Q Do you know whether it was done or are you just saying you think that's what should have been done?

A I would have-- I haven't seen the detail but I would hope it would have been done because that was a standard piece of work that would-- that would go with any of these moves.

Q I should have asked you this earlier. One of the things Mr Jenkins told us was that one of the steps they took when they were in these meetings was there were various drawings that they looked at and notes were made on these drawings about various of their requirements and they all signed them, and then, when things didn't go as planned in 2015, as he graphically put it, a decision being made to leave the new building on the same day the Queen was opening it, he was sort of thinking to himself, "I did that, didn't I?" and went and spoke to, as you say, Dr Parker and Moira Marshall, who both said, "Yes, we did that."

A Mm-hmm.

Q So he then said, "Well, that's all right, I'll call up these drawings we signed." Now, do you remember being told that he then found that these drawings had been destroyed, apparently due to lack of space?

A I don't recall being told that, but I do agree that the standard procedure at the time, and I remember this from the renal move, that the teams involved would sign the-- the drawings as they stepped through the detail of what a ward or department would look like, so I have every confidence that the team involved did undertake their responsibility and sign the drawings. That is news to me that documents were destroyed.

Q The reason we asked Mr Jenkins was we were looking to see if we

could find them----

A Yes.

Q -- for obvious reasons, because I can tell you that we haven't found any documents which record the requirements that Mr Jenkins and his team apparently laid out, and then starts to become important because you'll remember that one of the issues was the number of air change rates that could be provided. Now, Mr Jenkins says, "Well, no one told me there was a problem," so when he was having his exchanges with the Project team.

Now, on page 141 of your witness statement, if we just come back there, and there's a letter (h) there about a third of the way down. Question:

"[Were you] told by anyone that the ventilation system already planned for the hospital would not be able to provide 10 air changes per hour within the proposed adult BMT ward?"

Now, Mr Jenkins thought it should be 10 to 12, but that distinction doesn't matter for present purposes. Now, in response to the question of whether you were told, you say:

"Any issues would have been raised through the Project Management structure and discussed at relevant government meetings."

Which is perhaps not, again, the most helpful answer to-- well, were you told about it?

A I would only have been told about it if a problem arose, as we previously discussed.

Q Yes.

A In a-- In a large complex organisation, we would anticipate that those who had responsibility for technical-- for ventilation would be providing the Operational team with the relevant advice so that the-- the area could meet all the regulations.

Q Okay. So, I need to put the answer in context, if I may.

A Yes.

Q You sign the order, you think it may go to the contractor, but you understand your team should be getting in touch, and that's what Mr Jenkins said he did----

A Yeah.

Q -- to lay it all out. Were you ever----

THE CHAIR: Sorry, I may be making an unnecessary difficulty. The question takes the witness to his assumption that the document would go to the contractor. There's the qualification that he would expect those with operational responsibility to take it forward. We've heard evidence about that but those with operational responsibility I don't think-- or, pardon Mr Jenkins, I don't think he said he took it to

the contractor. Now, as I said----

MR MACKINTOSH: No, no----

THE CHAIR: -- I may be making a difficulty which doesn't exist.

MR MACKINTOSH: No, but the-- (To the witness) All I'm trying to get at in terms of context of your answer is you're the person who signs the form----

A Yes.

Q -- the form you think may be intended to go to the contractor via the Project Team or----

A Yes.

Q -- to the Project Team----

A Yes.

Q -- to progress, you're not sure about that. You understand that people beneath you in the system, like Mr Jenkins, are to have discussions with the Project team to lay down the requirements----

A Yes.

Q -- and that's what we've been told happened. Now, Mr Jenkins says no one said to him there was a problem over air change rates, so I'm just trying to find out----

A Yeah.

Q -- if you have any recollection of being told there was a problem over air change rates?

A No, I wasn't told there was any problem, and apologies for maybe too vague an answer, but I suppose, in two

levels-- one is, if there's a massive project such as the Queen Elizabeth Children's Hospital, etc., at that level, there would be expertise working on ventilation systems, etc., and then what I'm probably not saying very well is, if there was a local issue such as the change that we were going to make, we would expect that expertise through the Project team to be brought to bear and give us the assurance that, if we are designing a ward, then the facilities can cope with that. I may be not describing that very well.

THE CHAIR: No, I think I've got that----

A Yes.

THE CHAIR: -- but I'm going to take the opportunity to invite you to explain what expertise you thought was available to GGC at that point, 2013, in relation to the technicalities associated with the ventilation system.

A So, in my mind, there would be two types of expertise. There would be the expertise that the contractor appointed-- would have either subcontracted or have within their teams providing the ventilation system or whatever, and then there would be our local Estates teams with the knowledge of hospitals who could give advice if we-- who give advice on a day-to-day basis, say if there's an issue with a ward or a

department.

So, that's the kind of expertise I would assume because we would have, typically, clinician, nurse, manager and others pulling together the operational side with support from Infection Control, Microbiology, all the different expertise to get to the point where we've got a safe, suitable area or ward for patients to be accommodated in.

THE CHAIR: Were you making any assumption as to the expertise available to the Project Team other than the local Estates team and what you describe as the Operational team?

A No, I would expect that the liaison between the local Technical teams and the teams that the contractors had to build it would be taking place and that we would benefit from that expertise.

THE CHAIR: Sorry, Mr Connal.

MR MACKINTOSH: Thank you, my Lord. (To the witness) Can I just ask you another consequential question, still just sort of linked in to this? The area where the bone marrow transplant unit was intended to go, what we'll just for ease call 4B----

A Yes.

Q -- was previously intended to be occupied by a haemato-oncology ward. We asked, Mr Best-- Mr Jenkins about this because, obviously, he'd been involved with cancer treatments, and he was able to assist us by telling us that the cohort intended for Ward 4B before the BMT proposal was one from the southern----

A Yes.

Q -- ward, which was similar to a ward in the Beatson that wasn't going anywhere, the haemato-oncology ward, and I think he was asked to look at the clinical output specification, which is part of the structure used to create the employer's requirements which are part of the contract, which spelled out a lot of requirements for that ward, a lot of ventilation requirements, talk of chemotherapy and immunocompromised patients. Now, first of all, do you have any knowledge of that?

