SCOTTISH HOSPITALS INQUIRY

Bundle of documents for Oral hearings commencing from 19 August 2024 in relation to the Queen Elizabeth University Hospital and the Royal Hospital for Children, Glasgow

Bundle 10 - Water Technical Group / Water Review Group Minutes

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Water Review Meeting

Held Friday 6th April 2018 at 2pm in Meeting Room 5

Laboratory Building – QEUH Campus

Present

Mary Anne Kane (MAK)	Interim Director of PPFM
Edward McLaughlan (EMcL)	Assistant Director (Engineering, Environment and Decontamination - HFS
Annette Rankin (AR)	Nurse Consultant Infection Control - HPS
Alan Gallacher (AG)	General Manager – Estates
Iain Powrie (IP)	Deputy General Manager – Estates
Iain Kennedy (IK)	Consultant in Public Health Medicine
Colin Purdon (CP)	Senior Estates Manager
Ian Storrar (IS) – via telephone	Principal Engineer - HFS
Aleksandra Marek (AM)	Deputy Lead Infection Control Doctor/Consultant Microbiologist

In Attendance

Michael Jarvis (MJ)	Design Engineer - Horne
John Horne (JH)	Sales Director – Horne
Angus Horne (AH)	Managing Director – Horne
Allyson Hirst (AH)	Admin Assistant – PPFM

Introductions

Participants introduced themselves to other attendees and it was noted that Horne representatives had been asked to attend to review the presentation at the time of choosing for the NSGH Project and to review any of the anticipated issues.

Horne Taps

Horne representatives explained that the process for choosing the taps for the NSGH Project had been a lengthy and involved process using the most updated information at the time to ensure that all aspects of end user benefits, ease of maintenance and temperature control were considered at this time. It was noted that the Horne taps has thermostatic controls within the unit specifically designed to ensure appropriate temperature for hand washing with two separate flows one which mixed and one for cold. It was noted that parts of the unit will only see the most appropriate water temperature. It was known that retrograde contamination was possible and the flow regulator was part of the outlet serving several different purposes one of which was to hold a small amount of water within the outlet to prevent drying out which differs to the usual input using a mixing device. Retrograde contamination is known and the report of the review was shown for evidence of the contamination. It was stated that pseudomas colonise restricted to the latter part of the tap inlet but it was noted that the bacteria can move back up the tap but the reasons for this were unknown. A discussion took place on the use of the flow tap regulator and the reasons for the use of this were noted – keep flow the same wherever in the building they are located, same user experience at every tap, stops the water coming out of the tap as soon as the user stops the flow creating a small amount of water to remain in the tap which prevents the area drying out. It was noted that this piece is often called different names – tap outlet fitting, flow

regulator, outlet valve all one in the same. AR asked how often these should be changed? – Horne responded that rather than checking all taps that the one closest to the water heater (sentinel points) on each floor should be checked by swapping out and create a culture and this would give an overview of the tap health in that area. Horne could not give a specific timeframe and suggested that the environment leads the changes of this part. MAK asked if they had reports of any other bacteria being found in their taps as this site was reporting a bio film and cuprivardis. It was suggested that bio film can be made up of many different bacteria. It was noted that our issues had not been found in our tanks or at source but in the taps and areas prior to the tap and so as a Board are trying to understand how this has happened and what we can do. AR noted that in her opinion the flow regulators are a bacteria causing piece of equipment.

It was noted that breaking the water seal around the flow regulator by cleaning, emptying buckets and baby baths can cause bacteria to be introduced into the area. It was noted that the domestics are instructed to clean the tap with a clean cloth saturated with disinfectant so this route of contamination was not considered a viable cause. Horne suggested that we change the regulators more frequently.

MAK asked if we have not changed the regulators since the hospital opened would this be a cause? – Horne could not identify this as a certainty but offered that they should be decontaminated and replaced when necessary. It was noted that the regulators are made from WRAS approved plastics but it was noted that microbiology colleagues have expressed their concerns that the plastics are attracting the bacteria that we have found. IP requested the details on the plastics and those included in the thermostatic valves and Horne agreed to provide for microbiologists to review.

AR asked if there were manufacturer's instructions on maintenance discussion during the consultation period prior to choice of taps – Horne noted that this would be left to the users to determine a maintenance schedule although maintenance and operating instructions would have been available. It was noted that there was no requirement to change the regulator

Recommendations for the taps in the areas infected – taps should be removed and cleaned thereby killing the bacteria via heat treatment to ensure that the heat penetrates and kills all the bacteria present. Horne noted that the taps can be thermally disinfected without dismantling the taps but it was suggested that chemicals are not used as this can affect other metals used throughout the water system and don't always work effectively. Due to the design and specification of the tap the goldilocks zone is not able to be treated in this way and at this point in the meeting Horne produced a product which can be retro fitted to the taps to allow a thermal disinfection to all areas of the tap and flow. It was suggested that this could be used in each ward branch but there may be concerns on ward areas and would need careful consideration. MAK agreed that this needs further thoughts.

It was noted that some bacteria is being found in the risers a significant distance from the taps infected but not as far back as the tanks in both hot and cold pipe work. The current disinfection system for the tap is not able to treat the system further up but it was noted that the water being fed in is set at sufficient temperature to kill of bacteria further up the stream

It was agreed that the Board would need to have further discussions on what else could be done to create sufficient flow and heat to kill of bacteria.

Bio film – discussions took place on the forming of the bio film – how long does this take to form – opinions differ from a year to becoming an issue in a much shorter timescale.

It was agreed to hold a further meeting with Horne representatives – this was agreed as Monday 9th April at 2.30 in the Laboratory Meeting Room 5.

Horne were thanked for their attendance and left the meeting.

IMT Subgroup Meeting

Mary Anne Kane (MAK)
Edward McLaughlan (EMcL)
Annette Rankin (AR)
Alan Gallacher (AG)
Iain Powrie (IP)
Iain Kennedy (IK)
Colin Purdon (CP)
Ian Storrar (IS) – via telephone
Aleksandra Marek (AM)

IMT Update

New patients link to 2A and 2B with *Stenotrophomonas* in blood cultures. They had been brought in on Tuesday for a day case treatment and were around in 2A and 2B around the first week of March – therefore weren in hospital before the restrictions were put in place but noted that the patients had previously been prescribed meropenem which can select for this organism.

Wipes recall – an open pack from the sluice in 2A grew a *Pseudomonas spp.* but different from the patient and water results. Manufacture has recalled the product for testing and several closed packs were tested and have grown *Pseudomonas*, further details of this were not available. It was noted that a previous incident with the wipes had seen the manufacturer improved their processes including random batch testing. It had now been determined that gamma wipes are now used

RHC /Adult– 3 lots of positive results from RHC with several results from risers and outlets in QEUH some of which have been reported higher up the stack since last reported the previous Thursday. It was noted that there is a huge variety of species including a single sample with a coliform which can be gut flora. Bedroom 27 in 9A was being put out of use until this is clarified and the room is to be cleaned and resampled and further decisions once this is clear.

Point of Use Filters – IMT had agreed they should be used in ward areas where high risk patients were likely to be nursed, and additional filters fitted to individual rooms if imuno suppressed patients were admitted to them. It was agreed not to put these filters into theatres taps in RHC as it was not considered to be a requirement. It was agreed that the sampling currently being reported was requested to provide a snap shot of the entire hospitals to give a view of how contaminated the system might be to guide future action for the water supply, not for clinical reasons. It was noted there had been no related bacteraemia reported from the adult hospital. Discussions centred round showers being continued to be used without filter even when Cupriavadis found due to the rarity in causing infection in a generally healthy patient (not immuno compromised patient). At this time the

understanding of how widespread the bacteria and the types being found is still developing. It was anticipated this time next week we will have a clear picture of this.

It was noted that if the blank areas on the results sheet represent samples where further work was ongoing in the laboratory and that these may be reported positive in the future. Question – Do we fit filters to everything / test everything?

Positive results are coming back from areas that did not have immune compromised patients– should filters be fitted in these areas?

1000 tap filters have already been fitted within the hospital. It was thought to be disproportionate to filters to all outlets. It was agreed that the existing policy that in areas with immune compromised patients– there are to be filters fitted, whether water had been tested or not but Estates will take the lead from clinical staff requests. It was agreed that for patients that are not immune compromised the risk is low for them from Cupriavadis bacteria. There was further discussion on HDU, where there had been a number of positive samples reported. It was noted that the risk to patients in HDU was extremely low, but some of those patients might be able to use showers, and many will have lines in and have significant clinical issues.

Agreed to :-

The microbiology results spreadsheet will be reformatted to give an easier view of which areas had been affected, and to allow review of sequential results from same outlets.

HDU – it was agreed that Estates will fit shower areas with filters and within the staff toilet area to ensure that hand washing procedure is followed properly this will be carried out at the weekend (Saturday).

9A Bed 27 ensuite to be cleaned with hypochlorite (Friday) and then retest – agreed that ICN will speak to staff on 9A to explain what was happening the precautionary work being carried out.

Longer term measures – IP is working with HFS on variance taps or systems

A review of cleaning options and disinfecting process in a general - and then what we can/need to use when bacteria was present

Resource the maintenance records from the hospital since opening and first patients and this will facilitate the reports to be written by HPS and HFS

Review of the plastic used for the regulators

Date of Next Meeting

13th April at 12noon – Meeting Seminar Room 3 – Laboratory Building - QEUH

Water Review Meeting

Held Friday 13th April 2018 at 1pm in Seminar Room 3

Laboratory Building – QEUH Campus

Present	
Edward McLaughlan (EMcL)	Assistant Director (Engineering, Environment and Decontamination - HFS
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS
Alan Gallacher (AG)	General Manager – Estates
Iain Powrie (IP)	Deputy General Manager – Estates
Iain Kennedy (IK)	Consultant in Public Health Medicine
Colin Purdon (CP)	Senior Estates Manager
Ian Storrar (IS)	Principal Engineer – HFS
Apologies	
Mary Anne Kane (MAK)	Interim Director of PPFM
Aleksandra Marek (AM)	Deputy Lead Infection Control Doctor/Consultant Microbiologist
In Attendance	
Allyson Hirst (AH)	Admin Assistant – PPFM

Previous Meeting – 6th April 2018
Were recorded as an accurate record of the discussions.

Matters Arising
IP noted that the spreadsheet of results and locations was being populated as results are returned – gaps where a sample has been taken indicate that there is still further input to conclude.

The outcome of the water testing is currently being mapped on the floor plans of RHC and Adult hospital – those present were shown examples of the work concluded at this time. The spreadsheet and the drawings used together shows the rooms, risers etc that have returned with positive results and what these are.

Discussions continued on the next stage of progress. It was suggested that the risers be next to be subjected to testing and then onto the heat exchangers. The question of the room that are shown on the floors plans with no indication of issues with the water – does this reflect that they are not affected? – this means that they have not being tested. Testing is carried out on the advice of infection control. AR noted that it would be beneficial to have some spot tests carried out in other areas to give a picture of the spread of this.

IP suggested that testing should be carried out from the bottom of the riser up with testing of both hot and cold on each level, for each riser. These tests would be carried out at the injector point and this would possibly show the route of the bacteria. It was agreed that if the temperatures are being maintained there should be no bacteria being found in the hot supply as the temperature of the water would be sufficient to ensure any bacteria is killed off. IP explained the route of the water via the risers and how this was fed into the hospital and also explained the different paths that the water enters the site and the areas that this feeds. It was agreed that each calorifier within the plant room also requires to be tested and it was agreed that this would be carried out in both RHC and QEUH

Wipes – AR reported that the wipes found to be contaminated have been checked but the results from these checks have not yet been returned and this was anticipated today (Friday 13th April).

Water Temperatures – the question was asked was the Biofilm protecting the bacteria thereby allowing further spread? It was noted that the water goes out into the system at around 65o and the flow coming back at around 55o depending on the demand on the system. It was agreed that the BMS operator will pull together the water temperatures but it was to be noted that the BMS trends are held on a server and this recently failed, and the majority of the trends information was lost but Schnider are working on bringing back as much information as they can. IP noted that the temperatures check recorded quarterly are held manually and can be used to offer a picture if the server information is not available. The Group noted that the only positive riser sample from hot supply had a low count of gram negative bacteria. The group discussed at what distance from the riser samples would be taken, and if this could be an issue of contamination at the sampling point

It was agreed that riser testing would initially be carried out in RHC before moving onto QEUH.

Agreed to :

- POUF to continue in 2A and 4B as key high risk patients are located in these areas
- All risers to be tested further back and towards the tanks, as well as Filtrate cold water tanks and feed, raw water tanks, outputs of pumps, plate heat exchangers, each floors corresponding sentinel points and also the plate heat exchanger. It was agreed that this will give a clear picture of the situation. The Group were cognisant of the number of samples that will be required to ensure that all samples required are taken and were aware of the workload that this will place on the laboratory.

The group asked where has already been tested – it was confirmed that not all taps and showers tested but there have been some random tests carried out from all areas of the hospital. These were noted as :-

- 0-3 in RHC
- 4-11 in Adults

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

POUF – those scheduled to be changed after 30 days were now approaching there changeover time and were Estates aware of the dates – yes this has been documented and change over dates monitored. Requests for the installation of a POUF are taken from Infection Control colleagues.

It was noted that 2A has another issue with a viral issues which is not related to the water issue.

The Group discussed the areas that have been tested and the option to expand the testing areas throughout the hospital – it was noted that the testing being carried out at this time was specifically targeted at high risk patient areas and if this was to be expanded to include other areas the number of samples would be huge and consideration needs to be given on how the labs will cope with the numbers of samples to be tested and reported on. Although it was agreed that this would give clear mapping of the affected areas throughout the campus.

Decontaminating the System
How do we sanitise the system once the pathway of the bacteria is understood?

It was thought it may be possible to carry out each area individually by shocking the system and with the cold water risers carry out local decontamination. It was thought that it would be necessary to take the system out of action for a period of time but this would be very dependent on how this was carried out ie by carrying out the decontamination at the local injection points. How long would this take? Working out the dose size, exposure of the decontamination and then flushing through the system to remove any dislodged materials.

Horne Taps - Horne were asked if the chemical decontamination previously carried out had in any way of damaging the taps internally – they had indicated that chemical flushing was not advised and EMcL questioned whether we may have caused micro corrosion in the taps and pipes and thereby increased the likelihood of bio film growth.

Decontamination products – after using chloramine use in the water system which will work deep into the system and then adding another chemical onto would this cause any reaction?
Does using chloramines have any effect on the filters?

Recent Issues
It was reported that the treatment room WHB in 2B had returned positive results for cuprivadis – although reported as low (count of 5) – all other filters reporting negative results. It was agreed that immediate action should be to remove the filter and replace and retesting carried out – CP undertook to complete this and reported back that the filters had just been changed as per the schedule of filter changes and bagged to be taken away it was possible to identify the filter from that room with the bar code and it was agreed that this should be checked for integrity. The Group discussed if the change of the POUF protocols (changed more frequently) and put in place additional measures for hand washing including gel. It was noted that there is a virus outbreak on the ward at this time and additional protocols are in place with only the sickest children being admitted for treatment. It was noted that this is most likely to be the most used tap within the ward and so consideration should be given to the bio burden on this filter and consider changing this tap more frequently than the others and give some thought on other areas that may have the same issues. Unfortunately due to the POUF being already changed it will be unknown if this filter had been dislodged or incorrectly fitted. It was calculated that this filter had tested positive and we can only speculate that it failed at around 14-20 days as previous weeks test had proved to be clear.

Water route onto site – a review of the route of water into the site was undertaken to ascertain if there was a common link between all hospital clinical buildings – it was noted that there was one junction that supplied all the buildings.

The Group further discussed possible routes of the bacteria coming in – via the water supply or is it only being found at our taps as this is where they get the oxygen and grown?

Date and time of Next Meeting – 20th April 2018 at 12noon – Meeting Room 5 – Laboratory Building – QEUH

Additional meeting was called including staff members from level 2 RHC and Infection Control to discuss the most recent finding in the treatment room WHB – Meeting held in IPs office – Laboratory Building at 4pm.

Present
Iain Kennedy, Edward McLaughlan, Annette Rankin, Alan Gallacher, Ian Powrie, Ian Storrar Brenda Gibson, Jamie Redfern, Sandra McNamee, Sandra Dodd, Melanie ? ,Jennifer Rodgers Emma Summerville, Aileen Gallacher, Alex Merek (Via Telephone) *Check*

One new bactermia was reported last week and their last admission prior to control measures – no new patients since last update – all other patients reporting no issues.

Ongoing sampling continues within 2A and 4B and results from this weeks sampling included a positive cuprivadis from a tap with a filter fitted in the 2A treatment room.– It was a low count, however the count should be zero a filter fitted. It was noted that the samples previously from this tap had been negative so this means that the failure occurred at some point between day 13 and day 20 and. The recommended action would be for the filter to be changed and the tap resampled, but the filter change had already been carried out during routine filter change prior to the result being known.

The Group discussed the possible reasons for this being the only POUF returning a positive when all others are reporting negative returns. Possibilities included:

- Filter being dislodged Filter being faulty
- Filter failing due to the high use of water within this area
- Access and accidental movement of filter – this is a trough sink so no issue with access to the water

It was noted that the data sheets for the POUF gives a flow rate capability and this was more than sufficient for any of the sinks these are fitted to, with the replacement schedule being within the timeframe recommended by the manufacturer.
Due to the failure of this one filter it will be tested by the manufacturer to ascertain if there was a failure – this was estimated to take around 4 weeks to conclude but the manufacturer would endeavour to improve this return.
BGibson noted her concerns about the POUF failing, It was agreed that an explanation of the POUF failure would go a long way to reassure on the use of these in the unit and assist in planning and POUF change timescales but it was recognised that there is a possibility that the reason for the filter failure might never be determined It was suggested that alcohol and gel protocols be put in place to ensure that all steps are covered if in any doubt – it was noted that this is already in place.

It was noted that in the areas that have had POUF changed on a 7 day basis have reported no positive results.

The question was raised if this has been reported in other hospitals using these filters? Not known – Could the filters be inappropriately fitted – this would be obvious and rectified if this was the case.

Hypothesis on why this has happened – discussions are continuing with colleagues from HFS, HPS, contractors and providers looking at the system, taps and dosing of the system are ongoing and continuing. Where has the bacterium come from? – further sampling and mapping of the infected

areas is progressing and additional sampling being undertaken within various sections of pipework within the building to track the pathway. HIIAT Assessment remains at amber.

Contingency Plans – remain as they were but with the confidence in the filters now reduced this is causing concern specifically for transplant patients, patient washing with wipes is currently out of the question at the moment. From a clinical perspective the next transplant patient could be delayed by a couple of week or taken to another facility if necessary. It was agreed that weekly water sampling at least 1 full month of no negative results being recorded but it was agreed that contingencies could not be lifted at this time.

