

**Scottish Hospitals Inquiry**  
**Witness Statement of**  
**Kerr Clarkson**

**Introduction**

1. My name is Kerr Clarkson. I am currently employed by NHS Greater Glasgow and Clyde ('NHS GG&C') as one of three Site Managers for Operational Estates primarily looking after building and water management.
2. The Scottish Hospitals Inquiry (the 'Inquiry') has asked me to provide a written statement in preparation for the Glasgow III hearings commencing later this year in relation to my experiences during my time at NHS GGC.
3. This statement seeks to provide that information to the best of my recollection.

**Background**

4. Below is a summary of my work experience:
  - March 2020 – to present **NHS GG&C, Queen Elizabeth University Hospital (QEUH') Glasgow Site Manager**

My current role is Site Manager for Operational Estates responsible for the delivery of patient care by the provision of effective, efficient and safe operation and maintenance of estates services, systems and budgetary resource, in compliance with statutory requirements and mandatory NHS Healthcare standards and guidelines. This covers the day to day operational activities, technical and management control of directly employed and specialist contract staff.

Primarily this covers buildings and water management, however will at time require to deal with other aspects of Estates Management due to the nature of the role/resources available.

Appointed as one a number of Water Authorised Persons in August 2018 including Darren Hopkins (Estates Supervisor). James Guthrie also attended the training and was assessed by the AE, however, does not appear to have been appointed. Scott Macer (Estates Supervisor at the time) was also appointed in February 2019.

Other Site Operational Managers are:

- Hugh Brown – Mechanical Services (including ventilation).
- Colin McKechnie – Electrical Services.

I have been asked who did/ do I work with on a day-to-day basis, and to provide details of the management/ line management structure that I work(ed) within, who was/ is my superior, who did/ do I report to, did/ does anyone report to me, if so, whom.

I work collectively as a team with the entire estates department which covers all disciplines. I report to Euan Smith (Assistant Head of Estates and who also is Responsible person for water for QEUH Campus).

Currently I have three Managers reporting to myself:-

- Mel MacMillan – Estates Manager (Water Management). Although Mel covers Medical gas AP duties for Hugh Brown.
  - An Estates Supervisor also reports to Mel.
  - A team of NHS Plumbers reports to the Estates supervisor.
- Mark McGowan – Estates Manager (Building Maintenance).
  - An Estates Supervisor also reports to Mark.
  - A team of NHS joiners and painters report to the Estates Supervisor.
  - An Estates shift Supervisor for managing multi-trade team.

- Harry Christie – Estates Manager (Building Maintenance).
- An Estates Supervisor also reports to Harry.

All managers and supervisors manage various outsourced service providers.

- **Site Operating Manager for Mechanical services** - Hugh Brown (reporting to Euan Smith),
  - Connor Stepney (Estates Manager) for Mechanical and Ventilation and William Fenn (Trainee Manager) reports to Hugh.
  - An Estates supervisor reports to Connor.
  - The supervisor manages a team of NHS mechanical Engineers and NHS maintenance assistants.
  - An Estates shift supervisor also reports to Connor.
  - A multi-trade team (4-5) covering electrical, mechanical and plumbing reports to the shift supervisor.

All managers and supervisors manage various outsourced service providers.

- **Site Operating Manager for Electrical Services**, Colin McKechnie
  - Paul Allan (Estates Manager) for Electrical and Daniel Martin (Trainee Manager) reports to Colin.
  - An Estates supervisor reporting to Paul.
  - The supervisor manages a team of NHS electricians.
  - Two Estates Shift Supervisors also reports to Paul.

- 2 multi-trade teams (4-5) covering electrical, mechanical and plumbing reports to each Estates shift supervisor.

All managers and supervisors manage various outsourced service providers. I have been asked what water specific qualifications/ experience I hold in order to carry out this role. I have completed a City and Guilds legionella control and hot and cold water systems training course. I also completed an Authorising Engineer Assessment for Water. Over and above this I completed legionella management training in previous roles prior to working for the NHS and managed water management (including cooling towers).

- June 2018 – March 2020 **NHS GG&C, QEUH Glasgow**

#### **Estates Manager**

The role involves managing multidisciplinary activities and primarily as main contact in Estates for specific non clinical building and liaison on site with University of Glasgow. Additionally assisting Lead AP for water in certain activities in primarily the retained estate in relation to water management and latterly assisting in improving processes overall for water management including the Retained Estate and Adults and Childrens Carrying out other Estates tasks as requested including co-ordinating works as instructed such as floor/wall repairs, drain cleans and working with Infection control colleagues to achieve required repairs.

I have been asked who I worked with on a day to day basis, to provide details of the management/ line management structure that I worked within, who was my superior, who did I report to, did anyone report to me, if so, whom. I worked part of management team including Mel MacMillan (Plumbing/Water), William Madden (Buildings), Paul Allan (Electrical), James Guthrie (Mechanical Systems including ventilation), who took over from Darryl Connor (Mechanical/ventilation). Scott Macer subsequently replaced James Guthrie when he moved to another role. Darryl who was promoted to interim site Manager when Colin Purdon was promoted to Interim Sector Estates Manager. I reported to Colin Purdon.

The above had a number of supervisors and specific or multitrade or specific trade staff reporting.

All managers and supervisors manage various outsourced service providers.

I had two shift supervisors and they had 4-5 multitrade staff reporting.

I managed a number of service provider for buildings out with Adults and Childrens.

After taking voluntary redundancy I was unemployed between January 2018 and June 2018.