A I wouldn't have any knowledge of the-- of the original plan to move haematology because that was under the South directorate, and they would be participating in that. We had previous experience in-- when the Beatson was commissioned previous years, so therefore the local team there would have good knowledge of that and would be able to liaise with people and have that knowledge when any plans were being made.

Q Well, it may be you can't assist us then, because one of the fairly obvious things that happened here was that a decision was made, "BMT into 4B,

discussions about what we want. What's going to happen to the people that were scheduled to go into 4B? They're going to 4C." Now, on the face of it, that then creates a requirement for what Mr Jenkins at least described as a neutropenic ward under the guidance. Do you know anything about what steps were taken to arrange for an appropriate environment in 4C?

A No, I don't.

Q Is that because that wasn't part of your responsibility?

A Yes.

Q Right. I don't have too much more on 4B because we may have done it to death but can we go to 143 in your witness statement. Again, it's probably the way you frame the answer. I just want to ask about-- And there is an error in the date in question F, obviously. Now, you're asked, "How did you ensure that when the 4B people were going to arrive, everything was ready for them?" effectively.

A Yeah.

Q You say, "Well, the date's wrong," and then you say, well:

> "Before any move of patients to new wards or departments a range of assurances would be provided by the Project Team, along with clinical, estates, ICT colleagues working with the operation team..."

Is that another answer which is not based on your personal knowledge but what you assume would have happened based on previous experience?

A Previous experience, definitely, yes. Standard procedure when a new ward or department opens up, there's a range of-- things happen, such as microbiological testing, deep cleaning, testing of electrical points, etc. It's a-- It's well-known procedure within-- within the NHS for an operational occupation of a ward.

Q Now, I'll just ask you one final question about this. We know there was a lot of debate, ultimately, about what to do about the BMT Unit, should it go somewhere else, should you build a new floor, all these other options. Maybe I've asked you this already, but I'll ask you it in any event. Did you ever get to the bottom of how you got into that unfortunate situation? I'm about to say "mess" but perhaps "unfortunate situation" is a politer term, whereby you had this unit turn up and then basically say, "We're not staying here, we're going back to the Beatson," which I think most people have regarded as almost unprecedented.

A Well, I think-- I think all the points have been touched upon regarding air changes, etc., are very pertinent. But,

at the same time, a number of other issues regarding that were going, and the principle one for us anytime is patient safety, and the patient safety angle, and it may appear, as you've described it as a "mess" but ensuring patient safety, if it meant moving a ward back, it meant then mustering everyone to move a ward back, and I think that, for me, over and above everything else, that's the most important thing. Did we get to the bottom of it? Well, partly, I think, as you've described in terms of what happened with air changes, etc., you've described what happened with us designing that. But, no, I don't think I got to the bottom of what actually happened with plans, etc.

Q Now, I wasn't intending to criticise the move. I was simply intending to point out that, on the face of it, it should never have happened. You just didn't get to the bottom of that.

A No, I didn't.

Q Okay, let me ask you about something else. 145 please, the DMA Canyon report.

A Yes.

Q Now, you were asked when you first became aware of them, and you say you weren't aware of the DMA report, that's the DMA 2015 report, until 2017/'18. Can you give us any closer indication of when you became aware of it?

A So, when I-- It's correct at the-- 2015, I was in a different role, and so when I was asked to become interim chief officer, chief operating officer, I think it's during one of the periods of my colleague's illness. The-- I found out from the Board chief executive that the subsequent report – there was a first report, then there was a second report – that no action, or little action, had taken place. The chief executive took that very seriously and, as you know from some of the minutes, etc., a number of meetings were held, and the Board chief executive was very keen and very prescriptive about making sure that we resolve the actions that were required.

Now, there were a number of meetings, as you've seen from-- from the bundles of papers. There were-- There was obviously clinical meetings led by the board medical director, Dr Armstrong, but there was then the review by Mr Leiper, who is a recognised expert in these issues, and he produced his report and the external review report. The part that I became involved in was-- I attended some of these meetings. Partly in my role was, is there anything in the operational side we needed to do to support the fulfilling of the recommendations? Because much of it was to do with Estates and facilities, etc.

And then the final bit I was involved

in was when the chief executive asked myself-- I think it was Mary Ann Kane, who was acting into the Estates' role at the time; Mr Leiper; Tom Walsh from Infection Control, and I can't remember who else, to have almost a daily meeting first in the morning to look at ensuring that the actions had been implemented, or were being implemented, because, rightly so, Mrs Grant picked up the report and was making sure that that was done, and my role was to chair that small group towards the end of completing all the actions, to make sure that the actions have all been taken and satisfied the external team that were looking at it.

Q Okay. Well, first of all, if you don't mind, can I just come back to where I started----

A Yes.

Q -- when I asked you this question? I know there are lots of meetings and groups and actions, but can you help us at all by way of date of when you were first told about it?

A I think it would be sometime in 2017. What I tried to find but I couldn't find – and the team here might be able to find – is there should be regular updates on the action plan, and the dates will be in that when we started to try and finalise the action plan, I think, in 2017. I don't have access to the documents, but I did mention to folks that there should be that.

So there was an action grid based on the findings of the DMA report, and every morning, we went through them to make sure they were getting done, and then folks were tasked with going and checking what had happened.

Q I'll just add one further question to that. How did you come to first hear about it?

A I was informed by the Board chief executive.

Q Right. So, whenever it was, that was your source?

A Yes. Yes.

Q Did you know anything about it before then?

A Well, I knew the-- The actual DMA report was common knowledge at that point, but I had not any detailed knowledge of it, and then Mrs Grant obviously was very concerned, and I then received the detail and the instruction to make sure that the actions were taken-- were all followed through.

Q Just so I have it for the notes, when you say, "Prior to your communication with the chief executive, it was common knowledge," what was common knowledge?

A Well, probably that this had been discovered.