A decision on new BMT patients will be required early next week and BGibson will discuss this with clinical colleagues to determine patient acceptance, defer or move to another unit.

Sample contamination – could this have been contaminated at removal of the sample – not clear how this would have happened. It was agreed to speak to TInkster on her return from A/L.

No additional communications with patients and families at this time.

It was agreed that a paragraph will be put together to instruct staff on reporting any issues and will include clinical and domestic staff – Estates will put this together and share with clinical colleagues before circulation to staff – this should be carried out quickly.

Public Communication – update to be given to Corporate Comms and Jennifer Armstrong will be carried out by Inf control colleagues. Update will be given to Chief Operating Officer for Acute and to the Boards Nursing Director. AR will update Scottish Government.

It was noted that results received on a Friday afternoon are not ideal from a clinical perspective. The current set up is the water is tested on a Monday and results returned and updated by Thursday and distributed on a Friday, It was agreed to check with laboratory colleagues if there was another option to allow result to return earlier in the week and deal with any issues.

It was noted that the water issues will be discussed at the next Board Meeting scheduled for 17th April.

Summary of actions

- All the outlets including showers will be sampled again on Monday (this is scheduled sampling)
- Filter will be sent to Pall for analysis, GGC have asked if this could be expedited.
- An additional QA the filters will be checked when they are removed.
- Additional 7 day QA process will be put in place for all filters in situ in addition nursing staff have agreed to complete a visual check and report an water bypassing the filters. Staff will receive a briefing on this from colleagues in facilities. This check is already in place as part of the domestic cleaning of sinks and filters.
- The positive outlet will be re-sampled.
- The filters in the treatment room will now be changed every 7 days (previously planned for a 30 day change

Date and time of next meeting – IK and TI will discuss and circulate.

Water Review Meeting

Held Friday 20th April 2018 at 1pm in Meeting Room 5

Laboratory Building – QEUH Campus

Present

Edward McLaughlan (EMcL)	Assistant Director (Engineering, Environment and Decontamination) - HFS
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS
Mary Anne Kane (MAK)	Interim Director of PPFM
Iain Powrie (IP)	Deputy General Manager – Estates
Colin Purdon (CP)	Senior Estates Manager
Ian Storrar (IS)	Principal Engineer – HFS
Teresa Inkster (TI)- via telephone	Consultant Microbiologist

Apologies

Iain Kennedy (IK)	Consultant in Public Health Medicine
Alan Gallacher (AG)	General Manager – Estates

In Attendance

Allyson Hirst (AH)	Admin Assistant – PPFM

Previous Meeting – 13th April 2018
Were recorded as an accurate record of the discussions.

Matters Arising

IP provided several drawings of the site – showing locations of water into the site and the floor levels affected by the bacteria.

It was noted that the spreadsheet results had shown that there were now contamination in the tanks. Two tests are required on the tanks as they are split – one sample dip test and the other taken from the valve at the bottom of the tank. It was noted that these had always reported as clear of any contamination with exception of one report which was then followed the following week with a clear report even though there had been no disinfectant used or passed through the system. It was noted that there was a lack of confidence in the information held within the spreadsheet as being entirely accurate.

It was noted that results with >100 is a species but not cuprivadis if no species is noted then it will be filled in once the results come back from the laboratory.

Way Forward

Every floor is showing some contamination with various species so we can assume there is a widespread contamination in the buildings. A review of the commissioning data indicates there was TVC which were off the scale but now we need to determine the way forward and solution to the contamination.

Point of Use Filters – (POUF)

Failure recorded last week had initiated a 7 day change of the filters in this area. It was noted that the clinical staff had lost confidence in the POUF. It was agreed that whilst there was a 7 day change of the POUF there would be no need to take weekly water samples. It was suggested that whilst not in use the radio nuclide bedroom taps could still have the weekly water checks carried out on it which would still give the water condition picture for that ward.

It was agreed to check if any other hospitals in NHS Scotland were using POUF – it was thought they were in Golden Jubilee National Hospital and NHS Grampian. It was agreed that contact should be made to ascertain their experience whilst using these.

Visit

A visit is scheduled for Wednesday 25th April by Susanne Lee – TI had agreed to pull together an agenda and suggested – 11am – 1pm – initial meeting with TI and AR and then meet with clinicians to understand the situation and its impact, 2-4.30 meet with Facilities, Estates and HFS – Meeting Room 5 at the Laboratory Building at QEUH had been booked. The attendees were asked to give some thought to the questions that we should be asking Susanne whilst she is here.

Decontamination of the System

The options for decontamination of the system were discussed in some detail including thermal disinfection, how this could be carried out including the cold water pipes – it was noted that there are risks in pushing high volumes of high temperature water through the system for a period of time and would require a significant amount of staff to ensure that the taps were not interfered with or used during the time of the flush. The question of whether or not this would remove in its entirety the bio film. It was unclear the make up of the bio film and how thick this was within the pipes – it was suggested that a section of pipe could be removed and the bio film tested and assessed for content prior to any cleaning of the system. The group discussed the possibility of any thermal treatment may not reach the end of line dump valves and drinking water fountains and potentially leak back into the already cleaned system – it was agreed that these would need separate clean at the same time to ensure all aspects were thoroughly cleaned and sanitised. IP was reviewing the best options for decontaminating the system using breach created in appropriate points through the risers to allow a thermal clean of both hot and cold but this will require approval as this goes against regulations creating these breaches – this will still require controls at each of the wards during but may allow a ward by ward clean without impacting other wards at the same time. And it was agreed that whatever was the best option would require a full risk assessment to be carried out, minimum disruption to the wards and patients care. With regard to the water fountains – these could be included in the thermal clean up to the point of reaching the intake and then removed and sent for appropriate clean

Renal Unit

The dosing will run up to the renal plant but the filters will be able to clear the water prior to it passing into the renal water system – common practice.

Chemical Cleaning

It was noted that cuprivadis is resistant to silver and chlorine and so may be the reason why Sanasil had not worked effectively. Chlorine Dioxide will remove the bio film and shock the system but will required shut down of areas and likely to produce massive bacteria numbers in the tests after this.

Thermal Disinfection

Thermal disinfection could be carried out and after will require continual dosing – it was noted that thermal disinfection would be carried out in stages over the site, riser by riser and floor by floor followed by each ward before moving to the next level – this method will require staff and time to carry this out. IP suggested that we could run the thermal disinfection through to the last tap on the line then individually clean each tap outlet.

Taps

Have these been a contributory factor in the contamination? It was noted that cuprivadis was found in the tap dismantled in the flow straightners. TI agreed to forward the report on the dismantled taps which will assist in forming a decision on their role in the contamination. It is clear that the Horne taps are not recommended to have a Sanasil clean by the manufacturer but it was noted that Monklands have been using Sanasil to clean their taps without apparently similar issues. Flow straightners were considered a risk initially by colleagues in DH. The view in Scotland is currently unchanged . What is the difference between the Horne taps and others – all generally made of the same material, metals, plastics the risk is where the air and flow meet and can produce the perfect bacteria breeding ground.

Replacement of taps – the flow regulator removed and cleaned but noted that the Sanasil may have caused some damage to the flow regulator making them more susceptible but the only way to clarify this is to dismantle a tap and have it checked by appropriate by a company – suggested EA Technologies including all metals, connections and O rings.

It was agreed to use the cut out sections of pipes – this will require a brief shut down of the water in the relevant area, which will be determined by results provided and sent to Microbiology colleagues to check the bio film and report back.

Showers

Also manufactured by Horne – these are connected by flexi hose – which are at greater risk of colonisation than stainless steel It was noted that the contamination of the showers and how these are being contaminated and the route of these – it was agreed once the system is clean it will be necessary to have periodic cleaning once the system is clean.

It was noted that the project team advisors should have picked up any potential issues.

Chemicals

There was discussion around different types of chemical that could be safely used on the system and their impact on the contamination found within.

Chloramines – no reaction with Chlorine Dioxide? Clarification required from Scottish Water. Using this alongside high volume thermal flush and Chlorine Dioxide along with maintenance should give

the system the clean required. Timing on this – IP is looking at options and meeting with companies to gain further information – it was likely that this would require to go to tender to progress.

It was noted that we keep the filters on the high risk areas for a period of time until all results were returning negative.

MAK noted that she needed assurance that these options would resolve the issues – is the fungus living in the bio film – get this cleared and the fungus also goes?

The use of Chlorine Dioxide – environmental issues ? putting chemicals into the water system – what are the long term affects, health issues? – known to be widely used. IK would be asked for his opinion on this and on the clean that is to be carried out with Scottish Waters system – impact on our own system? – do we need to add carbon filters to out memcor filters to prevent damage to our own filters? – IP agreed to review with Anglian Water.

It was noted that Chloramines survives in the water system for a longer period of time and may change the samples results once pushed through the main system – we should check on the timing of this and monitor our results at this time.

Actions Agreed

- It was agreed that IP to write up the options and his thought process on the possibilities for cleaning the water system.
- Change 2nd floor RHC POUF every 7 days – no water samples
- Radionuclide will be used as a testing point on this floor whilst not in use - Estates
- Laboratory is struggling with the amount of samples - it was noted that this will be an on-going issue – Labs had taken a locum and two students to assist
- Check with Anglian water on the possible impact to our water with the Scottish Water chemical push through the main water system – IP
- Continue to take samples from all areas including – risers, raw water, tanks, heat stations and from buffer vessel and chlorifier and drain connections.
- POUF will remain in place for the time being – this was thought to be around 12-18 months after decontamination and results to a level of 0.5PPM at the furthest away point
- It was noted most people had no experience that it could take 3-5 months to ascertain a disinfectant method and implement
- All relevant bodies continue to be updated
- Determine staff requirements in order to allow this to continue to be progressed to the estimated timescales
- Meet with Susanne and get advice
- Look at the Chlorine Dioxide introduction to the system and the possible increase in other bacteria being reported
- Look at other methods of monitoring and temperature triggering at the end of the system
- Energy Centre – review if temperature dips have contributed to the contamination – independent report has been circulated to technical staff . Instance have shown temperature dips. CHP is not meeting specifications of the hospital buildings and should be noted

Date and Time of Next Meeting

29th April at 1pm in Seminar Room 3 – Laboratory Building - QEUH

Water Review Meeting

Held Friday 27th April 2018 at 1pm in Meeting Room D

JB Russell House

Present

Mary Anne Kane (MAK)	Interim Director of PPFM
Iain Powrie (IP)	Deputy General Manager – Estates
Susie Dodd (SD)	Lead Infection Prevention and Control Nurse
Alan Gallacher (AG)	General Manager – Estates
Teresa Inkster (TI)	Consultant Microbiologist

Via Telephone

Edward McLaughlan (EMcL)	Assistant Director (Engineering, Environment and Decontamination) - HFS
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS
Ian Storrar (IS)	Principal Engineer – HFS

Apologies

Iain Kennedy (IK)	Consultant in Public Health Medicine
Colin Purdon (CP)	Senior Estates Manager

In Attendance

Allyson Hirst (AH)	Admin Assistant – PPFM

Previous Meeting – 20th April 2018
Were recorded as an accurate record of the discussions.

Wipes
Tech Tex Wipes – MAK asked if the wipe issues have been resolved – there was concern that this is not the first instance of contamination from these wipes. The wipes are assumed to come from the supplier and ready to use and therefore we have not checked for any contamination. It was thought that the batch issue started with a contaminated batch of detergent and there would be reassurances required from the company before GG&C could begin to use these wipes. MAK noted her concern that the overuse of detergent wipes and the left over residue being found in different areas of the hospital. It was agreed that further testing and categorical assurances will be required from the manufacturer that this will not happen again. MAK will contact GBeattie to instruct that these wipes are not to be purchased. It was noted that this was the cheapest product on the market.

Report from Susanne Lees
It was noted that a final report had been received from Susanne Lees from her visit to the site on Wednesday 26th April 2018. There was no additional information included in the report that had not been discussed at the visit. In brief it was noted that the system was likely contaminated before handover and in full use. Water temperature fluctuations were likely a contributory factor in the contamination as it had not been consistent since the hospital opened and CHP being on line. The BMT system had loss of information recently so it was not possibly to chart the temperature. Fungus in the aspergilla's was thought to be due to dust levels around the site during construction and subsequent demolitions. It was noted that air tests carried out during the works were all recorded within parameters.

Collation of Information

Information is still awaited from NHS on the flexible hoses and water risk assessment from the contractor. It was noted that the additional information was hoped to be concluded on Monday 30th April. IS noted his appreciation for the information which has been received to date.

Point of Use Filters
It was reported that these are scheduled to be changed over today. Feedback from the inspection of the POUF that had reported contamination has indicated that the filter itself did not fail but that POUF had been dislodged at some point during use and thereby had not performed as it should have . TI noted that she had contact BGibson to ascertain her thoughts on reverting to a longer period between changes of POUF but had not heard anything back at the time of the meeting. It was noted that a meeting with CEO of GG&C has been scheduled for later this afternoon and at this the CEO and MD will be asked for their opinion going forward with the scheduled changes.

Water Coolers
IP withdrew all water coolers from RHC on Thursday and the provision of bottle water has been arranged for the wards. A decision on the long-term reallocation of the water coolers and dispensers needs to be determined. It was noted that these are part of the water system of the hospitals but are not maintained by Estates staff, they are maintained by an outside contractor which includes a 6 monthly sanitisation and service. MAK noted her concerns on the results being returned from these dispensers and their continuing use within the hospital. It was agreed that TI will forward her SBAR for comment. SD noted that there were questions being asked by nursing staff on why the coolers had been removed and it was noted that appropriate communication had not been taken forward with staff and will be resolved. OPD removal of the water coolers – there was not thought to be any reason to back fill these with bottles of water as in the wards. It was agreed that with POUF in place and ice available on the wards it would be acceptable to use the tap water for drinking. The risk to patients overrides the requirement to provide drinking water and the decision to remove the water dispensers was agreed. Communication will be circulated via IP.

Visit
IP noted that he was arranging a visit from Tom Mekin to visit as suggested by HFS – this is scheduled for 10th May but the details of this and the schedule of the day to be confirmed. IP was aware that further work needed to be carried out prior to the visit including his outline paper on the use of Chlorine Dioxide and silver solution and the time to be within the system and the time to clean the system. Denis Kelly will also be asked to meet with GG&C. It was noted that only one authorising engineers report has been completed since the hospital was opened – and there is still no scheduled visit for this year – this was thought due to contract change – IP to progress these to conclusion.

Way Forward
It was noted that Cuprivadis is resistant to silver as this had initially been suggested as a cleaning agent. AR noted that this would be covered within the report being written up and AR would like to clarify with MAK/IP and TI to get some headings in place to progress the report. It was noted that IP had already completed a draft based on the possible solutions previously discussed. MAK noted that there was pressure to get a long-term solution in place and financial implications. Currently the spend sits around £200K with capital to be found to take forward any actions – timelines are now required to report back

Taps
A decision is required on the removal of flow straightners as it was thought that these need to be removed as a potential cause of contamination but if these are to be removed then the taps need to

be changed. Guidance has changed since the taps selection and installation and we should be following guidance. Decision on what areas – all or immuno supressed? There is the possibility that these could re infect the system if not removed? Can we test the taps in the immuno supressed area 0- remove the flow straightners? Discussions on the time involved in changing taps, does the room need to be emptied of patient? Clean required after each tap change = yes. If this was the case then the work could only be carried out during the summer months as no work was to be carried out during winter pressures with any remainder to be pushed into the following year using the pseudomonas risk assessment. There needs to be planning on schedule and dosing the system and carried out in a specific order.

Chemical Cleaning
It was noted that Raigmore and Tayside have silver copper ionisation plants. It was agreed to speak to these Boards to ascertain their experience of using these for decontamination. Sanasil concentration used to clear bio film. We have used 1000 ppm and 3000 ppm but there is thoughts that higher than 3000 ppm would be sufficient to remove the bio film. Susanne Lees reported that higher dosage of this product is more effective and would bring us in the short term but the impact on the pipes and taps from the higher concentration would need to be known. A high dosage of Hyrdogen Peroxide can damage the water systems and IS will forward this information but noted it causes less damage to the brass within the system. MAK asked what can be done in the mean time to aid with patient safety.

Horne Taps
It was agreed that the taps need to be inspected to determine any impact from the use of Sanasil – agreed by all. It was noted that the manufacturer had not recommended the use of chemicals and suggested thermal sanitisation – IP noted at tap selection that this was not a feasible method of disinfection within a hospital building due to the risks. EMc noted that he has seen a document that there was no confirmation that other chemicals could not be used.

Argo Huntly Baths
It was noted that these baths, although very few (2) within RHC have flexible hoses – this is required to ensure that that the baths have full movement to move up and down and these are maintained by a separate contract.

Sinks
Plugs are located on the sinks within the en suites – these are easily removed if required. These were allowed to let parents continue the hygiene of their children in the hospital environment. A decision needs to be made on the retain or removal of these. Communication of their removal would need to be taken forward with users. Clinical wash hand basins do not have plugs but it is considered ok for patient use. With the POUF in place the air gap between the sink hole and water flow is less. It was agreed that whilst we are working to resolve this situation we need to do all we can to prevent any other contaminations. IP will communicate this information

Agreed Actions
TI and IP agreed to visit an infected ward to get a clearer picture on challenging the POUF and taking forward a decision on this.
TI and IP will meet at Beatson on the afternoon of Monday 30th April
No removal of pipes for testing of Bio-film but agreed this should be done if the taps are changed to aid with research

Date and Time of Next Meeting
4th May at 1pm in Meeting Room 5 – Laboratory Building – QEUH – conference call in if necessary

Water Review Meeting

Held Friday 4th May 2018 at 1pm in Meeting Room E

JB Russell House

Present

Mary Anne Kane (MAK)	Interim Director of PPFM
Iain Powrie (IP)	Deputy General Manager – Estates
Iain Kennedy (IK)	Consultant in Public Health Medicine

Via Telephone

Annette Rankin (AR)	Nurse Consultant Infection Control – HPS
Ian Storrar (IS)	Principal Engineer – HFS
Teresa Inkster (TI)	Consultant Microbiologist

Apologies

Colin Purdon (CP)	Senior Estates Manager
Alan Gallacher (AG)	General Manager – Estates
Edward McLaughlan (EMcL)	Assistant Director (Engineering, Environment and Decontamination) – HFS

In Attendance

Allyson Hirst (AH)	Admin Assistant – PPFM

Previous Meeting – 27th April 2018

Were recorded as an accurate record of the discussions. It was agreed that all notes should be reviewed by all to ensure full accuracy and agreement. AH will forward the notes with request for comments to be returned for a full update

Discussion

Chemical Clean – Chlorine Dioxide is the most likely method of clean but it was noted that this works best in high ph levels. IP has instructed ph samples to be taken from various points on the site.