- April 2008–Jan 2018 **Student Loans Company, Glasgow**

**Property & Facilities Operations Manager**

The role involves managing the Property & Facilities services for eight buildings covering over 23,000 sqm of property. This includes managing 14 FTE and various outsourced Service Providers.

- Mar 2002–March 2008 **Student Loans Company, Glasgow**

**Assistant Facilities Manager**

Working for a non-departmental public body, looking after five buildings throughout the UK, employing 1200 employees, over 17,000 sqm of property and managing 17 Facilities Staff.

- Apr 2000–Mar 2002 **Rosti (Scotland) Ltd, Blantyre, Lanarkshire**

**Facilities Engineer**

Working for a manufacturer of technical plastics within a new facility, utilising modern production techniques including injection moulding machines, robots, automated assembly and painting.

- Oct 1992-Apr 2000 **Volvo Truck & Bus Assembly, Irvine, Ayrshire**  
**Facilities Engineer**  
Working within a team that looks after the day to day operation of the available facilities.
5. I hold a Masters in Science (MSC) in Manufacturing: Management and Technology from the Open University (1995) and a Higher National Certificate in Computer Studies from Ayr College (1989).

### **Water Management**

6. In relation to Water Management, Mel MacMillan was appointed as Authorised Person from mid-2018 (primary responsible for managing water) and was in place when I started. It is my understanding that a number of Competent Persons ('CPs') were in place e.g. plumbers who have completed an agreed training course and signed off to work on a hospital water system. DMA Canyon were also on site carrying out activities. Andy Wilson (Sector Estates Manager), Colin Purdon (Site Manager) and Ian Powrie –Deputy General Manager (Estates) appeared to be dealing with water management and ongoing concerns in the Adults and Childrens. Mel MacMillan was tasked by them to complete the actions in the 2018 risk assessment. Melville (Mel) Macmillan issued work requests to the Estates team to complete using our Computer Aided Facilities Management CAFM Software and also created a spreadsheet detailing completion. On completion of a work request the status would be changed by the L8 technician to completed. Mel updated the spreadsheet accordingly.
7. I have been asked to explain what, on appointment as AP, I was told about the state of the water system at QEUH/RHC and by whom. I have been asked if this is as I expected. And, if not, why not. As my role was primarily looking at other aspects of Estates Management within the retained estate (other building on site and not the Adults and Childrens) I was not aware of the condition of the water system within the Adults and Childrens. However, was told via

correspondence and meetings with Colin Purdon, Andy Wilson with Mel MacMillan about the amount of actions which were required on the QEUH/RHC water system from 2018 risk assessment. Colin and Andy tasked Mel to focus on these actions. Personally, it was concerning that a large number of issues still appeared.

8. I have been asked to describe the handover process, if any, between me and my predecessor (the former AP), and when I became to be appointed AP. Provide details of who the former AP was and describe the handover process. In general, a number of AP's for various disciplines are appointed although it does not mean they are actively carrying out or require to carry out those activities as this may only be part of a wider Estates role. In some cases Managers and Supervisors may be AP's for a number of duties. Although those duties may be required for specific activities as and when required and as and when instructed.
9. I am aware that prior to Mel MacMillan being appointed as AP for water that Tommy Romeo (Estates Manager) was responsible for water management and before that James Guthrie (Estates Manager). As Mel MacMillan was the AP for water, there was no requirement for a handover as he was still in post.
10. Other AP's including myself were there to assist when required/requested. Primarily I was tasked with aspects of the retained estate for general estates management and for water management recording any legionella out of specifications for retained estate and other tasks where instructed by my Manager (Colin Purdon).
11. I have been asked what steps I took on commencing my role as AP and at QEUH/RHC to satisfy yourself that the water system was being properly managed in respect of legionella risk. I was not tasked with managing water management within the Adults and Childrens building as this task was carried out by Mel MacMillan as AP for water, the associated team and service providers (including DMA Canyon) from June 2018. Additional AP's including myself were appointed to be able to provide support for specific activities when

required. My primarily role was managing day to day/contract management within other buildings on site within the QEUH campus.

12. On appointment as Site Manager in 2020 I started to implement processes to better manage water systems information. This included standardised reporting, actions etc together with Mel MacMillan (as he now reports to myself).
13. I have been asked to describe the CAFM system, what is the purpose of CAFM, to describe the use of the CAFM system and state if it was regularly updated; and did everyone use it. CAFM is a computer aided facilities management software used widely within Estates/Facilities industry and is a software system designed to assist in managing and maintaining facilities. A number of software packages are available globally. FM First is utilised by NHS GGC. This allows reactive works to be generated by internal customers e.g. Clinical Staff, Facilities staff, Non-clinical staff, who can raise requests via a portal on their PC.
14. This then allows Estates supervisors to allocate these to NHS staff or contractors who can access these on their PDA's (personal digital device, multi-purpose mobile phone). Reactive work requests then appear on a phone/pda to be completed. Once activities are carried out the status of these is updated to 'completed' and automatically updates in the software.
15. Planned preventative maintenance activities can be defined also with the software system and also allocated to NHS staff or contractors. These can be accessed via PDA's and follow the same completion process.
16. I have been asked whether, in my opinion, it was used appropriately. Since I started in June 2018, FM First has been the only source of raising a request for reactive works. In emergencies there may be occasions when internal customers do not raise a work request, although they would have been asked to raise one retrospectively or the supervisor would then create a work request via the software.