Q You've explained to us some of the things that were done following unearthing of this report, and the

identification that steps that should have been done, hadn't been done. I don't want to ask you about that particularly, but can we go to 147? Again, this may arise from misconception as to your role but, if so, please tell me. You've gone through all the different steps that were being done on that page and the previous page, and then you're asked, near the foot of page 147:

> "...what insight did you gain into the reasons behind why these recommendations were missed in the original report?"

To which your answer is:

> "The DMA Report was the responsibility of the Estates and Facilities Directorate. I am not in a position to comment on the details of why the recommendations were missed."

Well, I think the question to you might be, well, why not? You're the chief operating officer.

A Well, I suppose I'm not technically qualified with water engineering, etc., but if a task is there with actions and I'm asked to do that, then I will gather the people to do that. So, I suppose the clumsy way of saying it is that, in a senior management role, you may not have the detailed technical knowledge or qualifications, but you may be asked to chair a group to make sure that actions are implemented.

Q I'm sure we understand your point about the technical qualifications of somebody in general management, but I think the suggestion that I've been asked to put to you is that, as chief operating officer, we're not talking about the technicalities of the water system, we're talking about what did or did not happen to a report which had been produced some considerable time earlier. Now, to say in your witness statement, "I'm not in a position to comment on the details of why the recommendations were missed," it's perhaps not the answer we were expecting, if I can put it that way.

A Well, I don't know why they were missed because the-- you know, if there are ongoing water-- for example, just now, I presume there's still external people coming in to look at the water supply. I would-- I wouldn't, in a general management role, potentially see that or be responsible for that. That'd be through Estates and Facilities because I've got a large, complex organisation to run. If you see-- I mean, maybe it's a clumsy way of saying that was not in my remit. That was part of Estates/Facilities.

Q Well, but Estates and Facilities hadn't successfully dealt with it, it appears. So, does it not come up the line to you?

A Well, no, the Estates/Facilities director didn't report to the chief operating officer.

Q You didn't have any responsibility to find out how this had gone wrong?

A No, I think that was various-- I think there was various reviews and internal investigations, but that would have been commissioned through the director of Estates/Facilities, not within the chief operating officer role.

Q Let me move on, if I can. A little way to go yet. The next topic you were asked about was the decant of Wards 2A and B, which was one of the steps that was ultimately taken in the issues that you faced. I'm not going to ask you about everything in that section because there's a lot of doubt over there, and we can see how you've answered them. Question 25 includes, among its terms:

> "Why was it necessary to decant the Ward 2A/2B ... and what role did concerns that the domestic water system posed a risk to the safety of patients play in that decision?"

Now, that's part of the question you asked. Your answer is:

> "My understanding of the SBAR was to provide a situation report and proposed actions to ensure the safety of the patient cohort. The SBAR was used to assess the situation and inform decision making."

You haven't really told us there why it was necessary to decant, have you?

A No. I mean, I think there's two things here because the first part of the question indicates a briefing to the chairman, which the chairman is obviously entitled to get, and the standard form of briefing for some clinical issues, etc., would be an SBAR and I believe it's used across the NHS in-- in Scotland and beyond.

Why was a decant necessary? I think that's been well trailed, but I think the important thing is that the-- the multidisciplinary approach to this is very important and-- and something as big a decision as this because there would be Infection Control, Microbiology, Nursing, but key to it would be the clinicians who are looking after the patients because they are the ones with-- with-- who are responsible for that care and they need to have a-- a safe environment, and if they don't think it's a safe environment, we as a team together need to sit down and work out what's the best thing to do. And in this instance, the best thing to do is decant to allow the investigations to take place as to why-- why the-- the ward was

not suitable.

THE CHAIR: All that might be so, but do you provide in the statement an answer to question 25?

A Perhaps my answer's not as you would wish, my Lord, but I think----

THE CHAIR: Does it really engage the question at all?

A I apologise for that.

THE CHAIR: Mr Connal.

MR CONNAL: Well, as you say, it's been trailed with a lot of other evidence, so I won't delay on that. Can I raise a similar question? Page 149, we're talking here about a point where Ward 6A, to which people had been decanted, was then closed to new admissions and you've given reference to various points where that's recorded. Now, the first question that you're asked after the narrative there is, "What knowledge did you have of that decision at the time?" in August 2019. Now, first of all, have you answered that question?

A Sorry, whereabouts? Sorry.

Q Question 27.

A Oh, sorry. Question----

Q Question 27, on page 149, after the references to various documents----

A Yes.

Q -- and the minutes of the IMT, two questions. First question, "What knowledge did you have of that decision at the time?" Have you answered that question?

A I think I've answered the question, but I would say I did have full knowledge of-- of the issues at the time.

Q Okay. Do we see that in the answer to 27 that's recorded here?

A Again----

Q You just say you were involved in the discussions.

A Mm-hmm.

Q That's where you say it. And the question is, "Why was it made, who made it and who approved it?" And you say, well, it would "be taken after careful consideration based on clinical advice."

A Yes.

Q That doesn't answer the question of who was the decision-taker there.

A So, I suppose if-- if a ward was to be closed to new admissions, if I give a-- a simple example because this is not a simple example because of the type of patients, if there's an outbreak of Norovirus on a ward and Infection Control advise us, and the clinicians advise that the ward should be closed to new admissions, that would be done on a regular basis and probably taken at a level of a general manager or-- with clinical advice through the chief of medicine and-- and chief nurse. So there are various levels, in terms of-- of

responsibility for doing that, and there's-- there's standard procedures, and wards don't reopen until-- until the Infection Control and others are comfortable.

In this case, there was-- there was multiple discussions regarding the patients with the clinical teams and I think the-- the consensus was reached amongst us that we had to-- to close the ward to new admissions and that is not a step that's taken very lightly, given-- given the-- the severity of the illness that-- that's-- that's been dealt with.

Q Again, I can understand that it would be taken after careful consideration. When you were answering question 27, did you explain to us that this was a collegiate decision made by A, B and C? Probably not.

A Apologies if that didn't come across as-- as clear.