Group agreed that weekly meetings should continue but agreed that progress is required and decisions need to be made. It was agreed that the report submitted by HPS would be use to furnish discussions and lead progress.

Flow Straightners and efficacy of Chlorine Dioxide – still to be finalised but there is a desire by the Board to come to a decision on these sooner rather than later – it was agreed that there would be a necessity for a procurement process to be undertaken and storage of the chemicals if this is the decided way forward.

It was agreed by all that patient safety comes first but we need to consider the revenue that we need to account for and prepare and plan going forward.

Report from Susanne Lees

TI and IP have reviewed the Report and have used the information and turned into an action plan. It was agreed to circulate this to all the participants of the group to begin progressing the actions. It was agreed that a rolling action list be created from the action plan and allow progress on coming to a resolve for the water issues and to progress any tendering process that may be required. Due to the seriousness and the need to resolve the matter the CEO has agreed that she will consider signing off a waiver to expedite any purchase. It was agreed that any way forward would take some time to

implement to begin the cleaning process given the levels of chemicals required it was not possible to store these safely within the tank rooms as there is no adequate ventilation and a secure lockable GRP unit which will be located alongside the building.

Condition of Water System at Handover
Information is currently being located with regards to the final water check certification prior to the building handover in January 2015

Report to Scottish Government
AR reported that this was almost in its final format with a few minor changes to be made. AR felt that once this report was concluded she may be required to move away from this issue and asked if the Board still required her to work on this it may be a necessity to contact HPS to request her services for a further period of time.

Tom Makin Meeting
It was agreed that IS/AR/TI/MAK/IP and John Hood would attend the planned meeting with TMakin (TM). IP agreed to prepare an agenda for progress discussions. As part of the visit of TM IP will show TM the relevant areas on site prior to the group meeting. TM has had opportunity to review SLees Report. HFS suggested that Dennis Kelly is also invited to attend – agreed.

It was agreed that any decisions on how to shock dose the system and progress with regular maintenance would be considered after TM visit

Taps
There needs to be informed decision making on the implications to the taps by carrying out shock dosing and the routine programme of maintenance being proposed specifically within the high risk areas and guideance is sought from HFS and HPS. Information from this will then allow MAK to speak to the Board will full information on whether or not the taps in this area require to be changed along with consideration that if the taps are to be changed throughout the hospital that this would not be possible to carry out within one financial year and the possible risks associated with the reinfection of the system in the interim period. It was agreed that this decision needs to be taken including the risks element and this needs to happen quickly with a full cost implication. Only basing this on information we have at the moment the costs would be around £3.5-£4M. If this was the case the process would need to be carefully planned and implemented to cause as little impact to the hospital working and patients as possible.

Should we replace all the all the flow straightners initially – agreed. But it was noted that there was no specific advice from the manufacturer on how best to clean their product – the response has been vague and this needs to be clarified. IP agreed to email the supplier with the following questions – how to sanitise, how often to change these.

IP will prepare a maintenance schedule to incorporate the schedule for this with and without – IP and IS will review the product prior to any purchase being carried out

It was noted that Horne have not yet responded to life of the product once Sanasil has been used. It was know that you should not use Sanasil over 10% concentration when using on products that contain brass but is was noted that when dosing and mixing with the water system the dose hitting the taps will not be at a 10% level

Shock Dosing
Clarification on the dosing concentration – we have previously used 3000ppm and this did not clear the system of bio film or bacteria. DMA have stated that 3000ppm is not recommended – is this because of possible damage – this needs to be clarified. It was agreed to be part of the TM discussions and as a follow up question for SL. It was agreed that this would be a waste of resources and time to use this product if it was not going to be affective at the higher dosing. It was noted that the Chlorine Dioxide would strip the bio film and allow the Sanasil to cleanse the system. If the shock dosing was carried out there would need to be a control arrangement in place to lock the taps during the dosing – it would be necessary to purchase around 2500 until to allow us to close of each of the taps. IS noted that he was aware of a company that produced a system and will forward the information to IP. It was agreed that Thermal sanitisation was not an appropriate way forward due to the risks and potential safety concerns.

It was noted however that to close of 2500 water outlets within a working hospital would be difficult but it was explained that this could be carried out during the evening/overnight with users having access to bottled water for the short period of time. Questions were asked about any noise impact to patients and how long would the system be out of action for. IP explained the process – bring the taps up to dose level, let this sit for a period of time then draw water through the unit to flush the system but it was noted that there could be a bacterial release into the atmosphere – this has been carried out on smaller unit but not on this scale previously. IP thought he would require around 20 people on each floor being cleansed. It was agreed that IP will write this process up to allow full discussion and risk assessment to be carried out.
MAK noted that there will have to be communication put out to staff and wider media to ensure that all were aware of the work being carried out and it was thought that this will all take place in or around the same time as the work begins on the cladding of the buildings so along with the possibility of a negative spin on this and the water issues.

Staffing
It was agreed that IP will be pulled from his regular role to work soley on resolution of the water issues. The other members agreed that this was an important issue that required full attention but was proving difficult to progress at an appropriate speed as well as completing usual duties and it was agreed that by pulling IP onto this project full time was an appropriate way forward.

Agreed Actions
- Continue the weekly meetings
- IP to work solely on this
- Ensure information is gathered and clarified prior to any news updates being forwarded for staff but that any works should be appropriately notified to staff
- Use SL report to create a rolling action list
- IP will review any engineering matters that will be impacted by any works that need to be carried out
- TI and MAK will review the report today and feedback to AR

Date and Time of Next Meeting
11th May at 1pm in Meeting Room 5 – Laboratory Building – QEUH – conference call in if necessary

Water Review Meeting

Held Friday 11th May 2018 at 1pm in Meeting Room 5

Laboratory Building - QEUH

Present

Mary Anne Kane (MAK)	Interim Director of PPFM
Ian Powrie (IP)	Deputy General Manager – Estates
Teresa Inkster (TI)	Consultant Microbiologist
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS

Via Telephone

Iain Kennedy (IK)	Consultant in Public Health Medicine
Ian Storrar (IS)	Principal Engineer – HFS

Apologies

Colin Purdon (CP)	Senior Estates Manager
Alan Gallacher (AG)	General Manager – Estates
Edward McLaughlan (EMcL)	Assistant Director (Engineering, Environment and Decontamination) – HFS

In Attendance

Allyson Hirst (AH)	Admin Assistant – PPFM

Previous Meeting – 4th May 2018

Were recorded as an accurate record of the discussions. TI and MAK confirmed they were content with the discussion record.

Agenda Items

- Action Plan – created from Susanne Lees Report
- Follow up from TMakin Visit
- Taps and Shock Dosing
- Outstanding Information – Data Requirements

Outstanding Information – Data Requirements

MAK noted that the report is required to be completed by 31st July and it was now time to write up using the data we have produced. It was noted that the due to the size of files it was difficult to transfer these to HFS and IS was given the opportunity to visit GG&C Capital Planning to view the remaining documents/pictures. IS agreed and will liaise with HGriffen.

MAK asked that any outstanding information requests should be forwarded by next week to allow a focus on what information is to be gathered and thereby allow progress with the report to begin. This will allow responsible managers to determine whether this information is available or otherwise It was the Boards view that every attempt should be made to locate every document requested and if necessary interview key personnel who have left. This was somewhat of a grey area as it would not be possible to insist that people returned to give their input. But it was agreed that we as a Board should progress gathering the information but there would need to be a cut off point at which we determined whether information was available or not and move forward to resolve the issues and clear up the contamination

Tom Makin Visit

The members agreed that the visit by TMakin was very useful in terms of the interpretation of guidance and understanding construction. It was agreed that this could lead to a national discussions on the NHS GG&C experience of water issues and using the water experts to form

opinions on best way forward. It was noted that there have been issues with new builds and their method of construction – sealed buildings and many are now showing water issues that were never previously seen in hospital buildings. TI and AR noted that the discussions had been helpful and noted that SLees and TMakin had given different aspects from their experience.
It was agreed that both should be invited back to discuss what we are doing or have done and prior to the report being submitted and possibly further explore the issues and challenges around the selection of final technology used to rectify the problems.
It was agreed and AH will email both requesting their availability for the end of June / first week of July.

Action Plan
It was agreed that the Action Plan created from SLees visit could be circulated to all members for their input
Agreed that target dates are required but MAK noted that some of the recommendations of the report do not correlate directly with the way the NHS Scotland services are run and may required some rewording and any national implications this may have
Water Safety SLWG – agreed that this refers to the Friday afternoon meeting of this group
Cleaning the Tools – this refers to segregating tools for use of different aspects of the water system. This should apply to all staff including contractors working on the site.
Recommendations on Tap replacement -
Specifically in high risk areas – recommended to remove the flow staightner and autoclave the tap unit and continue to use the POUF will require some caution that contamination will not seed back into the system but TMakins recommendation was we keep the POUF in place to reduce the risk
Are we relying too much on the POUF – as it becomes the norm to see these on taps there will be need to remain vigilant that these are positioned properly and changed appropriately but it was agreed that these are a way to safeguard patients until a long term solution is in place.
TI noted that it would be beneficial to replace the taps in high risk areas and decide at a later point for the remainder of the taps – what constitutes high risk? – BMT definitely but it was noted that there are other high risk groups within the hospital that we need to ensure are considered in any decisions
Agreed that clarification on who gives the instruction on where POUF are fitted as the current set up is not sustainable
Change of taps – IP was asked to cost up the change of all the taps in the high risk areas following the pseudomonas guidance and write up a programme for this to be taken forward. From this piece of work a risk assessment will be possible. IP noted that removing the POUF requires a discussion for the removal in areas that are outwith the high risk areas – clear results for a period of 4 weeks, dosing levels. It was asked if we should include all the isolation rooms within the hospital – negate the source isolation rooms which are being altered in pressure . IP asked for confirmation of the flow straightner replacement programme – modified connection for taps £10.40, modified connection for taps £6.60 or £10.40 for all inclusive replacement tap inards – IP CAN YOU CLARIFY THIS SECTION – NOT SURE I PICKED THIS UP PROPERLY. MAK noted that patient safety is a priority but did note that a programme requires to be worked up and procurement time allocated – it was agreed by those in attendance that the use of the modified filters was the way forward. Agreed that 2A and 4B should be changed over initially as these are high risk areas.

Plugs
All plugs have been removed within RHC and the majority in adults but IP will carry out a final check within the adult building.

Shock Dosing
IP was tasked with writing up a shock dosing protocol and the procurement process that would be required to carry this out. IP noted his issues in locating information from the manufacturers on the ideal ppm dosing mixture required to clear and what will be safe to use with the materials in the taps, pipes and any risks to patients/users. The Board asked HFS to provide guidance and IP will forward all the information he has to IS – agreed that all this information needs to be pulled together into a document which will facilitate the decision making process, costs and method. It was suggested that the SBAR document is used as a basis as this is a known document layout and is understood. The group agreed that this information should be pulled together and feedback to MAK by 25th May and thereafter circulated to members of the group. Risk Assessment will be required for any planned works

Patient Disruptions
These need to be know in advance and planning in place along with discussions with clinical colleagues. IP noted that the information he was gathering would give at least a high level which will provide information to allow the progression of further planning floor by floor. It was agreed that patient safety is paramount and if it is necessary then patients are required to be decanted then this will be suggested and planned for with clinical input

Retaining POUF
A judgement is required on the removal of these in areas as the system is sanitised and returned to normal, acceptable conditions – it was agreed that if the readings were low enough in the areas not considered high risk then the POUFs can be removed but there will require to be absolute clear in the high risk areas or they should remain. It was agreed that the water supplied is not sterile so there will always be something in the water and a trigger point will require to be clarified and monitor water samples which should continue as the dosing of the system is progressed.

System Sanitised

It was thought that a review of national standards may be required including other environmental factors and a determination on what is monitored TVCs and what type is looked for. Are TVCs being found as indicator of something else going on within the water system. A criteria needs to be determined as to what levels are issues, base lines and when do we step in to take action, what would the action be and for how long does this remain in place?

Other Possible Areas of Concern

Cystic Fibrosis Patients – these are within various areas in the hospital and are prone to colonisation and are a challenging patient group as they can be located in different areas for other medical issues

Dishwashers – fungus has been located in this and it was agreed to fit in line filters to these throughout the hospital. It was noted that no economy washes should be carried out as the temperature is not sufficient to kill off bacteria. KMurray will be able to verify the proper detergent levels to ensure dosing is appropriate.

Hydropools – these are ok as the water coming into these areas is filtered and then filtered again as it sits within the area.

Flexible baths – thought to have RAS approved hoses but this information was not clear on Zutec and IP will locate and ensure the frequency of the maintenance is changed to ensure appropriate checks.

Ice Machines – there were none located within the hospitals although pre made bags of ice are available for patient use. It was agreed that a check of theatres just in case there has been special dispensation for organ retrieval/donation purposes

Renal Unit – carbon filters are fitted for water coming into the unit and there is additional sanitisation and filtration – should still be checked

Case Definition

It was agreed to revert back to usual testing protocol and it was greed that 2 environmental gram negative in a two week period of three colonisations would trigger water testing to be reinstigated

Other Matters

Ward 2A – 7 day POUF changes – this was to continue until TI had opportunity to speak to BGibson

A debrief meeting to be held on Tuesday and the following Friday will be the Water SLWG

Date and Time of Next Meeting
18th May at 1pm in Meeting Room 5 – Laboratory Building – QEUH – conference call in if necessary – IP to chair in Mary Anne's absence

Water Review Meeting

Held Friday 18th May 2018 at 1pm in Meeting Room 5

Laboratory Building - QEUH

Present	
Ian Powrie (IP)	Deputy General Manager – Estates
Teresa Inkster (TI)	Consultant Microbiologist
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS
Alan Gallacher (AG) (Chair)	General Manager – Estates
Via Telephone	
Iain Kennedy (IK)	Consultant in Public Health Medicine
Ian Storrar (IS)	Principal Engineer – HFS
Apologies	
Colin Purdon (CP)	Senior Estates Manager
Edward McLaughlan (EMcL)	Assistant Director (Engineering, Environment and Decontamination) – HFS
Mary Anne Kane (MAK)	Interim Director of PPFM
In Attendance	
Allyson Hirst (AH)	Admin Assistant – PPFM

Previous Meeting – 11th May 2018

There were amendments to be made and AH will update and recirculate once concluded

Clarification

It was agreed that the replacement of the straightners and taps modification can proceed
It was noted that there would require to be around 1500 to commence the first change over excluding those with PALL filters at the moment
Maintenance of regulators once changed – no clarity from Horne but agreed that these should be changed initially at 3 monthly intervals – this will cost £3.40 per tap per quarter – the change protocol is based on original Psudomonas risk assessment. AG suggested that after each quarter we analyse the flow straightners to determine if there are an contaminations in the ones being changed out. Until we have continual dosing in place then a decision on removal of the POUF
Continual dosing – requires to be taken through the tender process. There will be a manufacturing time, installation mobilisation and time to disseminate through the system and it was agreed that if we can sanitise and then carry out shock dosing – IP noted when continual dosing commences and then the sock dosing to the bio film with the established dosing in place then the bio film will be taken care of keeping the system clear
IP brought samples of the different ppm of chlorine dioxide – 30ppm, 10ppm and 6ppm – those in attendance took the opportunity to smell the bottles and noted that even the strongest one was not that strong and could be used if, tolerated, and that the pipes could take the levels – this was being checked by IP with the manufacturer
It was agreed that chlorine is the recommended chemical but agreement was that chlorine dioxide was more effective for the levels we have with better efficacy and removal of the bio film and with a

longer contact period . It was noted that the water cannot be used whilst being pushed through the pipes

IP is working on the process to follow to allow the sanitisation of the system the process that will be followed and the impact on clinical activity and solutions to ensure that patients are not adversely affected along with the costs which will be incurred initially and on=going until the system is sanitised within acceptable tolerances.

IP clarified that due to the way the water system was constructed that there would be no way to prevent impact to a small section of the adult hospital – including theatres, outpatients but it was noted that if the work was carried out over a weekend there would be little or no impact to clinical services when the water could not be used for a period of time. For those areas that are still in use there would be a requirement to have no use of the taps or showers to allow the disinfectant to remain in the system for as long as possible before the flushes begin. IP suggested that to prevent any need to remove several patients from their rooms that for each of the risers the branch line would be followed and the last room in that line would be vacated for the time of the high flow rate push of water through the system which will scour the pipeline with only the final flush of anything still within their rooms which will have a POUF fitted to ensure capture of anything being taken through the system. It maybe possible to reuse the filter a few times – 6? before changing to a new filter

Agreed that taps in the high risk areas are to be changed to Armitage Shanks with the other areas being monitored as the continual dosing takes effect and the outcome from that will determine whether or not these require to be changed - this will be carried out over a period of time. It was estimated that the taps would take 1 day for each tap as it involved more than just removal and replacement of a tap – this was the best estimate.

Patients in the rooms during the flushing period – clarity required on any risks of atmospheric issues during the final flush – agreed to use the Psudomonas assessment to determine what the risk might be

Patients being moved as they become well – movement of patients from high risk areas to a low risk area – clinically they will be lower risk as they are moving to a general area and it was agreed that once the dosing begins the system will become sanitised and within tolerance for all patients

Use of high level Chlorine Dioxide with POUF – manufacturer will be asked for clarification

Expert Opinions

It was suggested by TMakin that we dose with Chlorine at 50ppm but it was agreed that we should use Chlorine Dioxide as this was considered better to strip the bio film noting that there was a longer contact time required

Taps

AR asked about the impact on the taps from being exposed to the chemical flush. It was noted that we have used chemicals on other sites without any impact to the taps the concern at the moment is the effect on the pipework. It was agreed that we may be looking too much into the impact – should we follow the manufacturers information – it was thought that we might have a bigger impact on

the system in the long term – AR was asked for her opinion – we should use the lowest most effective dose but AR agreed that she would need to look into this further.

IP noted that he had heard of a new product that stabilises the product better so the chlorates are not released into the system so better efficacy ie using 15ppm is the same as using the older chemical compound at 30ppm. IP is speaking to the manufacturer of this next week and this will allow him to pull together the information including how long to leave the dose within the system, impact on patient etc for presenting and thereafter decision making but it was noted this information gathering was taking longer than originally thought so these would not be ready by the end of next week but agreed to work towards the following Fridays meeting to present (1st June). This will include timings for the programme of each step including the longer term programme of change over and implications to patients and service, the strength and dosing regimen required and what the pipes can withstand. Once shared with the group this can then be added to and amended as required until the final document is ready.