17. I have been asked how, if at all, could the use of CAFM have been improved. The ability to complete forms on PDA's removing the requirements for paper records.
18. I have been asked how long was information stored on CAMF for? How far back did records date? Were there any gaps that you were aware of? If so, what action, if any, was taken to address these gaps? On checking the CAFM software records go back to 2012 when the site was at the Southern General Hospital. I am not aware of any gaps since I started in June 2018.
19. I was involved in supporting Mel MacMillan including updating reports for any out of specification for legionella within the retained estate (buildings other than Adults and Childrens) and passing on reports to Microbiology colleagues. DMA Canyon were sampling water outlets from predetermined outlets (decision by others). On occasion Mel would be requested by Colin Purdon to follow up on out of speciation sample results within the Adults and Childrens. This included legionella positives on:-
- Sample date Building Floor Room Number
  - 05/11/18 – Adults 5A GENWA-031
  - 05/11/18 – Adults 9A GENW13-031
  - 09/11/18 – Adults 7A GENW5-001
  - 05/11/18 – Adults 5A GENW5-031
  - 12/03/19 – Adults 5A GENWA-033
  - 12/03/19 – Adults 8A GENW9-065
  - 01/04/19 – Adults Ground AAW-017
20. I have been asked to confirm which clinical staff I worked with, describe the working relationship. I would liaise with ward clinical staff and non-clinical staff as required and this would be either by phone, email or in person. This could potentially be anyone over the entire QEUH site. Although primarily I was tasked with managing buildings out with the Adults and Childrens. However, when the RHC Ward 2A patients were moved to Ward 6A in the Adults I was requested by Colin Purdon to assist William Madden (Estates Manager for

Childrens) in various activities including repairs to walls/floors before patients would be allowed to return.

21. Additionally, I attended regular enhanced supervision meetings/physical reviews (for 6A) led by Infection Control (documented). These meetings/physical reviews included representations from Estates, Facilities and Clinical staff.
22. The purpose of the above was to review any Estates/Facilities or Clinical issues and put in place timescales to carry out improvements. In the case of Estates this could include but not limited to repairing floor damage, wall damage, door damage, silicon damage around sinks etc.
23. The working relationship with both Clinical and Infection Control was very good with the people I dealt with.
24. I have been asked to describe the sharing of information between estates and clinical staff. And how this operated. I have also been asked if I had any concerns regarding the sharing of information and, if so, to describe these concerns, and how, if at all, any concerns were addressed.
25. Information would be shared between estates and clinical staff via email, over phone or in person or in meetings formal or informal as required. Throughout my career in Estates and Facilities Management sharing information and managing customer expectations is key to service delivery and this is the ethos I work to.
26. Additionally, from September 2018 I created spreadsheet for the retained estate for out specification for sampled from DMA Canyon, actions taken to resolve this and when they were not detected. This also included the above detail as included in paragraph 19 for Adults and Childrens.

27. The Inquiry has become aware through investigations that in around April 2018 following receipt of the 2018 DMA Canyon Report, that there was an earlier 2015 report, and that there were concerns that findings and recommendations from the 2016 had not been actioned at the time of the 2018 report.
28. I have been asked to describe my understanding and involvement, if any, in respect of this situation.
29. Neither I or Mel MacMillan were made aware of the above. Mel was tasked with completing the 2018 water risk assessment actions. I am aware from reviewing Smartsheet retrospectively, that actions were also uploaded for the DMA Canyon 2017 risk assessment and those associated actions appear to have been completed in 2018 by both Colin Purdon and Andy Wilson.
30. I have been asked when I first became aware of the DMA Canyon 2015 report. I was not aware of the report potentially until it was noted in the media and only really looked at this when analysing water history in 2021, by which time it had been superseded by other risk assessments and in particular the 2018 risk assessment as noted above which was already actioned by Mel.
31. I have been asked if I was surprised that findings and recommendations from the 2015 report had not been actioned. I was surprised as this report was a pre-occupation risk assessment. My expectation would be that these should have been addressed by the project team/contractor prior to practical handover and I would question why the hospital was handed over when certain actions were easier to complete when not occupied.
32. I have been asked what, in my opinion, based on my experience, was the impact, if any, of the 2015 report having not been actioned. On the basis of what I know in relation to water management, this could potentially have increased the legionella risk.
33. Consequently, from April 2020 I adapted this spreadsheet to include out of specification for Adults and Childrens. I have continued to evolve this

spreadsheet including chart data for sample results v's out of specifications, Planned Maintenance summaries for water and audit/risk assessment summaries.

34. I have been asked what planned preventative maintenance (PPM) was in place when my role at QEUH commenced and was it as expected. Mel MacMillan was the AP for water and manging activities from his role appointment in June 2018 and my role was primarily looking after other buildings on site within the QEUH Campus and acting as support for Mel and William Madden. Although someone may be appointed as an AP this will be only an aspect of their role. Unfortunately, I cannot comment on PPM's at the time. However, as part of a review carried out by myself and Water AE (Dennis Kelly) in 2021 we analysed amongst other aspects, the PPM completed were paper based and identified a number of gaps between 2015 and 2018.
35. I have been asked what PPM has been introduced, and by whom, during my time at QEUH and if I would have expected to see this PPM in place when I commenced my role at QEUH. It is my understanding that Andy Wilson and Colin Purdon implemented additional PPM's increasing in 2018 based around the written scheme document. As part of a review carried out by myself and Water AE (Dennis Kelly) in 2021 this details what was in place and how this developed up to 2020.
36. In June 2018 Colin Purdon requested that I create a spreadsheet to record daily (Monday to Friday) calorifier hot water temperatures and any issues to raise with Mel MacMillan to action with the onsite Estates team. This process continued until early 2020 when formal checking of the calorifiers became part of the shift supervisors responsibility via a new checklist. Mel MacMillan who was a previous shift supervisor indicated that these were always part of the role requirements amongst other checks.
37. I have been asked to confirm my understanding of what records were kept prior to making the spreadsheet. I have also been asked what concerns, if any, did I have regarding being asked to create a spreadsheet to maintain these records.