Q In next question, you're asked about an IMT in August 2019 about a further decant, and there's a note suggesting that a final decision will be endorsed by the chief executive and you've asked, "Well, does that mean that ultimately the decision is for the chief executive to make?" Now, as I understand it, on page 150, you say it's not "fair to assume that ward decants were decided by the Chief Executive," which perhaps isn't quite the same question. You go on to say:

> "...others worked together to reach a conclusion [but] ... Given the impact on the hospital and ongoing review of the environment it was appropriate to seek senior sign off by the Chief Executive."

So ultimately the decision would be his. Is that what you should actually saying?

A I-- Yes. I mean, we would recommend to the chief executive. And I think going back to my previous example of, in the winter, there are regular ward closures or-- or stopping of admissions. The context of all of this was a very pressurised situation where intense scrutiny of the hospital, intense scrutiny of the staff, intense-- intense press speculation and therefore it was particularly difficult for all parties, and-- and I do commend the-- the clinical teams for their-- their real fortitude during that time. So, in that context, I think it was important that the chief executive, who was briefing the Scottish Government at the time, would be party to that decision, given the magnitude of it.

Q Yes. Now, again, you may not be able to help us. On the same page, you're asked about circumstances in which you attended a meeting with clinicians who'd written to the chief executive and the director of medicine.

A Yes.

Q First of all, a simple procedural question. Why was it you and Scott Davidson who were meeting with them, not Jane Grant and Dr Armstrong?

A Well, through the line management structure, myself as chief operating officer and Scott Davidson as the deputy medical director for Acute were the-- we were the next level from-- for the director for Women and Children's, the chief of medicine, chief nurse, etc. Secondly, I have known the-- the clinical team within that area, Dr Gibson, Dr Murphy and-- and colleagues, for a long time and had a-- and also have a good working-- or had a good working relationship prior to retirement. And I'd-- I-- if it's a normal course of events, I would always, if-- if asked, go and see clinicians, go and see groups of clinicians and deal with any concerns or hear what concerns or frustrations they have. I think it's a-- a normal part of a leadership role.

Q Well, I understand all of that. I think the relatively simple question is-- I mean, this is relatively unusual, clinicians had got together and written to the two people at the top of the heap and the answer was, "Well, go and see Dr Davidson," and yourself.

A Yeah.

Q Do you know why it was put down to the next level?

A No, I think it-- I-- I don't think there's anything unusual in that because I would expect the chief executive to say, "Some clinicians have written to me," or the medical director say to Dr Davidson, "Some clinicians have written to me. Have they spoke to you or have you found out what it's about?" etc. So-- And I'm sure that Mrs Grant and-- and Dr Armstrong would have and-- and probably did meet with the clinicians and-- and did so if they thought it was appropriate.

Q Yes. I noted from your answer that you really can't recall the precise details of the meeting you then had.

A Well, the-- I mean, like all of the-- the issues that had been discussed, Dr Gibson and-- and her colleagues were frustrated and were working very, very hard and-- and were trying to do so in difficult circumstances and wanted to see what was being done. How could we help them? And also partly to listen to their frustrations because that's part of the role because we're all in a team together to try and improve things.

Q Did you get any understanding of why they felt they'd had to take this perhaps not exactly common step of writing to the chief executive?

A Probably because of the complexity of the situation and all the different issues that were occurring, but

also probably because of the length of time that things were taking, simply because of the number of investigations that were going on into-- into the-- into the building.

Q Can I ask you about a document that many other witnesses have been asked about? And I'll try and be as brief as I can. Can we have bundle 6, page 77, please? Now, this is the first page of a longish document----

A Yes.

Q -- if you remember, with lots of issues and lots of answers, some of which are repetitive. I'll go back over similar ground and I'm not going to ask you about the whole of it. Contains lots of information, including reference to a spike in infections in 2018 on the next page but, for my purpose, I wanted to ask you particularly just the one question. This is 2019. By 2019, all the management know, because you've had reports and investigations, and so on, that Ward 2A – leaving aside contractual issues, which we're not concerned with here and I'm not going to get into – had not been built as you had hoped it would be built. It wasn't what you wanted, if I could put it that way.

A Yes.

Q Is that fair?

A Yes.

Q Am I not right in saying that that's the one thing you don't tell parents in this document, that it hadn't been built in the way you wanted it to be built?

A Yeah. Well, I'm not sure why that wasn't the case. I can only think that investigations were not complete or a full story had not been-- had come to light, but we tried very, very hard to work with the parents and families through various means. And that continued through the local management team working with them at all times, but it's something that I have not thought of before since you raised it there as a question, that-- that the ward wasn't built as we anticipated.

Q Yes. You're probably aware that there's been a bit of a debate about whether the word "upgrade" is really an accurate description for what was done to 2A. But leaving that aside, there's material in here about how much money you were spending on making this the best possible environment, which of course immediately leaves somebody to say, "Well, hang on, this is just a new hospital. How come you're just spending money now creating the best possible environment?" And the answer to that is, "Well, we wanted it different, but it wasn't built in the way we wanted it," and that's not in here.

A Right.

Q Do you know why?

A I don't know why.

Q Because I think some involved in this Inquiry would suggest that that means that this was not the full and transparent communication that they expected.

A I think that's-- that-- Just to comment on that, I think you'll see from the detail here, we-- we tried at all times to give as much information as we possibly could, given the circumstances, because it was a very challenging time. There was multidisciplinary teams involved in a range of issues. We had press interests, we had political interests, lots of pressures, but trying to focus on working with the families because there's-- there's children and patients here that are really, really important in all of this, which we tried to keep at the centre.

Q Yes. Can I ask you about an entirely different topic, please? Can we see, please, bundle 8, page 67? This is an email thread which runs from pages 67 to 69. You just see at the top as a reference to "letting Jane and Jonathan know."

A Yes.

Q And I think our assumption is that's probably you.

A Yes.

Q Can we just scroll down, just so we see exactly what's on here, and it's a reference to an IMT. Can you tell us, did Kevin Hill raise this issue with you?

A I can't remember the details, but he would have because we were in daily contact.

Q Do you know whether he raised it with Ms Grant?

A I couldn't answer that. I don't know.

Q Do you know why he would raise it with you?