Flow Straightner Replacement

Agreed that this should commence as quickly as possible to purchase and plan the replacement schedule. It was agreed that it was likely these will become reinfected as this will be completed before the dosing begins. IP noted that as the bio film is removed and the continual dosing takes effect and we are in control of the system the flow straightners will be changed out to ensure they are not the cause of possible seeding of the system once this achieved and the taps are changed they will become unnecessary.

Acceptable Levels from Water Samples

Psudomonas – less than 10
Ecoli – 0
TVCs – less than 100 but in high risk areas less than 10
Fungus – normally found is water but acceptable at 10 – it was noted that these have been found in the bio film and can be found in the water system but unfortunately as this time there is not a lot of information as is an emerging issue
Cuprivadis – this will be included in the TVCs but if higher than normal levels then cuprivadis will be checked for

Agreed that once baseline figures are achieved they should be monitored for a period of 4 weeks within the non high risk areas

Psudomonas risk – there are varying degrees of risk but high within BMT, 2A, NICU and PICU slightly less for neonatal patients and advice is awaited for CF patients

Dishwashers and Drinking Dispensers

The question was raised at the last meeting about putting POUF on these. It was noted that these are proving difficult to locate but TI noted that there had been spores found in the dishwashers but it was unclear how this was happening. Due to the settings these are being run at with appropriate detergent there should be nothing being found. It was agreed that these should be run every day with the appropriate detergent by catering staff and a record kept of the units and testing continues. It was noted that a realignment of the machines was carried out last week and should prevent anything further but as a precaution in the high risk areas – 7A/7D/3A/3B/3C and high risk areas (in in total) should have POUF fitted.

Water coolers – It had been suggested that we remove the carbon filters and replace with a POUF. This had not been carried out yet but once the appropriate connections are found and will also become part of the sanitisation programme. Guidance from the company will be shared with the members.

2A and 4B Weekly Sampling

Confirmation from TI that this could now revert to month testing

Argo Bath

JGuthrie confirmed that he had changed the flexible hoses after two years of use and it was confirmed that these were run off solid pipework within the bath. There was no record of the showerhead being changed but noted that these were specialist and the mechanism is set up so that the trigger on the shower release drains the hose. It was noted that a new head had been ordered and will be added to the sanitisation programme and it was not located in a high risk area so no POUF had been fitted.

BMS Data Recovery

IP has met with the accounts manager to locate the historic data and forward to the Board – IP agreed to chase this up next week.

Sink Plugs

A check was carried out and IP confirmed that these are all removed from both hospitals

AOCB

AR asked about the different taps within the building and it was noted there were two Contour or Optitherm – thought that there could be some correlation between the materials used within the taps as there appears to be more issues in the Optitherm taps – IP will forward the database where AR should be able to view the results in relation to the counts being found

AR noted that the report has gone through HPS governance with a small change made – this will now progress through NSS and then onto Parliament by the end of May

Date and Time of Next Meeting

1st June at 1pm in Meeting Room 5 – Laboratory Building – QEUH – conference call in if necessary.

Water Review Meeting

Held Friday 1st June 2018 at 1pm in CMB Meeting Room - QEUH

Present

Mary Anne Kane (MAK)	Interim Director of PPFM
Ian Powrie (IP)	Deputy General Manager – Estates
Alan Gallacher (AG) (Chair)	General Manager – Estates

In Attendance

Allyson Hirst (AH)	Admin Assistant – PPFM

Purpose of the Meeting

This was not a full membership meeting as the programmes and reports had not been concluded and it was determined that a full membership meeting would not be useful at this time. PPFM took this opportunity to review progress to date and identify what information still required to be collated.

Plans

- Creation of a Risk Assessment Team – to be set up, membership determined including – microbiologist, Infection Control, Estates Manager etc- For discussion 8th June 2018 Water Technical Group
- Practical Operational Steps – Andy Wilson and Colin Purdon to take over IP operational responsibilities
- Timelines for each stages – Breakdown of the stages to be provided for issue to Water Technical Group
- Details of how the system will be brought back to sanitised – creates an evidence timeline to show progress Creation of an Action List from previous meeting notes

Reactive Sampling – IP reported that he had met with TI on 1st July to agree to give 24 hours notice of reactive sampling to allow the Labs staff to know what was coming due to the Labs being unable to cope with the volumes of work which have been generated to date

- **Flow Straightner Replacement** – How contaminated are these at removal? It would be beneficial for Estates to understand the condition of these but ICT staff were not sure this knowledge was helpful and are not prepared to carry out the testing locally . IP to establish with Ian Storrer methodology for testing and where these can be sent . Quantative analysis as well as microbiological analysis is required to be able to use this information meaningfully either locally or nationally .

- **Questions that are likely to be raised** – Why did it take us three years to recognise there was an issue, what maintenance has been carried out to maintain the system, problems with the water temperature? – we will need to have this information to show when issues may have occurred,Multiplex and Schneider have been asked to provide the documentation at handover

- **Flushing Documents** – IP noted that he had located some of the documents but not all to provide evidence that this was carried out appropriate. A further check on the location of the project archives storage

- Clarify the manufacturer of the pipework as the information on Zutec is not correct

- **Chlorine Dioxide**
  TMakin and IP have been in discussions about the option of 30ppm but information from the pipe manufacturer, DMA and Health and Safety have indicated that this is not the best option. The pipe work may suffer from pin holes, shearing or corrosion. There is no indication of if and when this would happen but there is any damage from this or the previous use of Sanasil then the warranty of the pipework will be reduced. IP will meet with the pipe manufacturer to ascertain what they recommend as the maximum ratio the pipes will allow. IP indicated that he has drawn up a plan of the programme of works to ensure that the sanitant remained within the pipework for the appropriate time and how many staff would be required to ensure that this was pulled through the system at the correct time – this will ensure appropriate contact time and lessen any damage to the pipework. IP suggested that once dosing is established using the lower rate of ppm could be beneficial. IP will right up options with benefits and risk element to allow an informed decision to be made once the water group and water experts to reviews this.

- IP was asked to write a paper specifically noting the risks associated with each of the options to sanitise the system and have this concluded by Wednesday 6th June to allow this to be shared with the water group members and then with relevant estates and water experts. This will allow the final plan to be implemented and discussed with the proposed meeting with TMakin and SLee.

- **Replacement Taps and Filters**
  IP brought a sample of the Armitage Shanks (Marquick) tap unit to show the replacement that was thought to provide all the benefits required and be less susceptible to contamination or corrosion from sanitising. IP has costed up the replacing of the Contour taps including the removal of the IP panel. IP will write a review of the taps stating the reasons for the tap that has been chosen including the metal flow straightner which has been approved by Water Technical Group colleagues. Once agreement is reached then IP will prepare a programme of replacement works. It was agreed that a full agreement from appropriate technical, ICT, HFS and HPS is required before this can progress

  - IP will write up the tap selection – pros and cons
  - IP will write up the chemical dosing suggestions – pros and cons

- **TSafe Filters** – IP brought a sample of TSafe POUF to the meeting – he noted that these are comparable in price to the PALL filters but are fully accredited for 3 months of use

  - They also spray less water but with more coverage – there was initial concern of atmomisation but as the water comes through a filter then concern is not warranted
  - Harder to dislodge and IP will demonstrate this to AR on ward visit
  - Contain a non return valve so not possible to siphon back up the pipe and less risk of contamination if the POUF becomes dislodged
  - Flexible to move away from the drain
  - Negatives – few or none?
  - It was agreed that WTG colleagues would need to review this product and feedback information to the Board prior to purchase
  - It was suggested to trial these in an area know to be uncontaminated
  - IP agreed to check if there was a version to use on Dishwashers
  - Costs – less than the current filters ie - £42,000 per three months instead of the £42,000 per month at the moment

The meeting was brought to a close but action to be concluded for next week's meeting are note

Water Review Meeting

Held Friday 8th June 2018 at 1pm in Meeting Room 5

Laboratory Building - QEUH

Present

Mary Anne Kane (MAK)	Interim Director of PPFM
Iain Kennedy (IK)	Consultant in Public Health Medicine
Ian Powrie (IP)	Deputy General Manager – Estates
Teresa Inkster (TI)	Consultant Microbiologist
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS
Alan Gallacher (AG)	General Manager – Estates
Colin Purdon (CP)	Senior Estates Manager
Andrew Wilson AW)	Senior Estates Manager
Lynn Pritchard (LP)	Lead Infection Prevention & Control Nurse

Via Telephone

Ian Storrar (IS)	Principal Engineer – HFS

Apologies

None

In Attendance

Allyson Hirst (AH)	Admin Assistant – PPFM

Item	Discussion	Action
1.	**Water (Technical) Rolling Action List** MAK noted that she had reviewed the previous notes of this group since it commenced and from this had created a rolling action list to ensure clarity of what work had been concluded and that which still required input. It was noted that an Executive Group has been set up with the first meeting of this to take place on Friday 15th June at 1.30pm. It was therefore decided that this group will continue to meet but there would be a change of time to commence at 11.30 – meetings will be held in Meeting Room 5 – Laboratory Building – QEUH – an updated diary request will be forward and will include Andy Wilson	**AH**
2.	**Sanitisation** IP had pulled together and forwarded information on the review of the sanitisation options that we have reviewed and discussed over the last few meetings and the members of the group were asked to confirm that they were happy with progressing with Chlorine Dioxide – it is proposed that there is a continual dosing process commenced and then at the appropriate time a shock dose will be added to the routine of the system and then continue with the continual dosing of the system - it was thought that by taking this process forward that the system should be in better condition for the shock dose and with continual dosing and thereafter sampling the system will be within acceptable limits for a hospital water system. IP noted that it was suggested that	

another product recently introduced to the market – Chlorus 2 was a potential product due to the efficacy of it and the lesser impact to the pipe work and lesser risk associated with the clinical environment and patients. After discussion it was agreed that this product should be looked at but at this time as it was not a tried and tested chemical for use within a hospital environment, only known use is in a small hospital within NHS England. And although it was a promising product for use in the future it was decided that the best course of action would be to progress with the Chlorine Dioxide continual dosing, followed by shock dose and then continual dosing to ensure that the system, once sanitised, remains that way. Details of the contact time, flushing are enclosed within the Potable Water System Strategy Paper provided in the meeting papers pack. The attendees agreed that this was the most appropriate way forward although it was noted that it was unclear of the potential impact on the pipe work. Various checks will be carried out during the process to monitor any impact but it was important to note that the Board will be informed of the process and the potential impact to the pipe work and the financial implications to the QEUH. It was noted that due to the severity of the issues and the clinical impact we would not be following usual tender process procedures and that the CEO and Director of Finance had agreed to sign off waivers as necessary to progress this.

IP noted the process and the impact to the clinical areas and that this could not be prevented but that staff would be informed of the process and other staff would be on hand to carry out the necessary flushing of the system.

Other ancillary equipment would need to be considered at the time of the shock dosing including – dishwashers, catering equipment and vending machines to be disconnected during the shock dosing and reattached after flushing is completed.

A programme of how the works will be carried out to be produced i.e. 24 hours prior to , 48 hours prior to etc. IP will create this programme plan and the commitment required to achieve. **IP**

The practicalities of shock dosing - the management of the areas being treated being without water – bottled water and wipes being provided and it was noted that the water in the other areas of the hospital would be unaffected so can be used. Signage for areas being treated to be established but as it was not possible to shut off the water it would necessary to rely on staff and visitors following instructions and staff being present in the areas throughout the treatment time.

Neonatal Feeds Unit – it was noted that it was possible to move the water supply for this unit from an unaffected area and therefore the service would be unaffected – AW and CP will be responsible to ensure this was carried out. And the practicalities of this work will be recorded. **AW/CP**

A review of the impact on the taps was still to be carried out

Flow Straightners – when will the change over of these commence – it was noted that after continual dosing and shock dosing is completed the programme of works to change these over will commence. Along with the changes to the agreed areas taps. IS agreed with this methodology and a detailed plan will be prepared and forwarded to the members for the next meeting. **IP**

3. Tap Selection

IP had prepared and forwarded a report on the options for the taps in the affected areas – IP noted that the taps available on the market are compliant to the required standards for hospital use but the general consensus is that the flow straightners should be metal and not plastic. After reviewing three potential tap options and reviewing each of their benefits IP has recommended that the

chosen tap is the Marwick MT with Bio Guard. It was noted that this particular tap was part of the issues in the hospital in Belfast but the manufacture has since this time reviewed and modified the design from their experience of past failure. With advice from the water experts this was deemed to be the best option for Glasgow. The maintenance on this particular tap is flow straightner replacement every three months. It was also suggested that the group consider the option of auto run – to ensure that the little used taps are constantly given flush through even when not in use. The group noted their concerns from previous complications of these taps and it was determined that this option would not be taken but agreed to review the potential issues and confirm their decision at next week's meeting.

A discussion took place on the procurement options for the taps and as they would be purchased usually as part of a NEC3 contract – this posed some potential issues with the timeline that we would like to work to and the methodology of a large contractor may not fit with the clinical requirements around the changeover of taps. IP suggest that we tender using bulk purchase discounts and tender separately for installation. IS agreed that he would look at further options with colleagues at HFS and revert back to IP next week. **IS**

The group agreed that due to the design of the building and single room use there could be issues with taps in single use rooms not being flushed out or used each day and we should be aware of this going forward.

5. Information to HFS and HPS and Others

AG reviewed the submitted document and asked IS if he was satisfied with the documentation received and if there was any additional information required not already noted. IS asked to review the information and he would confirm by next week. **IS**

MAK noted that she had contacted Currie & Brown to ascertain if the missing information can be located and also raised with the Boards HAI. It was agreed that if the information cannot be located we need to conclude this and continue to write the report for Scottish Government. The group agreed that this was the way forward. In order to bring this to a conclusion as well as contact with Currie & Brown MAK will write to the appropriate person in Capita to determine this. A request for clarification from the Boards Infection Control and Project Director at the time will also be sought verbally. It was thought that there should be other member of the Board who would have had insight into the IC sign off and or noted within minutes of the Boards Water Groups of around that time – this to be checked. **MAK**

IP noted that he had found some of the flushing records carried out at the time but not all for the period after handover or the records from Multiplex on their flush regimen.

6. AOCB

Drain Cleaning and Flow Straightners Maintenance – CP noted that the high risk areas are being worked through as identified by TI including adjitating and chlorination and an agreed working methodology was being implemented. CP noted that 4B was completed with both sanitising and brushing carried out. As of today the programme of high risk areas was confirmed and updated and during the coming week the areas will be completed – programme to be circulated.

CP asked for confirmation on ICU and HDU and also 7A/B – TI noted that all of 7A/B to be cleaned using SOP. Drain Connection Changeover – a review of this is

underway to ensure that appropriate contact time was allowed to ensure it took effect – this required further discussion before commencing.

7. Date and Time of Next Meeting

Due to the set up of an Executive Group it was decided that this group will continue to meet but at the earlier time of 11.30 on a Friday. Venue will remain the same and diaries will be updated – the group agreed on the change indicated **All**

Water Review Meeting

Friday 15th June 2018 at 11.30am in Meeting Room 5, Laboratory Building - QEUH

Present:

Mary Anne Kane (MAK)	Interim Director of PPFM
Susie Dodd (SD)	Lead Infection Prevention & Control Nurse
Alan Gallacher (AG)	General Manager – Estates
Teresa Inkster (TI)	Consultant Microbiologist
Iain Kennedy (IK)	Consultant in Public Health Medicine
Ian Powrie (IP)	Deputy General Manager – Estates
Colin Purdon (CP)	Senior Estates Manager
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS
Ian Storrar (IS)	Principal Engineer – HFS
Andrew Wilson AW)	Senior Estates Manager

Apologies:

Lynn Pritchard (LP)	Lead Infection Prevention & Control Nurse

In Attendance:

Elaine McNeil (EMcN)	PA to General Manager's, Facilities & Estates

Item	Discussion	Action
1.	**Minutes from Previous Meeting (8 June 2018)/Matters Arising**	
	The minute was agreed as a true reflection of the meeting.	
	Matters Arising **Agenda Item 5**	
	MAK has written to Currie & Brown and have developed a written draft to Capita which will be distributed on return from annual leave regarding the missing commissioning validation records\data from ZUTEC.	
	MAK noted the main discussion at today's meeting is to focus on sanitisation.	
	Group members confirmed their agreement of the progressing of Chlorine Dioxide with a continual dosing process and appropriate shock dosing.	
2.	**Sanitisation**	
	IP has developed a more detailed action plan for sanitisation, AR noted of the Procurement process is around the company who will provide the dosing process etc. IP met with Tim Wafer, Wafer Solutions Group on 15 June 2018 who will develop a specification by 29 June 2018. MAK noted that the procurement rules required that these works be tendered under OJEU, this procurement process would take a minimum 6 months, and alternative options are being assessed with IP & Gordon Beattie (Head of Procurement) with a view to accelerating the procurement process.	**IP**
	MAK noted the requirement to understand the level of disruption associated with Shock treatment of the water distribution systems, TI noted at IMT concerns were raised over the timescale for completion 12 weeks/6 months.	
	IP noted on commencement of the continual dosing, microbiological test result would deteriorate due to disruption the biofilm within the system. AR sought clarification regarding the shock dosing; IP noted the shock dosing will be implemented after the continual dosing has been established. MAK noted the changeover of the taps will be	

undertaken on completion of shock dosing.

MAK referred to the timescale in order to implement the continual dosing due to the manufacturing process, if Procurement can progress quickly could achieve a 12 week turnaround period, the Chief Executive will sign off the waiver to commence the work required. MAK noted to meet with Gordon Beattie, Head of Procurement on 18th/19th June 2018 to progress. IK sought clarification regarding the 12 week timescale, IP noted it will take around 8-10 weeks to manufacture the dosing plant, and then rollout will take place.