As I was not primarily involved in day to day management of water, I was not aware of what records were available. The Building Management system continually monitors the calorifiers and the supervisors would be checking this informally. My understanding was that the supervisors would add this to the shift report if any issues arose. The only concern I had was why this was required if not an SHTM requirements as it took time to complete daily although this activity was implemented regardless.

38. I have been asked if I agree with Mel MacMillan's indication that 'these were always part of the role requirements...' and if not, why not? I do agree with Mel MacMillan as he was a previous shift supervisor and well placed to make this comment.
39. In December 2020, I introduced a more detailed shift report which explicitly indicated what checks to be carried out on cold and domestic hot water along with another building and services checks.
40. I was involved in other items when required by Colin Purdon to liaise with Dr Inkster (Consultant Microbiologist) for rooms and dishwashers for taking swabs for culturing. My role was solely to take Dr Inkster to the relevant locations.

### **Ventilation Management**

41. Darryl Connor was an Authorised Person (AP) for ventilation when I started. A number of CP's were in place e.g. Mechanic Engineers who have completed a recognised training course of hospital ventilation systems and signed off to carry out works on these.
42. I have been asked what role, if any, did I play in respect of ventilation. I had no role in managing ventilation. This was carried out Darryl Connor then Jim Guthrie (Estates Manager) and then Scott Macer (Estates Manager) and then Connor Stepney (Estates Manager) together with their associated teams and service providers.

## **CL02 Additional Water Filtration Project and Water Technical Groups**

43. In 2018/2019 Ian Powrie and Mark Riddell (Role at the time was Head of Estates Operations) led on the implementation of chlorine dioxide (along with additional filtration plant and associated pipework changes). I, together with Mel MacMillan, were asked to help facilitate this implementation and met the appointed contractor (Morris and Spottiswood) and managed overnight the installation and modification to the pipework to accommodate the CL02 installation. This included CL02 direct dosing into the main water tanks in the basement, monitoring units, back up secondary units and additional dosing for hot water. This installation was agreed via the Water Technical Group following the potential of infections due to bacteria in the water system and to minimise risks in the future. I was not a member of the water technical group during their existence (with regards to the above). Primarily this was Ian Powrie and Colin Purdon who attended the water technical groups.
44. I have been asked to describe the events leading up to the implementation of Chlorine Dioxide. I was made aware via Colin Purdon and Andy Wilson that Ian Powrie was working on implementation of CL02 via water technical group due to issues detailed in above paragraph 43.
45. I have been asked what is my understanding of the potential infections and what concerns I had regarding potential infections. Through informal discussions with Colin Purdon, I became aware of potential infections in relation to water and being asked to escort Dr Inkster to various locations to enable swab tests e.g. to dishwashers. My general concern would be what was the route of transmission, if it was from water in the hospital.
46. I have been asked what was the purpose of introducing Chlorine Dioxide, and how does the use of Chlorine Dioxide minimise potential future risks. Chlorine dioxide (ClO<sub>2</sub>) is a biocide which when introduced to drinking water rapidly can control naturally occurring water bacteria such as legionella and other bacteria and is used globally.

47. Constant dosing minimises the risk of natural occurring bacteria proliferation within a water system as part of an overall risk reduction strategy which includes but not limited to temperature control and ensuring outlets are used and flushed.
48. I have been asked who took the decision to introduce Chlorine Dioxide and why it was chosen. I have been asked if I had any concerns regarding the use of Chlorine Dioxide at the time. It is my understanding that the Water Technical Group made the decision and I was not part of the group who made the decision.
49. I have been asked why was modification required to the pipework? Modifications were required to the pipework to allow the implementation of CL02 and to accommodate a third mains filtration unit (to facilitate additional resilience).

#### **NICU Sink and Tap Replacement 2019/2020**

50. It is my understanding that Ian Powrie/Dr Inkster agreed to works within NICU with modification to trough sinks and taps. Ian asked Mel MacMillan to lead on the works. However, Mel confirmed in 2021 (as there were questions from our Infection Control/Microbiology colleagues at this time) that new taps were fitted, the trough sinks were removed from the wall to allow DMA Canyon to carry out work to seal behind and new IPS panels introduced (removable panel attached to a wall). Changes to drainage were made to allow Facilities team if require to shock dose drains by being able to close a valve and allow disinfection to sit in the drain. Taps were also fitted with point of use filters.
51. I have been asked to describe the events that lead to the taps being replaced and what concerns were there regarding the taps at the time. Note : This is in the Neo-Natal building which is a separate building from the Adults and Childrens which has a separate water supply and separate water filtration. I was not involved in the works here although I did ask Mel MacMillan in 2021 to

create a report as detailed in paragraph 50. However, it is my understanding that this was in relation to potential bacteria found in this water system and possible infections.

52. To the same extent, I have been asked to describe the events leading up to the sinks being replaced and what concerns were there regarding the sinks at the time. I was not involved so cannot comment further other than what Mel MacMillan indicated on the summary written as detailed in paragraph 51.