A Probably because he reported to me at that time and, also, we were on a daily basis supporting Kevin and his team and the clinicians to-- to run the services and, as you can see, there were IMTs, there was investigations going on and it was a very, very challenging time for them and communication on a daily basis. I would be-- I would be speaking to the chief executive many times during the day on various issues, and Kevin, the same with myself, in these particular circumstances. At other times, he would go on to his operational role.

Q I suspect the reason it was flagged to you was that-- you'll see from the foot of page 68 that an infection known as Mycobacterium chelonae----

A Yes.

Q -- which, without getting into the technicalities, is not a common or garden name that you see in reports, was found in a patient and there was a previous patient and it's a rare infection, says the note----

A Mm-hmm.

Q -- and recent water samples have tested positive for it. You remember discussing this with Ms Grant?

A I don't remember discussing it with Ms Grant.

Q Okay. Can we go to bundle 1, please, at page 330? Now, this is an IMT note. We can scroll through it if you need to, but if you would just take it from me that that includes a hypothesis. There's Mycobacterium chelonae cases. The group is working on the assumption that it is due to patients or weak staff having access to unfiltered water throughout the hospital. Now, I'm asked to put to you that, on Mr Redfern-- You remember who Mr Redfern was?

A Yes.

Q His understanding of the threshold for engagement of a duty of candor at that point had been now reached. Did you have any role in telling the Cuddihy family about this?

A I don't recall that, no.

Q Do you know anything about it at all?

A No, I would have been-- I would have been aware in my role, yes, but I believe at the time that Mr Cuddihy was in contact or was talking locally with the team, both the clinician in charge of his daughter's care and the Women and Children's Directorate Team, Jen Rodgers and-- and Kevin Hill, etc., etc. They-- they would be interacting on a regular basis.

Q Can we go to bundle 6, at page 75, please? Now, this is a letter from the chief executive to Professor Cuddihy on 27 September, a little bit later than the 3 July meeting we were looking at. Do you remember being involved in the drafting of this letter?

A I don't.

Q Now, do you not recall or do you think you were, but you're not sure?

A I probably would have seen it before it was sent out. I'm not sure at which time, but Mr Cuddihy preferred to deal with the Board chief executive and the chairman on specific issues and on a daily basis in the ward with the-- with the Ward Team, the clinician, and, as I said, Jen Rodgers, the chief nurse and Jamie Redfern.

Q We know that, or we're told that, by 3 July, there seemed to be an indication that there should be communication with Professor Cuddihy and here we are at the end of September. Now, the reason given for the delay is said to be the need to wait for typing results and also patient confidentiality reasons. Are these good reasons for that delay?

A Well, in terms of the typing results, that would be laboratories and I

don't know how long typing takes for a particularly unusual infection. That's-- that's not my area of expertise so I can't comment on that. I'm sorry, what was the second----

Q Well, I think what I'm trying to raise as a question is, you know, as you quite rightly said, these were difficult times.

A Mm.

Q There seems to have been a decision somewhere around the beginning of July that somebody needs to tell Professor Cuddihy----

A Yes.

Q -- and here we are at the end of September. He's now being told, and I'm just wondering whether you had any view on the justification for that delay?

A Well, any delay is terrible for a family if they don't know the full picture, and I know that the-- the clinicians and the team worked hard to keep everyone informed, particularly the families, and there must have been a legitimate reason because normally we would turn these things around very quickly.

Q The other reason that had been mentioned for communicating in this way was that there was some concern that nobody else should speak to Professor Cuddihy because it would cut across this communication route. That's not mentioned in the letter. Do you know why?

A No, I-- I don't recall any issues.

Q Thank you. I just want to ask you about another communication issue, if I can, one that I suspect you will indeed remember, and that's communications with two sisters called Armstrong.

A Yes.

Q Now, if we go to 153 of your witness statement, we'll see in Question 33, you were asked: "What do you recall [about] the meeting? What concerns were raised?" and then they quote, and I won't bother digging out the document, but just take it that's an accurate quote----

A Yeah, yeah.

Q -- that:

> "...confidence in the management of QEUH is now so damaged it has become very distressing to engage with it."

You're asked, "Were these concerns valid about what had happened?" Now, your answer is, you recall the meetings, meetings are sensitive, they raise a number of issues. You don't tell us what they are, but they raise a number of issues, and it was particularly difficult. Now, I thought perhaps I'd missed your answer to, you know, "Were they raising valid issues?" What is the answer to that?

A Well, I mean, that's a difficult

question to answer. I always made myself available if families wanted to meet, if they had particular concerns and I think, in this occasion, as you can see, we had other people there. Absolutely, if a family feels concerned or has concerns that they believe have upset them or is distressing, then, if they are valid, we will investigate them, we will look at them and sometimes there are a number of issues, and it was particularly distressing for the Armstrong family because of the press situation where the press were speculating, and also it was difficult because, at that point, the infections were being investigated, so they-- absolutely, it's valid for them to be-- to be concerned and to raise issues, and I would hope families would do that-- are still doing that if they are concerned.

Q Well, it may be a slightly different question.

A Yeah.

Q It's valid and appropriate for them to raise issues, we can understand.

A Mm-hmm.

Q Were the issues they raised valid ones?

A I think some of them going through the response-- the detailed-- the very long, detailed response we gave to them following other meetings and the SCI, they were correct to raise and may have been valid but these are very

difficult situations and people have perceptions and feelings about things as they see them with their loved ones, and we have to be as sensitive to that as possible, and we have to try and respond to that as sensitively as possible and try and help and resolve these issues as they come up, and I-- and I thought it was very important to meet with the family and to go through these issues.

Q Page 154, please. The top of the page, you apologise, which we know, and then you're asked, "On reflection, how might this have been dealt with differently?" Now, your answer is:

> "In hindsight I am sure some aspects of the interaction with Ms Armstrong could have been handled differently."

Well, what could have been done differently?

A I think-- I think it-- it was probably difficult for-- for the Armstrong family because we didn't have as much information as we'd hoped to have to give them because there were still investigations going on but, in any situation or any meeting with a family, you have to reflect and see what you could have done better and-- and what we could have done differently and, like anything else, I would reflect and say there would probably be things I would

have done better.

Q I mean, you----

A Again, we tried really hard to have-- to have a constructive discussion led by the family on their concerns.