IP took group members through the high level action plan and explained the different stages of the flowchart, highlighting key points as follows: **IP**

- Areas require to be shutdown e.g. catering areas etc
- 6 week tender process development program with 8-10 week delivery lead time.
- October/November 2018 to commence continual dosing.
- IK noted of the omission from the action plan regarding the installation of the plant, IP will address and include within the action plan.
- Continual dosing system will commence on 1 November 2018
- IS sought clarification if planning permission is required and building work element to gain entry to the building, IP noted that this would be explored but anticipated that this would be classed as a temporary structure?
- IP noted when the continual dosing minimum strength of 0.1ppm at sentinel outlets had been established, a monitoring regime for bacterial counts etc should be implemented. MAK sought clarification on how do you identify when this is. Clarified as TVCs **TI**
- IP advised that this would be via manual monitoring using a Palin test kit at sentinel points combined with automatic monitoring ant predefined locations. IP noted that the Palin test measures the residual ClO_2, low residual indicates that the total ClO_2 is actively combating the biofilm, as the bio burden reduces the residual ClO_2 levels increase to achieve a maximum of 0.4 (Below WHO threshold limits).
- IK sought clarification if the biofilm is still present, IP noted if after 3 months the chlorine dioxide levels have not increased will need to shock dose, IP noted may have to shock dose more than once.
- MAK sought clarity regarding the chlorine dioxide issues previously at the RAH, CP noted took a period of time to be effective, only undertook continual dosing, did not undertake shock dosing.
- IP noted that due to the large scale & complexity of the distribution system he proposed to install local dosing at each DHW plant (8 Systems) to disperse more quickly, the QEUH is only 3 years old, there should not be a large amount of biofilm in the system, IP noted if more than WHO threshold for ClO_2 at point of use for drinking water is 0.5mg\l (PPM) at outlets. Levels above this should be labelled “not suitable for drinking”.
- AR queried the situation with the water coolers, MAK noted there should be not plumbed in water coolers in high risk areas, AR sought clarification as to the decision to remove water coolers, and MAK noted they have been removed due to the ongoing issues at present. MAK noted that standard unified procedures have been developed, IS clarified that 20 points were developed for Boards to adapt their systems.
- IK sought clarification where the samples will be tested; IP noted there are 2 methods of testing which will be undertaken onsite, automatic monitoring with alarm points and manually at sentinel points using a Palin test kit, once established this will be monitored on a monthly basis.
- AR referred to the 25 year warranty for the pipework, will the works affect the warranty, IP noted working to thresholds recommended by the manufacturer, i.e. continual dosing at below 1PPM & shock dose of 5PPM for a contact time of 6 hours and a flushing time of 6 hours, should maintain warranty status.
- IP noted Microbiology will undertake monitoring same as ClO_2 regime the Working Group will meet on a fortnightly basis to review results.

- IP noted on commencement of the continual dosing the Written Scheme and Risk Assessments to be re-assessed by DMA with the Board Water Safety Group to review the outcome, MAK noted to also be reviewed at the South Sector Water Group. Pipework engineering to implement the shock dosing. IS sought clarification on who will be delivering the dosing, IP noted will be established via Procurement.
- A group to be established to put the logistics and measures in place to ensure hospital is running efficiently and to involve the Water Groups, IP noted of a set of maps to highlighting the impact on areas, large impact on departments and assess the risks in these areas. IP noted for local issues to be raised at the Risk Assessment Group, commence ahead of shock dosing to be delivered, to also involve Health & Safety Officer. **IP**

SD sought clarification regarding portable hand washing areas, IK noted that arrangements/measures require to be in place whilst shock dosing and the impact of the biofilm released from the taps. IP noted that filters will require to be replaced after flushing following shock dosing, TI noted to be careful on the replacing of the filters, IK sought clarity if the filters need to be changed, IP noted once exposed to an increased bio-burden the filters will block and give a reduced flow and should be changed at this point. **IP**

AR sought clarity if there is an option to decant Wards 2a & 2b, it as noted there is no available space to decant, TI noted especially due to the winter pressures. IP advised regarding the shock dosing the aim is to take the last 2 rooms in each ward out of service and uses these to purge the line after shock dosing, this will ensure the full distribution is flushed out before flushing all outlets in every room (these outlet will have POU filters fitted).

- SD noted of the 4 different stages are they independent. IK sought clarity on commencement of flushing, how long in the system?
- TI noted are portable sinks required.

IP noted portable sinks can create issues, IP noted there will be a shutdown period of 12 hours with no water supply (maximum 24 hours), undertaken at weekends.

MAK advised to provide portable sinks for this period, SDodds to discuss with the Clinical Teams regarding the 12 hour shutdown. MAK noted previously portable sinks were filled with bottled water and to include portable sinks into the action plan for next meeting **SD**

IP

MAK noted the requirement for a one day session to work through the actions, IP advised that all issues discussed are included within the action plan, which required to be developed at both the WTG one day session and the clinical briefing sessions.

MAK noted there are concerns from the Scottish Government due to the completion of the project until May 2019, AR noted the project cannot be delivered any earlier, MAK noted the timescale is worrying, AR noted to be tight with contingency.

IP referred to the replacement of the taps which will be undertaken on completion of the shock treatment of system, MAK noted to focus on Wards 2a & 2b. IP noted the regulators will be removed from the Horne taps, need flow control devices in the pipework and this required development of a WRAS approved outlet. MAK noted for the Procurement process to commence. **IP**

IS noted to ensure that the dump valves are working correctly and to ensure that the tanks are clean, IP also noted sanitising of the water tanks & filtration plant was scheduled to start on Monday 18th June, duration 2 weeks.. **IP**

IP advised that Calorifier expansion vessels were not pass through type and therefore where non compliant, these need to include within action plan for replacement.
AG asked why these where these not compliant when originally installed is a Multiplex

issue.

IP noted subordinate loop temperature circuits should be monitored to indicate system flow issues as per HSG 274 & HTM 04-01 (England).

IS noted this is not required in SHTM 04-01 and not to adopt at this time.

IP noted NHSGG&C have advised to been asked to adopt by Tom Makin & DMA within Risk assessment, MAK noted there will no decision today for this area.

MAK noted week commencing 18 June 2018 the technical Experts will provide a greater level of detail on tasks to be undertaken, significant pieces of work with focus on Wards 2a & 2b who have the most vulnerable patients.

IP suggested inviting DMA and Dennis Kelly, Authorised Engineer (AE) to the Technical Meeting. MAK noted to ensure adequate time is made available for discussions at the Technical Meeting. **IP**

3. Water Coolers

AG has drafted a short report on the background of the mains supplied water coolers, AG took group members through the report and sought for members to ratify the report to utilise across high risk areas, highlighting the key points as follows:

- During the water incident within QEUH contamination/bacteria was found at the nozzles of the water coolers. Disinfection of the nozzle (or water outlet)
- The maintenance contract is not managed by Estates; it is via an external company via Procurement.
- MAK referred to the Standard Unified Procedure (SUP) 05 – Provision of Drinking Water issued by HFS which was recently ratified by HFS. MAK noted this guidance was not available prior to the opening of the QEUH.
- MAK noted for the water coolers to be removed from the high risk areas. AR noted we may be criticised for removing the water coolers and having to pay for products, MAKL noted do we look for an alternative water supply. SD noted that staff has raised complaints regarding no water available, IP noted previously within NICC water coolers were removed and due to the number of complaints were re-installed. MAK noted that the water coolers will definitely be removed from Wards 2a & 2b.
- AW to look at in detail the costings and timeline to remove the water coolers and dead legs, making a safe area. **AW**
- MAK referred to the ice machines that are now available, SR noted that certain Wards request ice for patients who are unable to drink water or for the purpose of epidural testing.

4. Drain Cleaning/Flow Straightners

Drain Cleaning
AW noted that a program has been developed for drain cleaning, Wards 2a, 2b, 2c, 4b, 4b2 and 4c are complete, now progressing to ICU, HDU, 4d, 7a, 7d, 1d and NICC. SD noted of the difficulty to undertake the drain cleaning within ITU, not achievable, IP suggested screening off the areas for cleaning; SD agreed to the areas to be screened off, SD noted to liaise with Lynn Pritchard, Lead Infection Prevention & Control Nurse for access purposes. MAK noted to ensure that the screened off area is secured.

Flow Straightners
AW noted that an ongoing replacement program has been developed to replace all Horne flow regulators, which commenced on 6 June 2018 and is due for completion on 29 June 2018.

5. AOCB

Filters
IP noted that the proposed change of POU filter supplier had not been reviewed in order to agree a suitable way forward? MAK noted that a decision requires to be agreed. Verification is required from Susanne Lee's MAK noted will not be going onto 90 day filter option. More detailed discussion at next meeting.

FOI Request
AR referred to the previous FOI request, MAK note this is ongoing via Communications.

6. Date & Time of Next Meeting

The next meeting is scheduled for Friday 22nd June 2018 at 11.30am in Meeting Room 5, Ground Floor, Labs Building, QEUH.

Water Review Meeting (Technical)

Friday 22nd June 2018 at 11.30am in Meeting Room 5, Laboratory Building - QEUH

Present:

Alan Gallacher (AG)	General Manager – Estates
Teresa Inkster (TI)	Consultant Microbiologist
John Hood (JH)	Consultant Microbiologist
Ian Powrie (IP)	Deputy General Manager – Estates
Colin Purdon (CP)	Senior Estates Manager
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS
Ian Storrar (IS)	Principal Engineer – HFS
Andrew Wilson AW)	Senior Estates Manager

Apologies:

Mary Anne Kane (MAK)	Interim Director of PPFM
Susie Dodd (SD)	Lead Infection Prevention & Control Nurse
Iain Kennedy (IK)	Consultant in Public Health Medicine

In Attendance:

Allyson Hirst (AH)	Admin to the Interim Director of PPFM

Item	Discussion	Action
1.	**Minutes from Previous Meeting (15th June 2018)/Matters Arising**	
	Previous notes were agreed as an accurate record but with a few minor changes which will be included and the updated notes forwarded to the members. Agreed to commence monitoring bacterial counts after dosing and establishing returns of 0.01ppm as this will be after the Chlorine Dioxide is no longer working to clear the system. The monitoring regimen is detailed within the TVC monitoring paper. Agreed to set up the ½ day session to review the action plan, areas affected and how this will progress and will be set up in a few weeks time. All members will be invited along with John Hood, Jamie Redfern and Mel MacMillan.	**IP**
2.	**Sanitisation Procurement**	
	IP noted that the spec will be prepared and brought to the meeting. IP reported he was meeting with Tim Wafer and Euan Forsyth on 4th July to pull together the information for the tender. A statement for general notice will be prepared for the minor works frameworks contractors for expressions of interest and rolled out to tender. IP noted that this framework covers up to £1M of contract works. The confidence in this completing – it will be taken through the tender process and will require a waiver. All the details will be worked out at a meeting with procurement and feedback to the group as necessary.	
3.	**Tap Replacement**	
	IP noted that the chosen tap was Markwik 21 as the preferred option. Guidance states that sensor taps were not suitable for clinical use and there is documented evidence to back this up including the risks and issues. IP noted that a procurement process is required to the purchase these taps and it was noted that this programme could commence in March 2019 starting with Wards 2A and 2B moving onto the other high risk areas thereafter. AR noted that Scottish Government were aware of the possible time taken to begin this process. IP noted that he was working on a option to adopt the bio-guard flow straightener made by the Ideal Standard to replace the Horne flow regulator device on all non high risk ward Optitherm taps this would require installation of in-line isolation valves complete with integral flow control device on the hot and cold water supplies to each tap ensure appropriate flow rate control to facilitate the adoption of the bio-guard device. If this modification is possible It is not yet clear when this work will be	

	programmed but possibly within the same period that the taps are replaced in the high risk wards. Horne is not involved in the discussions and possible options at this stage. IS noted that an in-line flow control device could introduce a risk into the system. IP advised a flow control device was required to control flow rate if removal of the Horne flow regulation device is to be considered as viable option along with Continual chlorine dioxide dosing of the system should manage the risk of bio film. By undertaking the continual dosing of the system whilst the taps remaining in place should be kept clear and with no bio film. Cost is not the only consideration but the disruption to the users and services in the areas outweigh the high risk areas as the high risk clinical areas will be fitted with the Markwik 21 taps. It was agreed that we should let this process for a new flow straightner continue before we make any decision on placing these within the water system. It was agreed to review the benefits and issues that this may cause – IP agreed to prepare a short paper on this proposal. It was agreed that if the regulator was not WRAS approved then it could not be installed. Markwik maintenance – visual check of the tap and replace the regulator on a regular maintenance schedule. It was noted that as well as the Chlorine Dioxide the cleaning regimen needs to be maintained for each and every tap. AG asked that when the taps are replaced on 2A, 2B and 4B – will these require to continue to have POUF – yes until we are satisfied that the water is sanitised to requirements. Flow Rate – Constant pressure– water pooling in the shower areas – it was noted that the POUF could be pushing the water further away from the drain hole thereby causing this issue? But AR noted that the flow rate was good on one day and not so good another – was there a reason for this. AG/IP noted that this should not be the case as it should be consistent – it was thought that possibly booster pressure pump had not engaged at the appropriate time. POUF blew off during use – CP agreed to investigate and a review of the pressure also.	**IP** **CP**
4.	**Water Tank Sanitisation**	
	AW noted that the filtration unit has been sanitised along with the raw water tank – this work commenced this week but this is taking longer than anticipated to complete. Based on the times so far it was anticipated that this will take approximately three weeks to conclude but noted that all raw water tanks will be completed this week. At this time there was no programme for this work as it was a simple process but AG asked for a programme to be created to show dates of start and completion of this work and all the steps taken within and should be included within the action plan once completed for a record of the works.	**AW**
5.	**Water Coolers**	
	Removal of water coolers from the high risk areas of 2A and 2B and the removal of the dead legs. AW noted that this has been completed but are there other areas to be removed? – TI noted PICU, NICU, CF?, SCBU, 4B and 4B2 this action had to be carried out. Once removed the pipework will also need to be removed back as far as possible and until then it will need to be flushed. Users will be notified of the removal of these water coolers via Core Brief and this was for Kevin Hill to action. Estates will wait until the following week before starting to remove these coolers in the other high risk areas. Replacement for the areas to be considered via vending machines and this will be taken to the Executive Group to ensure that users are made aware. It was noted that this was being undertaken due to the water issues but consideration was to be given to any refurbishments considered to host high risk patients then no water coolers to be installed. It was agreed that no coolers are removed until staff can be informed. POUF to be delayed until it is clear what has to be done with these – either removed or remain in situ over the entire hospital site. It was agreed that domestics will be asked to carry out a	

	wipe down/clean within their cleaning regimen. This to be written up for domestic staff and supervisors – AG will speak to KC about putting this in place.	**AG**
6.	**Drain Cleaning**	
	Programme was emailed to members. AW reviewed the completed areas and those still to be completed. Access is preventing some areas being cleaned at this time but CP is scheduled to meet with LPritchard to show the process to ascertain if this be carried out in the limited areas. Regular Drain Cleaning – TM and OP discussed and the Chlorus 2 Report will include simple drain cleaning agents – this is not concluded yet and will take approximately 1 week after previously stated completion date. In the meantime Anticlor cleaning will progress until we know of a different way forward. Domestics will be required to dose the sinks on a weekly basis in all high risk areas. The Estates Team can dispense the sanitiser into litre bottles for the domestics to use and will use the Chloramine until used and then revert back to Anticlor. AR noted that after checking the drains to look at splash back which had been reported it was noticed that the spigot was creating splashback and it was thought that this could be causing the next user to spray the water and causing the environmental bugs being found and the filters exacerbating the finds in the room. IP has submitted a report to HFS on the materials found within the drain as this could be a national issue as it has been found within other hospitals with the same drains, drain parts and flow straightners have been sent away for analysis. Awaiting feedback from HFS on way forward. Drain cleaning has been completed as per previous advice on high risk areas but not yet known if this is required in other areas. Dishwasher Programme – POUF filters fitted to a number of areas and these should be completed by early next week. Locations of dishwashers in specific areas to be added to the programme for the filters to be fitted by next week also. It was noted that plumbers are required to make modifications to the pipework in some areas AW will update TI when this is completed to allow further checks on the areas showing contamination for further checks on these.	**CP/LP** **HFS**
7.	**POUF**	
	IP gave an overview of the filters we have available to use within QEUH noting the benefits and issues with each one – IP has completed a chart showing the details including costs and change times. IP noted that if a change to the filters was required then this would be required to go through the tender process. Some options included a longer in situ filter of up to 90s days. It was noted that during the shock dosing phase every tap in the building will have a filter fitted so would be wasteful to have the longer lasting filters attached at this time. Clinical colleagues would need to be given opportunity to voice their opinion and Susanne Lees will be asked her opinion. It may be feasible to change to longer lasting for the non high risk areas and remain on frequent changes in those areas deems to be of high risk. IP also had an example of a drain unit that can be easily removed and check if issues are reported in an area. It was noted that proper consideration needs to be given to what is used for a replacement within the BMT unit specifically – changing of the sinks and taps in the high risk areas only. This would require to be input to the report to the Capital Planning Group as there will be funding requirements for this to be taken forward.	

8.	**AOCB**	
	An action plan had been produced and all members were asked to review the document to note what actions have been placed on each of the members and this will be updated and review at the next meeting of the group. TVC Monitoring – how do we progress after the POUF are removed and what levels are appropriate within the hospital – details of this is noted within the TVC rotocol produced by TI and members are asked to note their opinions on this document and the information contained within it. It was agreed to carry out testing during the CD dosing and this will determine when the POUF can be removed within the area. It was agreed that a sampling regimen needs to be established and sampling points determined – suggested that DSRs are used as this would lessen any clinical impact but it was noted that there were other options – agreed to look at floor plans and determine best points and then get assurance from experts that this was the best way forward. Agreed that several points of the wards checked during flushing – shower, DSR, taps as the CD is being flushed through the system on a daily basis. This would be looked at during the half day awareness session on the remedial action plan.	**All**
9.	**Date & Time of Next Meeting**	
	The next meeting is scheduled for Friday 29th June 2018 at 11.30am in Meeting Room 5, Ground Floor, Labs Building, QEUH. *Post meeting note – the meeting will now be held via teleconference on Wednesday 27th June at 10.00*	

Water Review Meeting (Technical)

Friday 27th June 2018 at 10am via Telephone Conference

Present:

Mary Anne Kane (MAK) (Chair)	Interim Director of PPFM
Alan Gallacher (AG)	General Manager – Estates
Ian Powrie (IP)	Deputy General Manager – Estates
Colin Purdon (CP)	Senior Estates Manager
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS
Ian Storrar (IS)	Principal Engineer – HFS
Andrew Wilson AW)	Senior Estates Manager – QEUH

Apologies:

John Hood (JH)	Consultant Microbiologist
Susie Dodd (SD)	Lead Infection Prevention & Control Nurse
Iain Kennedy (IK)	Consultant in Public Health Medicine
Teresa Inkster (TI)	Consultant Microbiologist

In Attendance:

Allyson Hirst (AH)	Admin to the Interim Director of PPFM

Item	Discussion	Action
1.	**Minutes from Previous Meeting (22nd June 2018)** The minutes were not checked at this meeting but would be reviewed for the next scheduled face to face meeting on 6th July 2018. Due to unavailability of the members on Friday and to ensure progress continued it was decided to hold a teleconference earlier in the week than usual.	
2.	**Sanitisation Procurement** IP reported that he was anticipating the tender specification by Friday this week and a review of this along with methodology will take place on the 4th July. Due to annual leave in Procurement the pre qualification requested will not be issued until early next week. There will be a 2-3 week response time with the end of July for returns. IS asked if the manufacturers could manage the timescales – IP noted that there were no engagement at this time but discussions with TWafter indicated that they would be able to handle the request. Procurement Route – The Procurement Team will circumvent the OJEU process and use the small frameworks process which will be suitable for the value but will still require a waiver. MAK asked for this to be updated appropriately at the next meeting.	**IP**
3.	**Tap Replacement** The Marquick tap was the selected option agreed by this group but this has not progressed to tendering as this is in the second phase of the project. IP raised the question of using sensor taps – it had been previously noted that these were not appropriate as they introduced complications and therefore manual taps to be chosen. IP noted that with the continual dosing of CD 2 to ensure efficacy of this was pulled through each and every tap a more robust flushing programme would be required. IP asked if it was possible to review the use of the sensor taps again as this would ensure appropriate recording of the flushes and it was noted that if this continued to be part of the domestics tasks it may be possible to include this in the IT software to record that the work had been completed. TI had noted in a previous meeting that guidelines indicated that these taps were inappropriate for clinical use – IS noted that he had experience that no matter what training staff still did not use the taps properly. It was noted that ward staff have responsibility to ensure that taps are flushed appropriately also and this should be documented but not sure if this is the case in all wards. The issue with recording this within the domestics routine is that only QEUH has the IT system in place at this time so would not be able to carry this out over the entire Board. IP noted that by implementing	

the flushing programme or having the senor taps it would be documented that the taps are all flushed appropriately and highlights those that are used infrequently or not at all and the usage across the site. It was noted that the automatic flushing can cause a slip hazard and we would need to ensure that this is not happening. IP agreed to check that the position of the taps and sinks would prevent this happening and noted that the removal of the regulators had likely caused the splashing reported as the flow rate would not be controlled as before. IP noted that the contamination risk in self flushing taps was likely caused by the solenoid more than issues with staff not using the taps appropriately and that staff would be given training in the use of the taps and if the Marquick tap was installed with sensor the sensor is very apparent and clear on how this is used. AR noted that there needs to be a better monitoring of the whole system for cleaning, auditing etc. MAK asked if it would be useful to have a water experts view on the sensor taps so that we can review and have all the information before a final decision is made.