### **Point of Use filters**

53. It is my understanding that in response to the immediate water concerns, point of use filters (POU's), were installed as additional control measure. Following an IMT on the 16<sup>th</sup> March 2018 it was agreed to install POU filters at wash hand basins, sinks and showers, to ensure filtration at 0.2 $\mu$ m. Filter locations were determined through clinical risk assessment (Wards 2A, 2B, 2C and PICU within the RHC and 4A, 4B, 4C and 4D within QEUH). SHTM04-01 guidelines indicate that POU filters can be considered to be introduced as a secondary risk reduction process. Additional POU filters were subsequently fitted to other areas throughout the Adults and Childrens and Neo-Natal building in areas agreed by Infection Control/Microbiology.
54. The reason why POU Filters are still fitted (as many hospitals do globally) is due to Infection Control risk assessment based on the patient groups, to provide filtered water at point of use as final precaution and to reduce risk of route of transmission.
55. SHTM04-01 Part A Page 28-29 indicates:-

*“Filters will also need to be changed routinely, depending on usage of the outlets. Their use, therefore, should be considered only as part of an overall regime of bacterial control to be used where the most vulnerable patients are to be treated.....Once a point-of-use filter has been installed it will require to be retained in use thereafter unless a risk assessment deems otherwise”*



56. In 2020 Mark Riddell (Head of Estates Operations) arranged with Royal Hospital for Children Management for removal of POU's from low risk outlets. It is my understanding that Mark Riddell sent spreadsheet to Gael Rolls (Lead nurse) who along with colleagues identified POU's which can be removed. In May 2020 Mark Riddell emailed myself, Sandra Devine (Director Infection Control), Melville MacMillan (Estates Manager and Lead AP for Water), Euan Smith (Assistant Head of Estates), Alan Gallacher (Head of Compliance), Gerry Cox (Assistant Director) and Alistair Leonard (Chief of Medical Diagnostics) to agree the process for removal of which Alistair Leonard agreed.
57. Subsequently Jamie Redfern (General Manager – RHC) and Melanie Hutton (Clinical Services Manager) and I were advised of the process and schedule for removal. The process was initiated with DMA Canyon who then undertook the work. If sample results were not detected for Legionella, Pseudomonas or potable (not showers) and after 3 concurrent not detected then filters were removed. If any outlets were out of specification these would continue to be sampled until no out of specification were detected.
58. In total 185 POU filters were removed. However, due to COVID no others were removed but we are revisiting this again in 2024 to initiate more removals (where appropriate, risk assessed and agreed with Infection Control and Microbiology colleagues).
59. In 2023 there were additional areas identified by Infection Control/Microbiology where the proposal was to remove POU filters based on patient groups, however there is no national guidance on how this can be achieved in large numbers although there are further plans to remove POU Filters once a process/procedure is agreed. A NHS GGC wide short life working group was set up in to look to implement this and is still ongoing via Point of Use Filter Removal SLWG Meeting.

## Water Management processes

60. One task I was given was to continue to develop together with the Estates Team the water management processes in my new role as Site Manager and to implement continuous improvement by Euan Smith (Assistant Head of Estates). This continues to be part of my current role.

## General comment

61. In my opinion due to the design of the building it has a significant impact on ability to maintain whilst occupied by patients. Also taking into consideration HAI SCRIBE requirements and that rooms require to be vacated of patients to allow maintenance e.g. access to valves for heating, cooling which can be behind ceilings or TMT isolation valves which can be behind walls which impacts on the maintenance aspects of the hospitals or water return pipes in ceilings not accessible due to other services. This may though not be any different with other hospitals or buildings however there is a requirement for appropriate access for maintenance/repair as per CDM Regs 2015, Regulation 9.
62. I have been asked to describe how the design of the building significantly impacted on the ability to maintain while occupied by patients, and to provide details and reasoning for my opinions:

**Example** - Heating and cooling isolation valves are situated above ceilings in patient rooms. If there are any issues with heating or cooling then these require to be checked for correct operation or replaced. However, this cannot be achieved with a patient in the room and room requires to be vacated. This can impact patient comfort. This could have been avoided if valves were easily accessed.

**Example** – Isolations for thermal mixing taps for sinks in en-suites are situated behind IPS (wall panels). To carry out 6 monthly or annual TMT maintenance/checks requires the panel removed. However, given the safety

precautions which require to be implemented this can only be carried out when the room is vacated in high risk wards, (to implement the HAI SCRIBE/carry out the works) and in other areas access granted. This adds additional hours to this activity which could have been avoided if isolations were readily accessible.

**Internal blinds behind wooden frames** – If these break the room requires to be vacated to allow the corridor window frames to be removed to allow access to the blind. If the external blind fails it may also require for the frame to be removed, although in most cases there is a small glass access window which may be sufficient to allow access depending on what is the issue. However, again, the patient requires to be removed from the room to allow work to be carried out under HAI SCRIBE.

63. Additionally in my opinion the design of the walls/floors, due to the adhesion of the skirting to the walls and seals in the showers, together with the different thermal properties of the materials (over the coving). this has the risk of allowing the potential for water ingress.
64. I have been asked if the design of the walls and falls as I mention above have been addressed and, if so, how, and who was involved and what was my involvement, if any. Most Estates Managers and Supervisors have been involved in replacing flooring and wall coverings and resealing as part of reactive maintenance when issues have been reported since I started in 2018.
65. Capital Planning carried out a full replacement of walls and floors in RHC Ward 2A to a new design removing the above issue, creating an overhang.  
Keith Johnstone (Estates Manager) carried out replacement of floors/walls to a small number of rooms in Adults Ward 4B (Ensuite Rooms 78, 95, 93, 82, 97 & 111) in 2022/23 with a redesign to create an overhang similar to that on RHC Ward 2A.