Q Okay. Well, the question in the questionnaire was, "How could things have been done differently?"

A Yeah.

Q You've told us in the questionnaire answer, "Things could have been done differently."

A Yeah.

Q I was just wondering if you could tell us what these things might be.

A Well, I can't answer that just now.

Q Now, I want to ask you about your approach to people who have concerns and so on. You were asked about what's been described as a "27-point action plan"----

A Yes.

Q -- which arose from a meeting arising from a whistle blow and you were asked about that, and you answered it on page 157. Now, on 156, you're directed to a number of communications involving the others who were unhappy, Dr Inkster and Dr Peters, in particular when they were trying to resign from their roles and so on. So the first question I have to put to you is, does that not mean that you were aware when you were being asked about a meeting in October 2017 that a lot of the concerns about "Were people listening to us about the building, were people listening to us about the environment?" go way back to 2015? Were you aware of that?

A I would have-- I would have read the-- the information because, as I say, I was the director of the North sector at the time when-- when the resignations appeared.

Q Yes, but the reason I asked that is that, on page 157, you were asked:

> "Is it fair to say that the 27 point action plan comes about as a direct consequence of [this being taken to a whistle blow and a consequent meeting]?"

A Mm, mm.

Q You say, "Well, that's a matter of opinion," and, personally, you believe that staff should raise issues to the agreed line management processes within the NHS Board general management, professional management structures----

A Mm.

Q -- and you say line management and professional line management processes need to be followed to ensure resolution or not. Now, if you just read that as it stands----

A Yeah.

Q -- it sounds as if you're not an open supporter of people using whistleblowing?

A No, I can categorically say that's not the case. What I personally felt about that particular issue is that I felt we had lept, or the individuals had lept, to a confidential whistleblowing process before we had exhausted creating an action plan to solve the issues and, I suppose, going back to your other point, the matrix management system means that-- or is there because there's a professional line to the medical director for clinicians, there's a professional line to the director of nursing for the nurses, etc., and then there's a general management process where we work on the triumvirate system of manager, nurse and doctor running services, and my view is that we should go through the local groups, the local management processes, the-- the directors, their respective chiefs of medicine and chief nurses and then to chief operating officer, their-- their level and then to-- to the-- the Board. In this instance, I think it was a bit strange that we were trying to resolve something but over here there was a whistleblowing process which there was a-- there is a policy for, and is well used, and there's whistleblowing champions and a whole mechanism, confidentially, to deal with these issues. So I felt the two had got conflated at the time but the important thing was to work through the concerns and come up with an action plan and solve the issues. I'm not sure-- Am I making myself----

Q No, I understand the point.

A This is my personal opinion on it.

Q Sorry, I didn't mean to interrupt your answer. I think the point I was trying to ask was that although you may not have been in the post you were in 2017, in 2015----

A Yeah.

Q -- were you not aware that one of the complaints essentially from the whistleblowers was that they'd been shouting about this since 2015 and nothing was happening? Here you were in October 2017, and lo and behold, there's an action plan, and therefore the suggestion is made, and for your comment, well, is that not at least an indication that it took somebody to go to that stage to get things done?

A Well, I can't comment on that previous time, but I think the meeting I attended was an attempt to get all the issues out on the table, create an action plan, and then deal with it. I can't comment on the passage of time because I wasn't involved in the previous discussions.

THE CHAIR: Would I be right in my recollection that, to the extent that Dr Redding was advised of the existence of the 27-point action plan, that was subsequent to the beginning of October 2017, or is my recollection wrong?

A So, I can't remember when the meeting actually was because Dr Redding was at the meeting. So I do recall actually chatting to her after the meeting, so I can't quite remember when-----

MR CONNAL: The top of page 157 says there was a meeting on 4 October-----

A Yes, 4 October.

Q -- 2017.

A Yes. So, from that, the action plan was produced. Dr Redding was at the meeting with a range of others, as seen, and that created the action that various people were tasked to take forward.

THE CHAIR: That answer would be consistent with my memory----

A Yes.

THE CHAIR: -- that Dr Redding was advised of an action plan subsequent to----

A Yea, and----

THE CHAIR: -- or rather no earlier than 4 October.

A Well, if the meeting-- I think the action plan was a result of the meeting----

THE CHAIR: Yes.

A -- and therefore we all-- and Dr Redding and others were there, and we all agreed the actions, and that was subsequently produced, and then, as I understand, each of the actions taken forward by the responsible person. But I remember Dr Redding being at the meeting and I had to chat with her afterwards.

THE CHAIR: Mr Connal.

MR CONNAL: Can I look at 158? The question put to you, question 47:

> "In your view were Dr Peters, Dr Redding and other microbiologists raising valid concerns?"
>
> Answer:
>
> "In my personal opinion if the issues were raised and escalated via the agreed internal managerial and professional structure many of the concerns would have been dealt with at the time."

Well, firstly, you haven't answered the question. Were these valid concerns?

Well, I wasn't involved in the original raising of their concerns, so I wouldn't know if they were valid or not, but I think-- as I've said, I'm a firm believer in exhausting the agreed management

professional process before we get to whistleblowing or complaints, etc., and, again, my philosophy has always been that we have a team approach to things, and if folks are frustrated, there are people-- So, for example, if I was in the chief operating officer role at that time, I would have anticipated someone coming to me saying, "We're not happy. We've been through the local line management process, we've been through our local professional line management process. We're not getting anywhere. You're the next level. Can you help with this?"

Q So, knowing what you know now, I mean, who had failed to follow due process? Who are you suggesting----

A I couldn't comment on that because I wasn't involved.

Q No, and you're not able to comment on whether the issues that were raised and discussed at the meeting you attended were valid ones?

A Well, the issues that were raised at the meeting were real points of concern, and I think, like any organisation, and particularly in the NHS, the way we work is that a multidisciplinary team would come together, get the issues out from the people who had raised them. We've all got different expertise and we'd create an action plan and actually make sure we follow the action plan through and resolve the situation because, at the

end of the day, some of the issues are very important for patient care. So that's the way I would hope it would be done. Whether they're valid or not at the time, I cannot comment because I've just come into the role as chief operating officer.