- AR will ask HPS colleagues, to complete a quick literature review on the use of sensor taps **AR**
- MAK will check if the software for domestics can be updated **MAK**
- IP will contact TMakin for opinion and pull together the information into a single document so that an informed review can be undertaken and decision taken on the way forward for the next meeting **IP**

4. Water Tank Sanitisation

AW reported the works are ongoing with raw water tanks cleaned last week and one section of filtration tank sanitised and this week will see the bulk water tanks clean. It was noted that this will take 2 weeks to complete the work. IS asked why this was taking so long – AW reported that the time taken to drain and treat and refill was longer than first anticipated. IS asked if anything had been found and AW noted that there had been debris in the tank along with what looked like sponges – these will be sent for analysis. IS asked for photographs of the debris and a report on the findings of the analysis. AW will forward. **AW**

5. Water Coolers

AW reported that confirmation was awaited on the other high risk areas previously mentioned. It was noted that these had been agreed but awaiting communication being sent to staff on what and why this was being done. This had been agreed to progress at the Executive Group and as soon as the go ahead was given this would be progressed. Estates will chase up KHill and then progress once go ahead is given. The removal of the dead legs in 2A and 2B has been arranged and confirmation of this completion for next weeks meeting. **AW**

4. Drain Cleaning

This matter was still outstanding as a meeting with the appropriate member of staff - Infection Control - at RHC had not been possible due to annual leave this was to be progressed and demonstration provided so that work could progress.

5. Flow Straightner Programme

This work is ongoing – MAK asked if the plan was being adhered to? DMA had made some changes to the sequence of work this was due to access issues and they had started at the top of the stack and now working on RHC which is anticipated to conclude today or tomorrow. They would then move back to theatres with the programme concluding on 8th July. AW will confirm if remaining on target for this. MAK noted that DMA need to be managed effectively by the local estates team to ensure that accurate information is being fed back to the Group.

6. AOCB

TVC Protocol – IP asked if this should be checked prior to CD and continual dosing to ensure that a baseline is recorded so that after dosing the efficacy can be checked. IP asked for confirmation of the removal of the POUF after the dosing and flushing protocol complete – it was agreed that the appropriate levels of all bacteria, fungus etc should be

agreed and included within the document for the Group next week. It was agreed that IP and TI would discuss this and incorporate all information within the document.

It was agreed that all the information gathered should be completed in a single document and then put out for comment including the implementation plan and finalised protocols this should be pulled together and prepared for distribution to the members for the next meeting. IP noted that this might not be possible and MAK noted that even if not in final form a draft version should be ready for distribution and discussion. Clinical staff are indicating that they do not want any disruption until April/May next year and this is not acceptable there is a need to understand how this can progress and AG and IP are asked to prioritise this to allow a comprehensive understanding clinical impact during the implementation phase.

It was noted that there have been many distractions with requests for historical information slowing down the process of getting a resolution in place

Optitherm Tap – IP forwarded a photograph of a sliced tap showing the internals of an optitherm tap and IP explained the position of the flow straightner noting that the blackness within the image was not biofilm but was the casting of the tap. From this image IP noted that his initial thought of an in line regulator was not a good idea – as the chamber becomes full of air when the water stops and the valleys within the taps will allow remaining water to sit and stagnate and therefore not convinced that modifying the taps was a good idea. It was agreed that IP should get the same image from the Marwick tap to see the insides of this also and present to the Group next week

7. Date & Time of Next Meeting

The next meeting is scheduled for Friday 6th July at 11.30am in Room 5, Ground Floor, Labs Building, QEUH.

Water Review Meeting (Technical)

Friday 6th July 2018 at 12 noon – Facilities Meeting Hub - QEUH

Present:

Mary Anne Kane (MAK) (Chair)	Interim Director of PPFM
Teresa Inkster (TI)	Consultant Microbiologist
Ian Powrie (IP)	Deputy General Manager – Estates
Ian Storrar (IS)	Principal Engineer – HFS – via telephone
Andrew Wilson AW)	Senior Estates Manager – QEUH
Iain Kennedy (IK)	Consultant in Public Health Medicine

Apologies:

Colin Purdon (CP)	Senior Estates Manager
Alan Gallacher (AG)	General Manager – Estates
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS

In Attendance:

Allyson Hirst (AH)	Admin to the Interim Director of PPFM

Item	Discussion	Action
1.	**Minutes from Previous Meeting (22nd June 2018 and 27th June 2018)** The minutes for both meeting were approved and agreed as an accurate record of the discussions by those present.	
2.	**Attendance** AR joined the meeting via teleconference but the line was unclear and it was agreed that if there was any requiring her attention the Chair would call her back	
3.	**Rolling Action List** It was agreed that the rolling action list will be updated at the planned ½ day session on Wednesday 11th July	-
4.	**Tap Replacement WRAS** IP noted that the purpose of this was the implementation of a bio guard outlet and adaptor to be made – this was discussed and concerns raised with the flow control in line but noted that this was a moot point after seeing the cut through of the Optitherm tap as water needs to remain within the tap as an open void would remain within the tap and therefore allow a possible growth and the surface of the internal of the tap is rough and therefore the bio guard option is now not viable. It was noted that we either look at permanent flow regulator replacement or change out the taps in all areas. MAK noted guidance is required from HFS and HPS as it is not a decision we could take as this could have national implications. This would have a consequence to change all the taps in other hospitals – All present agreed and this will be picked up at the ½ day session.	**½ day session discussion**
5.	**Water Tank Sanitisation Progress** Programme is scheduled to complete on Wednesday 11th July AW reported that the time taken to empty and refill the tanks had been much longer than anticipated.	**AW**
4.	**Drain Cleaning and Replacement** Drains are completed for the high risk areas as agreed with TI. It was noted that drain cleaning in the open bedded areas had been demonstrated to T Pritchard and agreed that this was acceptable but we do need to ensure screen is erected to prevent spray. CP is chasing up the purchase of an appropriate screen and it was noted that this should be available next week or we would seek alternative agreement. This is an action on the remedial plan so will be picked up again on Wednesday. AW reported that this is all on track subject to sourcing the appropriate product. All accessible areas have been completed. MAK asked AW to forward all the completed areas and those to be completed to AH.	**½ day session discussion** **AW**

5. Flow Straightner Replacement

The flow straightners delivery had been delayed from Horne due to manufacturing problems but these were delivered on Thursday 5th July and the programme will now continue. 1300 replaced and the remaining 800 to be delivered Monday and the others have POU filters and so will not be replaced at this time. Again for discussion at the ½ day session. MAK noted that a report was due in today on the contamination levels of the flow straightners and this will allow us to determine the programme of flow straightners changing.

½ day session discussion

6. Dishwasher Filters

AW reported that all done except for those that required additional plumbing requirements. AW agreed to check that this is on track to complete today. AW to forward AH a list of those areas completed and those to be carried out.

AW

7. Water Coolers

- 2A and 2B - AW confirmed at 2A and 2B water coolers removed as are all the dead legs. No other areas as this time to have their coolers removed as there had been no communication out from the Management Group and MAK agreed to speak to JBest to progress this.
- Staff Area Coolers – for purpose of safety these are to be removed? – TI confirmed that any high risk areas are not permitted have a water cooler either within the ward or the staff rest areas
- Water Coolers – It was noted that there are water coolers within the ward areas in non high risk areas and MAK noted that she would be happy to support the removal of the water coolers from all areas and it was agreed that there are specific areas ie maternity that require to have water available for clinical purposes – ie Maternity. It was agreed that agreement from local Infection Control and Estates whether or not they are removed from all areas of hospitals unless there are complete risk assessments for individual areas and agreement on those being in place. It was noted that the temperature of the water coming from the taps was considered to be too warm for drinking by staff but it was noted that the tap water was drinkable. MAK noted that there was consideration for installation of chiller units to the hospital supply to ensure provision of chilled water from the taps. IS noted that this should not be considered due to the issues with bacterial growth. MAK noted that the temperature of the water from the main was in excess of 20 degrees with it only getting warmer as it progresses through the system. How can we address the temperature issue? An idea was to install a drinking water outlet within each area and this feed could be chilled – it was noted that due to the modular construction of the pipework it may be difficult to route the pipework through but IP noted that he had given this some consideration and would route the pipework via the pantry in each ward and IP agreed to review this option to check its viability. It was noted that we have moved away from ice and jugs supplied so the water coolers were to ensure that patients were able to remain hydrated and should be considered when making any decisions.

IP

8. Major Remedial Plan

The last draft is ready and will be forwarded later today for discussion at the ½ day session.

½ day session discussion

9. AOCB

Suitability of Clorus2 – A paper was provided which summerised the discussion previously on this product – the members present agreed and were happy with the content of the paper

Manual Flushing v's Automatic Flushing – It was agreed that further discussion was required – little used outlets needs to be clarified and what it actually means – IP noted that once we put continual Chlorine Dioxide this will only remain effective if all the outlets pull water through so a robust mechanisim is required for either manual or automatic flushing – Automatic flushing will give the information required and the seldom used taps will have CD run through appropriately. Disadvantages – complications

to addition automatic devices that these can be a breeding ground for bacterial activity and this will depend on the activation device. IP noted that he thought that a solenoid external to the tap and this was better than the internal version. By having automatic it will retain the efficacy of the CD throughout the entire system. It was agreed that self flushing taps could provide the data but noted that if we have a robust flushing protocol we would not need these. MAK had been checking if the flushing tap protocol can be added to the domestics reporting on the system – this was only possible at QEUH as it was the only hospital with this system in place. But it was noted that this could be added to the ward manuals which are checked daily and will allow documentation to be maintained. Ideally this should be progressed with nursing and domestics. AW reported that a manual record system would record twice weekly at this time but the CD required that this was done daily. We have to consider that we don't know at the moment if each tap is drawn through as patients don't always use the systems whilst in their bedrooms.

It was agreed to develop electronic recording and manual format for nursing and domestic staff to use. MAK agreed to progress. **MAK**

Susanne Lee's Report – The first draft of the action plan had been completed but MAK noted that the format is being changed to the VoL format. This has been completed and will be reviewed by MAK prior to circulation. MAK asked that others complete their own work programmes by early next week. **AH to issue**

Procurement Status – A meeting was held last Wednesday and from this a specification has been topped and tailed and will be issued to Procurement on Monday and EForsyth will issue the tender. IP will be the point of contact for any site visits and tender is due for return by the end of July and thereafter the contract will be awarded. EForsyth, IP and TWafer will be on the deciding panel. MAK asked if there were any Conflicts of Interest of anyone on the panel – IP noted that there was nothing he was aware and the contract would be carried out via Frameworks with the supplier being requested to prove efficacy and this will all be in place by early August.

Housing of the unit has been removed from the tender specification to allow bottoming out issues for the planning requirements will be progressed via Capital who will be invited to take the lead on the construction of the unit.

Infection Control Issue in PICU spinal injuries – TI reported that there had been a recording of two different strains of bacteria within Spinal Injuries - Philipshill Ward – one of these being particularly resistant. TI reported that lots of work has been carried out within the unit to determine the source and reported that both rooms 3 and 4 have this bacteria within their drains with the likely source of the issue being the patients themselves. And it was noted that this is almost identical to the bacteria found in RHC but this has a separate water supply and has CD continual being fed through the system. TI noted that there are potential issues with clinical practice in the unit and this is being taken forward with the relevant teams. Estates are working to clean the drains using their usual protocols.

Guidance Required from HFS and HPS to give their guidance as this is being found in several locations and it was noted that drain cleaning had been stopped several years prior and it is not recommended at this time. IS noted that Public Health England are currently work on this at this time and working on the sample we have provided to them and this should result in national guidance. PHE have requested water samples to be sent to them from the hospital site – clarification on what is required and this will be fed via TWalsh and the items gathered by AW. The recommended product for draining cleaning are Trystel Gel but this will require input from HFS and HPS prior to being taken forward. IP noted that a retained contact product for the required time prior to flushing would be more appropriate. IP agreed to write this up and discuss with AR

CD dosing – Tap Analysis – The tap analysis report recorded superficial corrosion, no metaligy and this was a preliminary report – a cost will be incurred for the full analysis to be released. IP reported that Water Solutions had informed him that Royal Halamshire had used CD for several years with no reported detriment – was this because they had not checked or they have tested their taps – not clear just reporting no issues.

Replacement of all Optitherm Taps throughout the hospital – would suggest that they are not fit for purpose and therefore could have a knock on affect nationally as will not be fit for purpose in other hospitals throughout NHS Scotland. High risk areas only at this time until after CD implementation should clear the system and this should give more **HFS/HPS**

confidence.

Armitage Shanks Sinks – should all those with visual contamination have their SPIGIT replaced with a plastic SPIGIT – MAK asked the members to think about this and feedback their opinion. Thought that pre 2014 installation should be changed to plastic as we think there is a risk associated. IP has made contact with rep for Armitage re no response to questions raised. And agreement reached on sending sample of new drain connection for the contour noting that this had anti microbial coating on the drain trap. IS asked about chemicals at various levels and CD is acceptable but Hydrogen Peroxide is not as it has potential to eat away at the gaskets. If Sanisil is used within Scotland then this will be required to be updated on their systems to ensure all are aware. And on the ground Estates Teams need to be clear on what products can be used and those which cannot in certain areas. MAK noted that there are so many products on the market that we need to be aware of the chemical makeup and not have knee jerk reactions when bacteria is found. **All**

Drain Cleaning – MAK noted it would be good to have a view on treatment of drains and clarify what is to be used. Changing the process – drains or drain cleaning or both, settle on a product and sanitisation then swabbing to determine if affective and determine what is require to keep the system sanitised. But MAK noted that due diligence is required – should we be introducing drain cleaning throughout as it appears to be a potential contaminate and as we commence the work to clean and change we are going against national policy and will require to seek consent to continue the process. TI noted that drain cleaning should continue on QEUH site and not wait for the national steer – due to our patient cohort . AR will be asked for her opinion. Psudomonas Guidelines had stopped the drain cleaning so if we are to progress this the Guidelines will require to be updated – agreed to continue the drain cleans in the high risk areas. The members asked if there was a renewed interest in drain bacteria and is it more prevalent or is it because we are looking for it due to our issues. Steam cleaning – is this an option? Low pressure but high temperature steam – external spray an issue – not if it was blocked from escape – probably better to use a foaming agent that will stick and remain in place for determine time frame. **TI/AR**

Wednesday 1/2 day session – this is critical as we will discuss the roll out of what we are going to do as this is when the procurement process will require detail implementation including staff. GBeattie is looking at minor works framework to see if we can use this for resourcing during this period of time. Works will have a significant impact on patients and ward with reduction and no access to water supplies for 12-24 hours. Patient dignity and respect. It is likely that this will be carried out during winter months and this needs to be considered whilst programming. Skill level of staff use to carry out the flushing – training given and importance of task will be reiterated – no specific skills required just ability to following instructions well – this will all be considered in the plans.

Delay in starting this into Summer have any impact on the system – against the balance of risk, disruption to the patients and staff – will the bio film continue to grow if the continual dosing is carried on for a longer period of time? Expert opinion will be required and the CEO, Med Director and DoF and likely Scottish Government will have the final say in this. It was to be understood that the shock dosing may require to be repeated with increased PPM for a longer period of time but this will not be clear until the continual dosing is monitored. Expert view on whether or not we will require the shock if the continual sanitises the system.

Impact to patients for continual dosing – POU filters will be installed on all taps throughout the site. Watch for loss or reduction of flow and staff will report – allowance has been built into the plan (3 filter changes)Taps that for whatever reason will not accommodate will require a validated filter being attached

Other equipment that requires POU filters attached – clinical equipment, autoclaves, kitchens – discharge of bio film prevention but no impact to any of these, but will require confirmation. The volume of water used within the kitchen will require a special filter.

Monitoring of the renal water supply – the carbon filters should negate any bio film but the efficacy of the filters the manufacturer4 has confirmed they are good for the removal of chloramines' but not evidence for the CD so activated carbon data sheets will need to be checked for suitability. Baby Feeding unit will have its supply re routed to a different supply prior to the CD dosing commencing.

7. Date & Time of Next Meeting

The next meeting is scheduled for Friday 13th July at 11.30am in Room 5, Ground Floor, Labs Building, QEUH.