66. It is my understanding that the Rectification Team within Capital Planning is planning to replace wall coverings and flooring subject to budget approval through the Adults and Childrens and this included Adults Ward 4B.

**Chilled Beams:**

67. I have been asked to describe my understanding at the time of the cleaning regimes in place for chilled beams and to what extent I was involved in the cleaning regimes for chilled beams. I was not responsible for managing or cleaning of chilled beams in general as this was the responsibility of those managing mechanical systems including ventilation.
68. Darryl Connor tasked myself and a number of Estates staff from Summer 2019 to arrange an access programme to coordinate with the wards for access for cleaning of chilled beam on Ward 6A. Frequency was set at every 6 weeks. Rooms required to be vacated and cleaning carried out under an approved HAI SCRIBE by Infection Control.
69. I have been asked what specific events do I remember in relation to chilled beams. As above this was not my area of responsibility.
70. Although I was asked by Colin Purdon to accompany Dr Inkster (Microbiologist) to certain rooms on Ward 6A to look at chilled beams. I was aware there was concerns by others that these were leaking.
71. Darryl Connor also asked me to extract from CAFM the Air Conditioning issues for June 2019 this was to allow a comparison to external temperature dew point and any reported leak on CAFM system and cross reference this to work requests reported and against in plant failures.
72. The primary reason for this was to identify if there was any correlation to plant failures or high external humidity.

73. On 3rd June 2019 with regards to Ward 6A chilled beam with the fittings which were not compression fittings from build. The original fittings would leak if the primary source of heat was lost. William Madden was asked to work with Stuart McCready (Estates Supervisor) to arrange for these to be replaced. I was tasked with arranging the HAI SCRIBE document with Infection Control. This covered Ward 6A Rooms 1,7,13,17,18, 22 & 26.
- “The dew point of a given body of air is the temperature to which it must be cooled to become saturated with water vapour”.*
74. Darryl Connor arranged for the software changed on the 6th August 2019 and sent out an email indicating that *“The chilled beam Dew point control and software strategy has now been globally applied....Modifications to fixed set point control of Chilled Beam Circuit, so that the fixed set point of the Chilled Beam Circuit can be modulated to be above the dew point of the outside air humidity when the dew point exceeds the fixed set point of the Chilled Beam Circuit”.* *The fixed set point of the Chilled Beam Circuit is always to be 1'C above the outside air dew point.”*
75. This has been replicated for all the set points for all the Chilled Beam Circuits throughout the Adults and Children Hospital plant rooms.

### **Ward 6A**

76. With reference to the Estates Communications Bundle 12 – page 998 I have been asked what was my involvement in respect of the leakage of Ward 6A, and to describe the situation, my involvement and any actions taken. Specifically to the above, I was contacted from Ward 6A that water was leaking into the Ward 6A kitchen. I attended with Darryl Connor. Dr Inkster and Dr Peters (Microbiologist) attended. We attended when it was reported and arranged for the HAI SCRIBE to be implemented after approval by Infection Control to allow investigations and repairs.
77. Water was reported running out of the bottom right hand corner of the kitchen unit. On initial investigation there was water on the floor and the supply pipes

and insulation was found to be wet. When the kitchen unit was dismantled, water was found on what appears to be sawdust, which would appear to be from the original build. We also found dry sawdust. There was also paper towels and other debris which would appear to be from the original build behind the kitchen units.

78. However, what was initially perceived by others to be saturated walls, was in fact paint line finish i.e. where the builder did not paint the entire wall behind the kitchen unit to the floor. On initial viewing it showed two different colours.
79. On further investigation it was found that the Zip Boiler overflow was running intermittently and running along the sink surface and leaking down the pipes and onto the floor. Note: I was made aware that the tap was changed only a few weeks prior to the water being found on the floor and it was difficult to determine if this was leaking due to the pipe being wet. Initially it was assumed that the pipe was leaking (All tap connections were subsequently tightened). On discussions with Clinical staff (in general) based on Ward 6A, they indicated that the Zip Boiler was overflowing intermittently for only a number of weeks.
80. Under and approved HAI SCRIBE, the kitchen flooring was cleaned and an inspection hatch cut in the wall to facilitate investigation on whether there was any subsequent dampness behind the sink. Once the section had been cut out this was investigated with Estates including myself and Gillian Bowskill (Lead IPC Nurse, South Paediatrics) and no dampness was found behind the wall or floor. A new kitchen was subsequently installed.
81. Part of the works was to also remove a water dead end (a water source with no means to flush) which also had a point of use filter attached. The dead end and filter were removed as part of the works.
82. On completion of the above works and upon review by Infection Control (Gillian Bowskill) they were happy for kitchen to be handed back to Clinical colleagues. As per standard protocol the room was then cleaned by a specialist service

provider. The HAI SCRIBE risk prevention measures were then then removed from the room. Domestic staff carried out a domestic clean and DMA Canyon refitted point of use filters to the outlets.