Q You were asked the same question again----

A Yes.

Q -- as it happened later in this questionnaire at the foot of page 159. You give the same answer that you've just given now, you can't comment on the clinical issues, and when you seemingly say there, at the top of page 160, "My focus was at the meeting":

> "My focus was in attempting to ensure that all parties involved worked through the agreed Directorate General Management structure and the professional reporting structure."

I.e. not whistleblowing going through this other process.

A Well, whistleblowing is always available to every employee if they feel that everything else is exhausted, and absolutely that has to be there. They also have trade unions, they also have professional bodies, and we have good working relationships with them. The Board at the time had a whistleblowing champion and senior people who were

assigned to that role to meet people confidentially to deal with whistleblowing.

My focus as the chief operating officer for operational services across the whole of the site was to-- to ensure that, if people felt they could work through these processes, and should work through these processes, and I assume, and hope, that people would do that but if that-- if that process is exhausted, there are other avenues to go, such as whistleblowing, trade unions, etc., and that's a-- that's all part of the-- of the process.

Q I just want to put it to you because the Inquiry has a fair bit of evidence about whistleblowing and what might or might not be needed if whistleblowing is to be effective because, as you probably know, it's been a topic of various inquiries and other investigations. If you have the chief operating officer turning up at a meeting with a main focus of trying to persuade everybody to go through what you see as proper procedure, would you agree that that could be at least perceived as discouraging the use of whistleblowing?

A No. No, I mean, I think the phrase "turning up at a meeting"-- No.

Q Well, sorry, I apologise. You were present at a meeting, and you were one of the most senior people----

A Yes.

Q -- there, and your focus, as you say, was on making sure that people went through proper-- what you regarded as the proper structures.

A Well, I think that the side issue here-- the side issue here was that we needed to get the appropriate expertise in the room to deal with all the issues that have been raised and create the action plan. So, me turning up to the meeting is neither here nor there. It may have given us slightly more gravitas for us to get on with things but that's the way we deal with things within the service. So, I really need to-- I'm a great supporter of the whistleblowing process and the staff side involvement in things, and in fact I've been involved-- and was involved in many years in staff side meetings, etc., etc. So, this was a genuine attempt to get all of the issues out and get an action plan to move them forward, taking aside people's feelings about it, and if people then wanted to carry on with whistleblowing or with complaints or with the staff side, that is entirely open to people, and I fully respect that.

Q It may be my fault, but I haven't found anything in your statement that indicates you're a supporter of whistleblowing as a process, and the reason I say this-- I want to take you, almost finally, to something you say in your conclusion because what we usually

do in these statements is, in case we've missed something or there's something very important that people want to say off their own bat, we say, "Is there anything else you want to add?"

A Yeah.

Q We find that at 169 of your witness statement, and you make no doubt extremely fair points about putting patients and families first, and how long ago some of these events are. It's difficult to recall the detail. Perfectly understandable, but you don't have clinical or technical qualifications, and you've tried to build a team approach. Then you say, and I quote:

> "This has to be done through professional and general management accountability structures within the Board's governance arrangements."

Now, those are the words you've chosen to, as it were, sign off with----

A Yes.

Q -- which might suggest that, you know, that is your focus. You're not a whistleblowing champion at all. You would rather everybody just work through the system.

A I don't-- I'm sorry, Mr Connal, but I am a supporter of the whistleblowing process and staff side and professional organisations. We all work together, and I'm sure, if you asked any of my colleagues, they would-- they would tell you about what type of leadership style I have, which was very inclusive, and also many people would come to my door. So, I'm sorry to disagree with you----

Q No, you----

A -- but I just really need to make that point because I feel quite strongly about it.

Q You're perfectly entitled to give us the evidence you want to give. That's the point of you being here. Can I ask you one question, just while I'm on that page, just before-- I suspect we'll take a short break in a moment.

A Okay.

Q Do you remember the thing called the case note review?

A Yes.

Q Hardly likely to forget it.

A Yes.

Q They ultimately came up with a report which said that they thought about 30 per cent of the cases were probably linked to the environment, and a higher number were possibly linked. Do you remember that-- Sorry, we know there were some toings and froings with the director of medicine about whether they'd made errors, and there was a response coming back saying yes or no to the various points that have been raised. But when it comes to the point that the report

comes out, do you remember that being discussed at Board level?

A It may have been, and if there's minutes there-- If it's been discussed-- I presume it would be discussed at the-- should definitely have been at the Clinical Governance Committee, or the Care and Clinical Governance Committees, as it then became known, but I would need to look at the-- I'd need to look at the minutes to see.

Q So, you have no direct recollection of these discussions?

A It may have done. I'm not sure.

Q Thank you. My Lord, I'm proposing, subject to your permission, to pause now. I'm told there may well be some questions in the room, and I'm just thinking that it might be appropriate to see if I can gather these together with a view to getting concluded.

THE CHAIR: Yes. Mr Best, the procedure we're adopting is to give counsel an opportunity to check with his colleagues whether there are any additional questions that should be asked. So, if I could invite you to go back to the witness room, and we should be able to resume either with further questions or otherwise in about 10 minutes.

THE WITNESS: Okay.

THE CHAIR: So, if I could ask you to----

THE WITNESS: Thank you.

(Short break)

MR CONNAL: There are a modest number of questions, my Lord.

THE CHAIR: We have some further questions, Mr Best.

THE WITNESS: Okay.

THE CHAIR: Mr Connal.

MR CONNAL: Couple of ones around patients first, if I may. We know you were involved in communications with the Armstrong sisters.

A Yes.

Q I think we've touched on that earlier today. And you said that one of the reasons that things were so difficult for them was the press coverage that was going on at the time. Now, were you aware that one of the reasons why they were upset with the press coverage is that the press had described their mother as an "elderly lady"?

A I remember that, yes.

Q And that that information had actually come from the Board's press officer?

A That's correct.

Q So I suppose that the point is, some of their distress at least was being caused by the Board?