Water Meeting ½ Day Session

Wednesday 11th July 2018 at 1pm – Facilities Meeting Hub - QEUH

Present:

Mary Anne Kane (MAK)	Colin Purdon (CP)
Teresa Inkster (TI)	Alan Gallacher (AG)
Ian Powrie (IP)	Annette Rankin (AR)
Ian Storrar (IS)	Hazel McIntyre (HMcI)
Andrew Wilson AW)	Alan Gallacher (AG)
Iain Kennedy (IK)	Eddie McLaughlan (EMcL)
Lynn Pritchard (LP)	John Hood (JH)
Sandra Devine (SD)	Jen Rodgers (JR)

In Attendance:

Allyson Hirst (AH)	Admin to the Interim Director of PPFM

Item	Discussion	Action

IP reviewed the proposed plan with those present. The proposal was to installation a continual dosing system to ensure that the water system could be sanitised using Chlorine Dioxide (CD). Part of the plan included a shock dose to the system in the event that the continual dosing did not produce the results to bring down the bacteria levels to those which are within acceptable levels. The main aspect of the proposal was closing down the water to RHC and to some sections within the adult hospital over a period of time – likely to be from a Friday evening through the weekend should the shock dosing be required.

MAK asked if the installation of the CD unit would have any impact to the services – a shutdown of the water etc. IP noted that there would be some planned shut downs but these will be sequenced to lessen the impact. It will be possible to clarify this once a provider has been allocated the project. IP explained that noted that it was likely to close down one water tank at a time to minimise the impact to services. Heat Stations – again as the system is installed there will be an outage for a few hours.

How long will the installation be in place prior to shock dosing? IP noted that the installation was targeted for 2nd November with around 4 weeks of continual dosing to establish a minimum of 0.1ppm at all outlets – once this is established we commence monitoring the outlets working up to 0.5ppm in some areas. IP reported that the continual dosing can be programmed longer but this was the proposal at this time. It was thought that it was prudent to not shock dose the system during what would be the winter pressures period. A view from relevant experts is required should we require to continual dose for a longer period of time and then shock dose or should we have a short period of continual CD and then quickly shock dose and if there would be a detrimental impact which ever options was chosen.

Shock Dosing Stage 1 - IP noted that the plan was based purely on the RHC and noted that plant room 22 feeds RHC as well as the adult theatres, adult outpatients, basement and dining areas as noted on line 21 of the action plan – it was noted that this will take around 2-3 hours to disperse through the system with water drawn through at all outlets and sentinel outlet each hour. To ensure that there is no drop in the concentration and the efficacy remains at appropriate level the chemical needs to remain within the system with no loss. After the appropriate time has elapsed then the flushing begins and will require a number or staff to ensure that the taps are not used, toilets are not flushed etc until the appropriate time has elapsed. The impact to the services – no water for around 12-24 hours – the total time for the work is estimated at 11 hours but that assumes that all plans are fulfilled. The pre work that will be required includes a dump of the hot water, manual leant and sanitise 1 week prior to the shock dosing commences – consequence to service – no hot water for 12-24 hours. It was planned to carry this out over Friday – Saturday therefore minimal impact to the theatres and outpatients. One set of tanks will remain in use during all works so that the hospital has access to water albeit within the adult building. A service impact plan is required – and is requested that this is provided for clinical services

Impact of specific areas – Renal Dialysis, baby feed unit – the renal unit can be isolated and the carbon filters on the renal plant should be able to cope with the CD but verification of the chlorites are also accounted for. IP noted that he had information from TWafter that other renal

plants had been able to cope with the same chemical cleans and had not reported any detrimental effects. As this is the paediatric renal unit serving patients from all over Scotland we needed to be reassured that this would be unaffected by the proposed works – IP agreed to source information that 1. Continual dosing and 2. Shock dosing will not have a detrimental effect on the plant and the possible dislodged bio film. **IP**

Shock Dosing of the Bulk Storage and Tanks – item 24 – these details are not completed at this time but injecting at the storage tanks on each of the four occasions – isolate the system so as not to impact the entire system.

Toilet Facilities – toilet facilities as well as macerators will be out of action during shock dosing and to ensure the chemical levels remain appropriate it would not be possible to have flushing at this time – can this be broken down in stages through the hospital – no needs to be carried out at one time. To cope with the lack of toilet facilities the monitoring of the levels could be upped to every 30 minutes to keep the levels at the appropriate level. Contingency plans for this – patients can be restricted to bed pans but there is nothing for the visitors and staff to use - this was not considered possible – what are the contingency plans for loss of water?
It was noted that the levels of bacteria should drop with the CD continual dosing and may mean that the shock dosing will not be required but it needs to be understood the risks of not preparing for shock dosing should this be required but it is not clear if the continual dosing will have the required affect until it is underway. An expert view point (TMakin) is that shock dosing will be required but T Wafer believes that the continual dosing might be enough It was agreed that IP will liaise with both TWafter and TMakin to bring to a Friday Technical Meeting to gain their opinion on our proposals **IP**
There was a differing of opinions from the Boards own experts from those of the external experts in that in previous times where continual dosing and shock dosing was required the shock dose was carried out before the continual dosing – at GRI but it was noted that the pipework within that hospital is older and made of differing material and therefore the reaction with the chemical and the bio film will differ.

Continual Dosing Benefits – reduction of infection risk and by pre impregnating the bio file, reducing its efficacy to a point where we get a satisfactory base line. It was agreed that POUF will be fitted to all outlets to capture any bio film that is released during the continual dosing timeframe. In the short term upping by the continual dose chemical by 2-3ppm would create a need to label all outlets as not safe to drink and we would then have to supply drinking water at the wards. But this would allow the higher dose to be pushed through the system. HFS were asking for their opinion on this – it was agreed that continual dosing is the right way to go and determine if this is going to be sufficient prior to shock dosing the system. And it was noted that checks will be required on the potential impact to patients for bathing but generally the drinkability of the water was the main point of concern and it was noted that the odour and sensitivity for some patients may be an issue. **HFS**

Flushing the system – the water will be required to be pulled through the system to ensure that the chemical is in appropriate contact with all areas of the taps etc but it was noted that CD is a gas dissolved in liquid but it returns back to a gas when it gains the energy from hitting the WHB. It was suggested that the taps are bagged and hole cut to ensure that the water flushing out hits directly into the drain and not splashing out onto the WHB or surrounding areas. The sink will then have a domestic standard clean and the POUF changes and then changed again at an agreed time as any bio film being removed with the chemical will cause these to become clogged.
Amount of water through the system when flushing is in progress – Sufficient to bring it into the pipe within each outlet running for around 20- minutes – it was agreed to trial the bagging process before any decision was to be make and strict method statement will be drawn up and this will only be required if shock dosing takes place but agreed that this should be planned for. And it was agreed with all present that shock dosing during winter pressures time was not appropriate and leave the continual dosing in place for a longer period of time.
Continual dosing if little is seen coming back from the taps then we can assume that the bio film is engulfing it and this will indicate that we will need to increase the ppm if then the results are remaining out with levels required then shock dosing option to be taken forward – if the results come back within levels at continual dosing after an agreed period of time then shock dosing will

not be required.

Scottish Water Contingency Plan – provision of bottle water and bowsers/tank in water and one toilet flush – this would not cover all our issues over the period that water would need to be shut down.

Risk Management – challenge we have at this time – is this the right thing to do, continual dosing and then shock. Alternatives – continual dosing given a change to take effect with the ability to ramp up the dosing as required and provide dedicated drinking water points. By upping the dosing as required it will ensure the efficacy of the CD – agreed worth trying to prevent disruption of the whole hospital. IP noted that he thought that the bio film should dislodge easily due to the newness of the system and the stainless steel pipework.

Bio film - what do we know about the bio film – one tap found to be contaminated and into the SPIGIT and we are sure that there is colonisation at outlets but with wider testing we have found positive results – no bio film found in the risers.

Initial Water into the system – April 2014 water was in the system but testing did not begin until December 2014 with sterilising beginning thereafter – this was considered a long time for bio film to grown within the system
MAK noted that we need an opinion on shock dosing or not, when? – contingency plans need to be prepared on our plans

How long to clear RAH – it took 18 months to clear but noted this pipework was old and worn

Plan - It was agreed that we could modify the plan – continual dosing for a period of time – with regular checking and increase as required. Include water drinking outlets, increase the dose if this does not have sufficient impact then shock dos but later in the year after winter pressures – this will still have impact of ensure POUF are continually being changed and water monitored with POUF being on each and every water outlet within the entire hospital. Consensus was reach that continual dosing needs to start before any further decisions can be made – ie need for shock dosing but it was agreed that plans should be prepared for shock dosing so that all parties are aware of what needs to happen in the event of in including the kitchens, renal, baby feed unit etc. We continue with the purchase of the CD system and continue to work as though shock dosing was definitely happening, update the plan to include the prior to work commencing, during and after – work with SD, IP and others as required.

Toilets for ward use – bring in toilets for the wards, an option but needs to be considered – practicalities of this.
Dining Options – use other outlets and no dishwashing and disposable plates and cutlery

Adult Plan – to be taken forward after the RHC planning and will be slightly easier to take forward but noted that there are different risks and issues but at the stage of planning we will have a better awareness of any issues learned from the RHC work.
It was agreed that an update of the plans will be shared with relevant clinical colleagues
It was noted that the installation of the CD plant will have minimal disruptions – a detailed calendar will be provided to show the events leading up to this.

Additional POUF – a POUF will be installed on each sink outlet. The small sinks will be reviewed to determine how these can be accommodated and domestic outlet. Senor taps will not require a POUF as the sensor will be disengaged. Consider public toilets for POUF but thought that these are likely to be removed and or damaged. Consider other equipment that is water dependent – dental chairs, satellite labs, catering etc

Expert opinion –patients exposed to the possible bio film – would this affect all patients groups or just the high risk patients? Bio film coming out of the taps – what is the risk. If the CD is killing the plantonic bacteria then is it unlikely to have any health implications? There must be other hospitals that have used CD to clear a system what did they do – ARankin will check the literature

Immuno Suppressed Patients – Any high risk are decanted to rooms that have specific filters and these are located within every floor of the hospital

Communication - communications will be provided to all visitors and patients to the hospital during this period to reassure that work is being carried out.

Contingency Hospital – noted that RHC is the contingency hospital during the migration of the Edinburgh Sick Children's – a firm date for this is not known yet but plans should be cognisant of this

Options –

1. CD continual dosing for four weeks – then shock dose
2. CD continual dosing for a longer period of time – then shock dose
3. CD continual dosing with highest dose possible – not shock dosing but will require drinking water contingency and signage required to prevent drinking water from the taps.

Or

Considered the best option of the options we have – less physical disruption if not shock but be prepared for shock dosing and considered achievable assuming we are prepared and data recorded shows if we are either clearing the bacteria and bio film or do we still require to shock dose.

Commence the continual dosing from November through to end of January. This will give opportunity to review if shock dosing and if required. If required shock dosing in March/April which will take use past the winter pressures and contingency period of Sick Kids Edinburgh.

Resilience – discussed and it was considered beneficial to bring in resilience colleagues along with colleagues from adult services during the planning process.

Balance – Patient safety during the fix and risk of having to continue to have water that contains unacceptable bacterial counts – we have to pull together a plan than works as efficiently as possible.

Risk Management – controls in place – but consider if any of these fail and the possible impact to patients and risks to them. Have assurances in place that the patients are safe and we are doing everything we can do to negate any risks as far as is reasonably possible.

Experts- IP to invite TMakin to the Water Technical Group as it was agreed that we need the expert opinion to give reassurance that we are going in the right direction - continual dosing and reviewing results and only shock dose if required.

RHS Colleagues – agreed to progress plans and have in place prior to work commencing

Water Contingency - The contingency plans for QEUH are to be reviewed and ratified for water loss with Scottish Water.

POUF - Can we check that we have assurances from PALL Medical that with the max dose running that the filters can cope for their allotted time – ie 30 days – obtain report from the manufacturers

Chlorine Dioxide – check on any possible irritants from contact whilst using showers and also the possibility of the CD gassing as it comes out of the showers

Water Review Meeting (Technical)

Friday 13th July 2018 at 11.30 in Meeting Room 1 – CMB Facilities Hub - QEUH

Present:

Mary Anne Kane (MAK) (Chair)	Interim Director of PPFM
Alan Gallacher (AG)	General Manager – Estates
Ian Powrie (IP)	Deputy General Manager – Estates
Colin Purdon (CP)	Senior Estates Manager
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS – Teleconference
Ian Storrar (IS)	Principal Engineer – HFS – Teleconference
Andrew Wilson (AW)	Senior Estates Manager – QEUH
Iain Kennedy (IK)	Consultant in Public Health Medicine
Teresa Inkster (TI)	Consultant Microbiologist

Apologies :
None

In Attendance:

Allyson Hirst (AH)	Admin to the Interim Director of PPFM

Item	Discussion	Action
1.	**Minutes from Previous Meeting (8th July 2018)** Were recorded as an accurate record of the discussions	
2.	**Rolling Action List** To be updated as completed	**AH**
3.	**Matters Arising** **DRA at QEUH** – MAK is to review the possibility of including this on the domestics work space and also including the nursing staff but noted that this is only possible at QEUH and RHC as the only sites that have the technology in place. For other sites this will be completed in paper format to be signed off by the charge nurse or nurse in charge. Taps run for a minimum of 1 minute – this will be worked into and implemented to the systems in place at each site. This requires consideration if this is to be rolled out nationally into Domestics FMT system with other Boards using this for verification but this will require to be approved by NHS Scotland. A check on how others are verifying can be sought from the Domestic Advisory Group but it was noted that not all Boards use domestics for this task. A check to be carried out at other Boards on who carries out this tasks, little used outlets, and Psudomonas guidance being followed to ensure that medications of the current record keeping is where necessary, modified to reflect. Domestics being able to log that no access was granted or able to will allow the charge nurse to arrange access with the possibility of a flagging system in place to ensure not missed for an agreed period of time.	**MAK** **AR**
	Short Term on Drain Cleaning – Literature review to be undertaken by AR. It was noted that drain cleaning goes against national policy and only cleaning in areas of high risk within QEUH but there are problems being reported in various areas – noted drain implicated in the bacteria found in the spinal unit and looking for advice generally manage.	**AR**
	Low Pressure/High Temperature Steam Cleaning, Foam Cleaning – What can we use? AR to review information sent out by IP and come back with a view.	**AR**
	Drain Cleaning Methodology – Guidance tells us not to clean so we need direction on what we should be doing – this had been an unintended consequence of pseudomonas guidance. Agreed that we clean all high risk areas in QEUH but should we roll this out across the Board? If there is an issue in another hospital we will be questioned as to why not rolled out across the Board and inform other Health Boards.	**AR**

Drain Spigits – High Risk Areas – A request for other Boards issues has been issued but at this time nothing is coming back negatively. It is not clear if they are visually checking or looking internally at the drains. IP noted that he is awaiting information from Armitage

Trough Sinks – 2A staff noted black substance coming up the drain - this was thought to be a build up of scum down the drain impacted by a blockage from chewing gum. More work is required with IPCT nursing re use of sinks. Access to be given to all the scrub sinks – theatres, ITUs, PICU and clean these appropriately. Sinks within PICU have had agreement to be moved into the Ante Rooms but it was noted that modifications required to the walls to accommodate and this will be progressed by CP **CP**

4. Optitherm Regulator Non High Risk Options Paper and Appendix

The purpose of this paper was to look at the options to either retain the Horne tap, modify and remove the regulator or by regularly replacing the flow regulator or complete replacement of the taps. Modification to the tap to take an open flow device – something similar to the bio guard device. Through discussions with HFS and current guidance they do not advice regulators in line. IP reported that after reviewing the drain of the split tap – the water would drain out of the tap and leave surface area damp and wet offering an area for growth and stagnated water traps and this is why it was thought Horne would not modify the tap to protect against environmental contamination – it was concluded that this should not be modified.

MAK asked for opinion from HFS/HPS on whether or not to continue replacing the flow regulators as in option 2 or option 3 or a combination of both as there would be a knock on affect nationally if Glasgow make the changes then consider how this will impact others. **HPS/HFS**

Contour Taps – in relation to changing Horne Optitherm to current model Contour 21 this is demountable as parts can be removed for servicing and less impact to the patients room and to the IPS. Looking at this IP found flow regulator which is as complex as the Horne tap and in addition to this they will have an in line isolation flow straightner and check valve – IP described the internals within the tap and possibility of making changes to these taps to accommodate our requirements and IP asked for advice as the market leader has a design that goes against guidance – no restrictor in line with the taps and cause a trap to gather the bio film – what was their recommendations when the hospital was built? MAK asked IP to write all this up and put back to HFS via Tom Walsh.

Service Valves – control flow, strainer and non return valve – parts in the service valve which in other taps are within the tap. Components being separated are not recommended, easier to access the components in the IP panel. MAK noted that a clear view is required from HFS and HPS as it appears that we now have a similar issue – IP noted he has programmed this into his work so far and IP agreed to write up and forward. Flow control should be within the tap – document is guidance and it has been interpreted which means it is not necessarily not compliant but we do need to consider how to take this forward.

Contour 21 tap – as a consequence of looking at Horne taps – there is no flow control in line – guidance states no in line flow control device to prevent contamination. We have discovered that in the Contour 21 flow control device to put in a bio guard product – a retrospective install for these but IP noted flow regulators is in the flow control device and if removed the bio guard has no flow control and the service valve in the pipe work and contains another flow regulator, strainer and non return valve and replicates for the Horne valve and the question for HFS/HPS is there a standard configuration for all Boards in Scotland we need guidance do we remove all of these at the same time – IS agreed to review the information and offer opinion on the guidance. **IS**

Removal of Horne from High Risk Areas - MAK noted that there will be commercial implications for Horne and MAK would be looking for clear guidance to maintain in the lower risk areas or get rid of entirely. This would ensure that we have a good maintenance programme in place and the costs are increasing, reflect pay back, value for money and importantly if we make this decision on our own we would need to

advise other Boards of our experience – IS noted results from the recent testing. Regulators were sent away 1 week after change – no bio film but counts – nothing that the taps direct from Horne had counts without being installed and used, boxed but not individually packaged and suggested clean prior to install. Is this something that we need to carry out prior to installation of any plumbing work. Air not water is used to test the components and this needs to be cleared up. Noted that counts on taps are very high within a short period of time **IP**

Base line – concern noted that although we have contaminated water and with the counts we are getting back we could be changing out weekly. But this is not possible due to the costs and resource and thereby should we sanitise them weekly a view is required on this. We are now aware of the issues and need to take action but what would be adequate and appropriate from a risk management position. IS agreed to meet with Horne and update them on what we have found and how this will be related to other board. It was noted that the products are coming from the manufacturer not individually bagged which is the way others have been sending in. It was noted that this could be part of the initial cause of the bacterial growth within the hospital. An audit trail of where the products come from initially as they are not sent directly from Horne but from a manufacturer in Germany. **IS**

Recycling of Regulators – suggested to place in an ultrasonic bath to breakdown the bio film, rinse in sanitant for at least 1 hour and place within sealed bags with sanitant still covering them – it would be useful to get this agreement an should we do the same with the new ones considering the counts found on new ones? IS agreed that we should sanitise and the same for any other device prior to installation on site. AR was asked for her opinion on the process indicated and what IP has proposed – AR agreed to review. **AR**

MAK suggested that we carry out sampling of using the clean system test prior to and after sanitising – this action would be for AW and CP to set up and pre cleaned and post clean to be sent to the lab and then produce the results – a swabbing protocol from Labs is required and they will be asked to provide this. IK noted that further testing of the unused ones should be carried out but it was noted that these come in hundreds and a protocol from the labs will allow the removal of a sample from the closed box. CP noted that 1 month samples are ready to be sent back to the labs for check – CP will report back on the results. It was agreed that we need to understand the contamination of the system and how best to handle this should anything happen to the CD unit after installation. **AW/CP** **To**

5. Water Tank Sanitisation

AW reported that this had been completed on 11th July.