### **Cryptococcus**

83. I have been asked to recall my understanding of the Cryptococcus infections in 2018.
84. Cryptococcus is fungi and is found in soil and bird droppings.
85. I have been asked what issues, if any, do I recall in respect of pigeons either nesting, leaving droppings or otherwise at QEUH/RHC. I have also been asked if I recall any such issues, what action did I take, or what action was taken? Did the action taken resolve the issue(s) I was not involved directly in managing these issue but became aware (via Darryl Connor) of bird dropping being found in a plantroom and pigeons outside the helideck.
86. I have been asked what were the issues with Cryptococcus at QEUH. I have been asked when I first become aware of these issues and what happened in response to these issues. I have also been asked who, if anyone, did I report these issues to. I was not involved but became aware of a number of infections via Darryl Connor in December 2018 when he asked me to help him look out maintenance records for AHU's.
87. I have been asked to describe any visits I made to the plant rooms, when did I go, why did I go at that time, and what did I see? I have also been asked what cleaning, if any, took place before the visit – if so why – and what was evidence prior to the cleaning. I did not visit any plant rooms, but I believe other Estates Managers did visit plant rooms and arranged repairs to a wall; which is my understanding was a gap from the initial build. Additionally, I was aware plant and floors were arranged to be cleaned via Darryl Connor. Our Facilities colleagues (David MacDonald – Head of FM Operations) also arranged for bird netting to be added to courtyard areas.

88. I have been asked if I recall seeing photos relating to pigeons at QEUH/RHC, if so, what did they show? I believe, Darryl Connor showed me photos of some droppings on a floor in a plantroom.

### **Water Technical Group**

89. The Inquiry stated that the water technical group (WTG) which sat between 2018 and 2019. I have been referred to Water Technical Group Bundle and Estates Communication Bundle, document 133.

90. I have been asked what is the purpose of WTG. A WTG is and can to this day be set up as short term working group to focus of specific issues or project in relation to water management.

91. I have been asked what issue/ event prompted the setting up of the WTG. It is my understanding from analysing water history that this was due to potential infections in relation to water.

92. I have been asked what was my involvement with the WTG and to detail the specific work carried out in respect of my involvement with the WTG, why I carried out this work, and what was the impact. I was not involved in the WTG between those dates (other than assisting in the CL02 installation as discussed in paragraph 43).

93. In December 2018, I was asked however to provide Colin Purdon, details of the location for where a water meter was removed and sent to Intertek (service provider) for analysis (arranged by others, however cannot confirm whom). The report indicated internal corrosion.

94. I have been asked if this was within my remit within estates. This was not within my remit to attend these meetings in the timespan noted in point 90.

95. The Inquiry have asked who was in the WTG, what were their names and their roles within WTG. I cannot comment on who attended. However, I am aware



that from an Estates perspective, Colin Purdon and Ian Powrie attended (and this was through general conversations).

96. I have been asked why was the WTG set up. It is my understanding this was due to potential infections in relation to water.
97. The Inquiry have asked me what qualifications were required in order to be chair of WTG. It is my understanding that there are no formal qualifications required to be the chair of WTG. Depending on what the subject would be a WTG could be chaired by anyone, however at minimum my expectation would be this would range from Duty Holders, Designated Persons, Responsible persons, Authorised persons for water depending on the specific subject being addressed.
98. I have been asked to discuss focus of WTG – what was the purpose – why was WTG required – what issues came to light as a result and what action was taken; what were the concerns of the WTG and how did this impact on patients? I have been referred to the Water Technical Group Bundle to assist with my answers. Unfortunately, I cannot comment on something I was not directly involved in during the dates above. I attended a number of Water Technical Group meetings in 2020 and 2021 prior to these being subsumed into Water Safety Group Meetings as it was felt there was a level of duplication at this time.

### **Water Safety Group**

99. I have been asked to refer to the Water Safety Group Bundle.
100. I have been asked to detail what is the purpose of WSG. As defined within SHTM04-01 a Water Safety Group should be set up to provide appropriate expertise, to support, co-ordinate and review operational management and controls in accordance with statutory and mandatory requirements.
101. This would be at each sector and this would then report via governance to a Board Water Safety Group.

102. I have been asked why was the WSG set up. This is a requirement of SHTM04-01.
103. I started to attend Board WSG meetings from 2021 (initially in the absence of Euan Smith).
104. I have been asked who was in the WSG, what were their names and their roles within WSG? If this is relation to Board Water Safety Group meetings this included a quorum at the meetings I attended on September 2021, March 2022.
105. This would include designated persons (Gerry Cox Assistant Director then Mark Riddell), representation from Infection Control including Designated Person (Pseudomonas), Microbiology, Health and Safety Clinical representation, Authorised Engineer – Water, Public health consultant and Responsible person for each sector, as noted in the minutes. Each would their expertise and knowledge to make decisions at the meeting.
106. Each sector would then have sector meeting led by the Responsible Person for Water for the site and report to the Board Water Safety Group Meeting. The sector meetings would include but not limited to Estates, Compliance, Infection Control, Facilities and Microbiology attendees.
107. I have been asked what qualifications were required in order to be in the WSG. It is my understanding that there are no formal qualifications required and WSG requires a quorum of experts in their field. This is a broad definition but at minimum my expectation would be this would include Designated Persons, Designated persons and Responsible persons, Compliance Managers, Infection Control Managers. The meeting would be chaired by the Designated Person or their deputy.
108. I have been asked to look through the Water Safety Group Bundle and to explain any issues discussed, my involvement and any action taken by me, and why, in response to issues raised at the WSG meeting. In particular discuss my

involvement, if any, in respect of flow restrictor replacement; and the National Water Group.