A That could be an interpretation. I think my interpretation, the-- the press team were probably trying to find a way of describing the patient without breaching any confidentiality and that clearly caused offence for which I-- I think I apologised to the-- the Armstrong family on the day, but clearly that's-- that's something we cannot change and I accept that.

Q Another specific point, you remember I asked you about the paper that went out responding to the issues?

A Yes.

Q And I was putting to you the point that nowhere in that paper do you put your hands up and say, "We didn't get this built properly."

A Mm-hmm.

Q Now, it's been suggested to me that in letters, which from time to time you would write to individual parents who had written in with concerns, you would use exactly the same phraseology about upgrading and spending lots of money.

A Yes.

Q And would likewise not tell them that the reason you were doing all of this was it hadn't been built in the way that you wanted it. Is that correct?

A I'm not sure that would be the motivation for the words that were used. I think what-- We were trying to reassure families who had some long associations with the hospital and indeed previous hospitals that we were tackling a problem and trying to upgrade facilities to make sure we can move people back in. So I don't recall us specifically avoiding saying that or whether we had actually found the full facts out by then, so I can't properly answer that one for you.

Q Well----

THE CHAIR: Well----

A Sorry.

THE CHAIR: My fault. I take from that answer you accept that, in individual letters to patients' families, you did use the sort of terminology that Mr Connal has drawn attention to. You make the point that you are not intentionally attempting to avoid anything but you do accept that that----

A Yes, I do.

THE CHAIR: -- terminology was used?

A I do, my Lord.

THE CHAIR: Thank you. Sorry, Mr Connal.

MR CONNAL: Well, I'm going to suggest to you that by the time of the big release in 2019, and I'm told that at least one of these letters was early in 2020, the Board had a lot of information as to what was not right with the ward and it could be perceived, I'm going to suggest to you for your comment, by parents that you were misleading them because you were

not telling them why only a matter of a few years after it opened you were having to spend lots of money "upgrading."

A I don't accept I was misleading anyone. In fact, we always try to keep everyone informed but I'm unable to answer the question, but I do not accept we were deliberately misleading anyone.

Q Can I ask you a slightly more technical question, which I hope you'll be able to answer in your position as a former chief operating officer? Was there, at the time you took office in 2016, late on, a business continuity management plan covering the Schiehallion Unit closure?

A I'm unable to recall that.

Q I think the suggestion is there may not have been one initially but there was one put in place later. Do you know anything about that?

A I can't recall.

Q We touched on a little bit in one of the earlier questions, this phrase "duty of candour." Now, I accept you've made it clear you're neither technically qualified nor a clinician, but as a senior officer at the Board at the time, what did you understand by the duty of candour incumbent on the Board?

A I mean, the duty of candour is, I think, a very important issue and particularly in wards and where patients have been treated that if something goes wrong or there's a near miss that we have a duty to inform the patients and their families, inform relatives and advise them what happened and that can take various levels of a consultant speaking to a patient or a relative on a ward round saying, "This happened," or, "Something happened to a medication dose," or something through to some more serious issues. So duty of candour is very important and I think it drives transparency for us in terms of how we do things and sometimes that can be difficult, given complex circumstances or complex issues.

Q Finally, I just want to come back to one question. Can we have 158 of the witness statement back, please? Sorry to have to come back to this, but it's clearly of particular concern to some who are represented here. At the top of page 158, you're asked the question:

"In your view were Dr Peters, Dr Redding and other microbiologists raising valid concerns?" And in fairness you don't actually answer that question. Is that correct? You don't say yes or no to it.

A That's correct, yes.

Q I think you've said today you don't know.

A Yeah. I think what I said today was that I wasn't involved at the time but subsequently I think the mechanism was

put in place to deal with these concerns, hence the production of the action plan following the-- following the meeting that we had.

Q Now, does that not suggest that they were valid concerns?

A Well, as I say, I'm unable to comment. At the time of the valid concerns, I was part of the solution to their concern. I'm sorry if I'm being-- if I'm being----

Q Well, if I've understood your evidence----

A Yeah.

Q -- the concerns were certainly being raised at the meeting with Dr Redding on 4 October 2017. Now, I think you've confirmed to me that Dr Redding wasn't told of any action plan prior to that and indeed I have inferred from your answers that the action plan was prompted by Dr Redding's concerns. Now, have I got all that right?

A That's correct.

THE CHAIR: Right. Now, what Mr Connal is, I think, raising is that the natural inference from that is that because the concerns were being responded to by action, that the Board or the officers of the Board regarded these concerns as valid. Now, is that not the inference to be drawn?

A It is the inference but the complexity of the issue for me is that--

Not the complexity. Normally concerns, when they're raised, are dealt with. I think there were two parts to this. There were the actual issues that had to be dealt with and the concerns of Dr Redding about the time taken and, etc., to deal with these concerns. So, I'm sorry for being----

THE CHAIR: Mm-hmm. Mr Connal?

MR CONNAL: Well, I just really have one follow-up to this if I may. We've got your response to that and we'll consider it with all the other evidence but if I just stick with 47, you were asked, "Were they raising valid concerns?" You didn't answer that question and then you said:

> "In my personal opinion if the issues were raised and escalated via the agreed internal managerial and professional structure many of the concerns would have been dealt with at the time."

Now, I think I have to ask you to be clear. Are you suggesting that any of Drs Peters, Redding and the others had failed to follow procedures, and if so, what?

A I don't know if they had because I wasn't involved at the time. What I would have anticipated is that it would be, as I described previously, a local management group that they are

part of, a professional group, and then the next level being the management team for their particular area and then to the senior team. I didn't see at the time any evidence of previous attempts to do that. That's what my assumption was having come into the situation late, but the important thing for me was that the issues were addressed through the action plan and we moved on.

MR MACKINTOSH: I have nothing further, my Lord.

THE CHAIR: That, Mr Best, is the end of your evidence. Thank you for your attendance and thank you for your work on your statement. You're now free to go.

THE WITNESS: Thank you very much, my Lord.

THE CHAIR: Now, we will conclude for today. We resume on Tuesday with Mr Mackintosh and Ms Grant?

MR CONNAL: Correct.

THE CHAIR: Right. Well, can I wish everyone a good weekend?

(Session ends)

16:45