109. **August 2020** - Mark Riddell (Head of Estates at that time) appears to have been asked to contact myself to provide a copy of the Intertek report which analysed results for flow straighteners from June 2020 which were sent to Intertek for analysis to allow the Board Water meeting to agree whether the quarterly exchanges could stop. Although on reading the subsequent minutes it appears that any decision based on the report for this was passed back to the Water Technical Group Meeting.
110. I was aware before then and currently the process is still these are changed quarterly. Although in 2024 we carried out further analysis of results and Intertek indicates we could consider to lengthen the frequency for changes.
111. **September 2021** – Attended in absence of Euan Smith. Indicates that there has been some deterioration of metal supports in the tanks, due to wrong metal being used. (This has formed a basis on a SBAR for Capital planning to consider replacing these tanks).

**March 2022** – Attended and discussed:

1. Looking at implementing process for further removal of filters in the absence of any extant guidance.
  2. Working with colleagues in Microbiology for a board wide to a uniform sampling protocol across GGC.
  3. Discussed external leak to Spinal and Office block supply which Scottish Water repaired.
  4. Also looking at other potential suppliers of taps.
112. **National Water Group** – Purpose of the National Water Group is for representatives across Scotland NHS Boards to share information, experience, concerns, provide support, assistance and agree any national standardisation,

where possible. At the Water Safety Group Board Meeting in October 2020 it was recommended that I start to represent GGC at the national meetings.

113. I have been asked if this within my remit within estates. The Responsible Person (Euan Smith) was the person who attended the Board Water Safety Group Meetings, representing QEUH. I attending initially for experience and to provide support or in the absence of Euan.
114. **September 2022** - Mark Riddell asked me to chair the meetings to gain experience. Meeting was chaired previously by Gerry Cox (Assistant Director), then Mark Riddell (Assistant Director) and occasionally by Alan Gallacher (Head of Compliance).
115. I have been asked how did clinical staff and estates get along at these meetings. In my experience at the meetings I attended, everyone got on very well, with a collective approach.

#### **Decision to Close Wards 2A/B and Move to 6A and 4B**

116. I have been asked to discuss the issues surrounding and leading up to the decant of patients from Ward 2A in 2018. I was not involved in the decision to move from Ward 2A/2B to Wards 6A and 4B and can only comment generally or was I fully aware of the issues on 2A at the time. It is my understanding that Ian Powrie and Colin Purdon were involved. I may have been made aware (as would other people within Estates) of some of the issues generally through informal conversations via Colin but not the detail.
117. I have been asked to discuss the issues surrounding and leading up to the decant of patients from Ward 2A in 2018, such as the use of bottled water. I have been asked what was my involvement. I had no involvement. It is my understanding that Ian Powrie and Colin Purdon were involved.
118. I have been asked what risk assessment and additional measures were put in place to ensure patient safety, both prior to and during the move. I can only

comment generally as I was not involved. It is my understanding that new sinks were introduced initially to Ward 2A along with bringing the hot water return pipe to as close to the outlet as possible, new flushers for toilets introduced and the use of point of use filters.

119. With regards to the move to Ward 6A, it is my understanding that floor mounted Hepafilter units were agreed to be installed. Additionally, hepa-units in ceiling in en-suites (implemented by Darryl Connor via the service provider - Morris and Spottiswood). Point of use filters were fitted to all water outlets including taps and showers.
120. Additionally, I attended regular enhanced supervision meetings/physical reviews (for 6A) led by Infection Control (documented). These meetings/physical reviews included representations from Estates, Facilities and Clinical staff.
121. The purpose of the above was to review any Estates/Facilities or Clinical issues and put in place timescales to carry out improvements. In the case of Estates this could include but not limited to repairing floor damage, wall damage, door damage, silicon damage around sinks etc.
122. My only involvement was working with William Madden to redecorate and arrange various repairs to Ward 6A before occupation to satisfy requirements by Infection Control prior to occupation.
123. I have been asked what risk assessment and additional measures were put in place to ensure patient safety. See response at paragraph 118.
124. I have been asked what concerns, if any, did I have about where the patient cohort was being moved to and if so, why did I have these concerns, and did I escalate these concerns. I have also been asked with the benefit of hindsight, what steps could have been taken to progress this matter further. I can only comment generally as I was not involved, however it is my understanding that

this was risk assessed as Ward 6A was supplied via a general air handling unit and additional measures were implemented as noted in my response in paragraph 11820.

125. The Inquiry would like me to discuss and detail the works done to Ward 2A/B what was required to be done and why, what has been done and when the work was completed and include details of my involvement. I cannot comment on details of the initial works as I was not involved in Ward 2A other than what my understanding as noted in paragraph 118.
126. I can comment though on the works when the patients moved to Adults Ward 6A. Capital Planning (led by James Huddleston – Head of Capital projects) carried out a significant construction project including but not limited to new ventilation, new walls, services, floors, pipework and a specialist radiation room; which opened in 2022. My role in this aspect of the project was working alongside other representative from Estates, Capital Planning, Microbiology, DMA Canyon and Infection Control to agree and implement sampling, tap changes and analyse results. Additionally, along with the above teams we provided information (including the pre-handover water risk assessment for the capital works) to NHS Scotland Assure. This included collectively answering a significant number of questions with evidence prior to handover to Clinical Staff.

### **Declaration**

127. I believe that the facts stated in this witness statement are true to the best of my knowledge, information, and belief. I understand that this statement may form part of the evidence before the Inquiry and be published on the Inquiry's website.