6. Drain Cleaning

Screens that were required to complete the clean in the high risk open areas as per Infection Control's request had now been received and this will now progress- a programme of this work will be available at next Friday's meeting. This will conclude the clean of the drains within the high risk areas. TI asked for a check on the location of trough sinks in these areas – CP/AW will feedback their findings for next weeks meeting. IS noted that there was an alert being issued on the issue the IPS panels – it was noted that Glasgow had put a fix in place to prevent any accidents to the members of staff whilst unscrewing these due to the change in balance point. **AW** **CP/AW**

7. SPIGIT Replacement

IT was noted that all the high risk area were now completed as agreed. Guidance required from HFS/HPS – considering what we know about these being affected in QEUH should we, just for the purpose of patient safety, replace all the aluminium around the hospital or just stick to high risk areas in QEUH – IS noted that he is still not sure where bio film originates from and point to a lot of foreign material being down the sink, hair and plastics being found and it was noted by IS that not all of it is to do with bio film but with nursing practice. Aluminium SPIGITS fitted as these were standard at this time but MAK noted that she was happy to hold off until Armitage Shanks have responded as it was noted that the CD was installed at GRI and their SPIGITS were in the same condition and on that basis we should wait until we have

guidance but agreed that there was a risk and we need to ensure patient safety. TI noted that an uneven surface and corrosion casing more bacterial grown and noted that the seals have gelatinous seal but the new version has a different seal. We have noted in a part taken off there was a possible split and if this is the case we should be replacing these. IS noted that he would need to look further at this prior to providing an opinion. AG noted that it was as bad at GRI as it is at QEUH although only in a small area. IP asked if we are doing a tap replacement should we carry out the drain works at the same time – agreed so therefore decisions need to be made and confirmed. The switch on of the CD system in early November we need to understand what needs to be changed out to tie into the bigger plan. Clarify if the shock dosing that may happen have any impact on the SPIGIT seals. The manufacturer should be asked for this information. It was noted that there is potential for bigger action at both QEUH and the bigger picture throughout Scotland and the rest of the UK if the same products are used in other areas. Agreed to pull the questions together and get this over to AR and IS so that we can take this forward.

It was agreed that other areas should have some microbiological testing on the drains without removing the IPS panels – look, photograph and use the scope to take pictures and then go back if results are notable and also obtain samples from manufacturers to check on chemical reactions to the agreed chemical sanitant.

IS

IP

IP/AG/MAK

CP/TI

8. Draft Report from Susanne Lee – new format

MAK noted that the document had been transferred to the Glasgow format. MAK asked that the dates are ignored and asks that all members inputs their known information and this should be concluded by next weeks meeting for works being taken forward or otherwise.

All

9. Activated Carbon and Chlorine Dioxide

Report attached to the paperwork – this was drawn up from information relayed from TWafer – IP had investigated the carbon filters for the renal plant with the manufacturers and they have confirmed that they are ok for cloramines but cannot comment for CD as they have never had any testing done but believe it will react the same and IP had asked TWafer for his experience and it was noted that activated carbon protects the system from CD but the chlorate is a difficult aspect to remove and best to ensure the CD is maximised efficiently. Graphs on the paper show the detail of the removal of the filters – back up information from users show that there are no reported issues and it was noted that the carbon will deteriorate and should be replaced every 6 months. As part of the CD installation monitors will be placed before and after the system to give warning to remove patients from the system until any issues can be resolved. Similar the same checks and preventative to protect the machinery for endoscopy and dental filters are unaffected. It was noted that there is no impact to clinical patient groups from the CD. It was suggested that a visit to Leeds may be beneficial to gain some experience and feedback as they have a similar patient group and could be beneficial for the patient write up in preparation for the paediatric units and the CD installation and would give reassurance to the services and units. It was noted that this was a good paper from IP.

IP/AG

IK noted that the comments note that it is more important that the water is disinfected and allows for higher levels of chemical input to achieve this. IP noted that the bylaws still restrict out chemical use and thereby we have to implement drinking water control. It was noted that if the higher dose is used the renal unit may be required to be put on a bypass system and this will only be determined when the report is completed and opportunity to review and discuss. Is it possible to bypass – yes but costly and will be held for the moment.

10. Material Samples Interim Report

IP reviewed the document noting that it breaks down the samples sent with values reporting higher than ever seen previously and noted that on second sampled there was no bio film but there remains high counts even within unused equipment still

CP

reporting counts of Psudomonas. SOP indicated that a change of gloves are to be implemented to stop cross contamination and parts removed from box. DMA carrying out the changeovers and it was suggested to follow DMA staff to ensure that this is being carried out as agreed. IP has forwarded Tystel information for their comments for drain cleaning and roll this out to the areas.

Test results received have indicated bacteria not previously seen before in our other results within regulators

Debris from the water tanks – all items removed were sent, one of which was found to be metal which had rusted but no levels recorded at this time.

Drains – bottle traps are noted to be relatively clean but that the bacteria is being found between the air water interface and the disinfectant we plan to use would be beneficial – the drains are reporting clear but the seal are breaking down and noted.

Sponge – took samples from core and outer edge – positive indicators for bio film and these are thought to have been left in after cleaning – an inadvertent error. Metal is likely to have come via the main supply but to consider that during installation there was an error in parts fitted pipework and had to be removed and a man cover had collapsed and some debris had gotten into the pipework so there are different possibility and no definitive answer – all agreed that the report was good and had been beneficial.

11. AOCB

There was nothing further to report and the meeting was closed.

12. Date & Time of Next Meeting

The next meeting is scheduled for Friday 20th July at 11.30am in Meeting Room, CMB Facilities Hub, QEUH.

Water Review Meeting (Technical)

Friday 20th July 2018 at 11.30 in Meeting Room – CMB Facilities Hub - QEUH

Present:

Mary Anne Kane (MAK) (Chair)	Interim Director of PPFM
Ian Powrie (IP)	Deputy General Manager – Estates
Colin Purdon (CP)	Senior Estates Manager
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS – Teleconference
Ian Storrar (IS)	Principal Engineer – HFS – Teleconference
Teresa Inkster (TI)	Consultant Microbiologist

Apologies :

Alan Gallacher (AG)	General Manager – Estates
Andrew Wilson (AW)	Senior Estates Manager – QEUH
Iain Kennedy (IK)	Consultant in Public Health Medicine

In Attendance:

Allyson Hirst (AH)	Admin to the Interim Director of PPFM

Item	Discussion	Action
1.	**Minutes from Previous Meeting (13th July 2018)**	
	Were recorded as an accurate record of the discussions	
2.	**Rolling Action List**	
	Circulated but requires to be updated	**AH/MAK**
3.	**Matters Arising**	
	DRA Update – MAK noted she has spoken to eHealth colleagues and they are currently seeking a cost to incorporate this into current system at QEUH. MAK reviewed the domestic cleaning schedule routine – part of the routine included stating that they have cleaned all wash hand basins and highlight those with no access. Noted that giving a full list of taps to the domestics would not be workable. Considered it was ok to have a list in the background and highlight from this when not accessible and report by exception and the SCN can acknowledge no access. Suggested that each ward has its own list MAK noted the difficulty in having this information on the DRA system. Domestics understand that they are required to flush the taps even in areas they are not necessarily cleaning. MAK asked that AR give some consideration on this and MAK will work with PMcGorry to show AR and TI the system. Having sight of this information will allow us to have knowledge of the taps being run for the required 1 minute – minimum. AR noted that this might be something that is taken forward nationally – along with any other findings from this.	**MAK/AR/TI**
4.	**Short Term/Long Term Drain Cleaning – Update**	
	Clarification is required from HPS and HFS. AR agreed to review literature and revert back with finding when this was available. Steam cleaning methodology – AR for advice	**AR**
5.	**Trough Sinks**	
	CP noted that Estates had not been given confirmation that the work can begin to move these to the agreed space – CP noted that the clinical team had not agreed to the move. TI confirmed that there had been discussions and the work was to commence to get these moved – CP agreed to take this forward	**AW/CP**
6.	**Taps**	
	Optitherm Regulator and Appendix	
	MAK noted that response is awaited from HFS/HPS	
	The question was raised if we should get a face to face with Horne to update them on what we are planning to do. It was agreed that this was a good way forward especially	

	after the recent report from Invertec and it would be beneficial to allow Horne to have full awareness. IP had been in contact with the manufacturer to request response to some questions – Confirm that regulators are exposed to water How are they sanitised Does the manufacturer carry an ISO Quality Certificate Are there recommendations to the purchaser to sanitise prior to installation IP noted that during his search for the information he discovered that the same manufacturer makes parts for the majority of the tap manufacturers world wide Armitage confirm that the bio guard is not coming into contact with water during or after production	**IP/IS**
7.	**Drain Cleaning and Screens – Update**	
	CP updated that Estates were working with ITU to progress and a lack of access to progress this initially as the staff were not aware of the work that was required to be completed – SOP was issued prior to the works commencing and it was decided that communication with the teams in advance of work progressing. CP has instructed the lead on the clean to inform areas in advance of the planned works.	**CP**
8.	**Susanne Lee's Report – Glasgow Format**	
	Members are asked to forward their comments to AH by Tuesday of next week this will assist in the agenda for the experts visit on Friday	**ALL**
9.	**Activated Carbon and Chlorine Dioxide**	
	Use of carbon filters in other hospitals also using chlorine dioxide dosing. IP now has contact details for Leeds and will contact them for their experience. It was noted that if we have to push a higher dose than 0.5 of CD the carbon filters will be ineffective and thereby we may need to redirect the waters supplies – agreed to add this as an agenda item for next meeting on 27th July Neonates Feed Unit will be moved off the supply for the main hospital – CP reported that he has engaged with innovated designs to assess the impact on the system and they are ready to have review and approval – this will be ready for fuller discussion by first meeting of this group in August	**IP** **CP**
10.	**Update on Action Plans**	
	DMA 2015/2017 and AE information and evidence pack being concluded today to be submitted to HFS and HPS and we are on target for this	
11.	**AOCB**	
	Scottish Government outstanding questions – HAI Scribe – information forwarded to AR. AG progressing HAI Scribe 3 and 4. Board Infection Control requesting higher involvement but this was not followed up, HAI Scribe 1 and 2 – no documentation has been located for these – with checks carried out with C&B and Multiplex it was clear that it was the Project Directors responsibility to progress. The project team indicated that they did not require any additional input. How did ICT satisfied that all was being carried out – TI suggested that AR and TWalsh should discuss. Taps Update – Dark Valley have asked to meet with IP – they have modified an outlet which can be mass produced after RAS approval and it was noted that it had a different flow control and believe this gives optimum output and additional work if necessary and we can test this to determine if flow pattern is as required. IP noted that taps for high risk areas were selected as Marquick taps and not keen to start a further process after reaching agreement. CD Procurement process – IP reported that this had been put out to tender with 3 providers with 1 declining due to lack of resources to support this type of project. 1 company acknowledged receipt and working on if planning to submit 1 has not	**TITW/AR**

	responded and IP agreed to follow up. Options to progress if this all fails – working with Procurement and Capital Planning on options – should be straightforward – tender to 3 nominated companies or use Framework in place. IP noted that there would be time to turn this around quickly if necessary and we will not be in a position to make any decisions until the responses are back which is scheduled for 30th July. Argo Baths – TI asked about the use of these baths – PIC should take this out of use as there is no way of fitting a POUF – check on the location of these baths and number in both adult and RHC and feedback – a view on the patient group using these and take out of use? Agreed to take out of use in RHC and high risk areas on site. It was noted that the patient groups who use these are those with mobility issues and bathing facility makes it easier to give the patients a proper wash – unlikely to be used for high risk patients and noted that mostly used for baths requiring emollients and oils for skin conditions – noted that dermatology patients will possibly have cracked and broken skin and it was decided that these should be tested to be on the safe side. IP suggested that we liaise with Argo to determine if they can make adjustments to allow POUF with a connection to an in line filter. Agreed to add a POUF to the shower head and remove from high risk areas – CP will provide a list of locations and TI asked for these to be tested. Safe guarding the patients is the priority and MAK asked for feedback on this mid week. Survey on Drains – CP reported that a survey had been carried out on existing drain and services and showed photographs – this showed majority aluminium Spigits fitting and objects being put down the drain holes. Noted not polluted only seeing soap and usual drain contents – IS asked for a copy of the images. Armitage Shanks response to IPs questions – When did they change from alumium to plastic – July 2014 Reason for change over – increased corrosion and resistance with prolonged contact with chemicals Aluminium adaptor use in water interface – resistant to atmospheric conditions What is aluminium corrosion category – does not have a category How many units were supplied – cannot clarify as did not supply directly What is the seal on the aluminium adaptor – sponge rubber previously – new version silicone rubber but we believe this is the other way round – IP to ask for clarification What is the new adaptor made of in Contour 21 wash hand basin – TPU material with antibacterial additives. Modified connection removes the rim and good outfall IP has asked for further support – samples of original and new material for CD testing. Asked for clarification on the common chemicals – domestic cleaning or water treatment chemicals Shared photographs on deterioration and what their thoughts are – feedback is anticipated Expansion Vessels – general thoughts are anti legionella valve installed on most of the new ones. IS/AE Engineer noted that they do not feel that this it is appropriate to replace a flow through vessel but noted that flow through vessel is manufactured by a company in Germany and the costs are based on their prices. IP to check on alternative supplier. IS noted that guidance was established with industry partnerships and IP noted that alternative does no simulate and approach as an actual flow through. Questions back to AH by Tuesday to prepare agenda for Friday's Water Technical Group meeting to issue on Wednesday.	**CP/AW** **IP** **CP** **CP** **IP/IS**
12.	**Date & Time of Next Meeting**	
	The next meeting is scheduled for Friday 27th July at 11.30am in Meeting Room, CMB Facilities Hub, QEUH.	

Water Review Meeting (Technical)

Friday 27th July 2018 at 11.30 in Meeting Room – CMB Facilities Hub - QEUH

Present:	
Mary Anne Kane (MAK) (Chair)	Interim Director of PPFM
Ian Powrie (IP)	Deputy General Manager – Estates
Colin Purdon (CP)	Senior Estates Manager
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS
Ian Storrar (IS)	Principal Engineer – HFS
Teresa Inkster (TI)	Consultant Microbiologist
Iain Kennedy (IK)	Consultant in Public Health Medicine
Alan Gallacher (AG)	General Manager – Estates
John Hood (JH)	Consultant Microbiologist
Tom Makin (TM)	
Tim Wafer (TW)	
Apologies :	
Andrew Wilson (AW)	Senior Estates Manager – QEUH
In Attendance:	
Allyson Hirst (AH)	Admin to the Interim Director of PPFM

Discussion	**Action**
Discussion occurred on the following topics (supported by paperwork issued by Ian Powrie)	
• TW commented that based on the information available to him from the lab work done that his view was that there was a significant level of bio film contamination in the system with gram negative organisim. No work has been done to date on levels of contamination in flow straightners.	
• Discussion occurred on the lab results. It was agreed that the approach being taken to look at contamination the Horne straightners from new, after 1 week, 1 month, 2 months and 3 months was appropriate. It was agreed that 20 flow straightners would be sent to the lab "straight from the box" wearing sterile gloves. Bio guard straightners to be tested prior to install in the same way to get a direct comparison.	**CP**
Discussion occurred on the quality management arrangements described by Horne to IPs question sets	
• IP confirmed both manufacturers had confirmed that water was not used in testing these components	
• TW noted bio guards are individually bagged and sealed vs. Horne box of 250	
• IP went through the components in the Contour 21 straightners are as complex as the Horne straightners. It was suggested that it would be useful to do some checks in the lab on flow straightners from a non contaminated system to assess length of time taken for these to be contaminated	**IP/AG**
• AR suggested Monklands would be useful to review	**AR**
• Discussion occurred on potential ways to address sanitisation whilst Chlorine Dioxide is being procured. TW/TM agreed that IPS suggestion that an ultrasonic bath used then sanitisation with Chlorine Dioxide after then bagged "wet" would be eminently sensible to minimise risks. SOP to be developed and issued to WTG for agreement	**IP/CP**
• MAK asked if consideration needed to be made of the POUFs becoming heavily contaminated with bio film and therefore increase frequency of changing to avoid this risk. TW/TM confirmed the POUFs should cope with this but regular monitoring was required and changing of POUFs to avoid cross contamination needed to be carefully managed. Shower POUFs need tight connections to ensure no weeping of the water	**IP/AG**
• MAK asked if based on the knowledge that the whole system was contaminated should POUFs be fitted wider than high risk areas and drain cleaning extended across the hospital as	

she was concerned about any risk to patient safety. AR/TW/TM and TI confirmed that they were content with the current risk mitigation strategy in place but acknowledged that some of the actions being taken to do this were on contravention of national guidance especially around drain cleaning	
• Discussion occurred on the need to ensure that outlet flushing was completed routinely in every area with supporting documentation	
• TW/TM confirmed that the Chlorine Dioxide needed to be drawn through all outlets to ensure efficacy and this was challenging in new healthcare builds due to the increased number of WHB's and CWHBs and toilets compared to previous. Nursing staff need to be clear that they have a responsibility for patient safety and as a consequence water, and safe practices around this was consequently in inherent part of their role	
• Discussion occurred on record keeping for domestic staff. IT was agreed that "by exception" due to access was acceptable	**MAK**
• TM/TW raised the issue of who analyses the flushing and little used outlets and was non compliance to reporting requests being escalated and did estates correlate any flushing data/little used outlets data to high TVC's/Legionella/bacterial counts	**All**
• Discussion occurred on the inline value implications of the Contour 21 taps. This is an area of non compliance with guidance has not significantly changed since the build and commissioning phase. Pipe returns for hot water are above the ceiling and therefore non compliant as well	
• The non-compliances in the water system impact directly on the outcome of the investigation and actions to be taken HPS/HFS to advise	**AR/IS**
Drain Cleaning/Product Assessment/Cleaning of Drains Frequency were discussed	
• Contact time was critical and difficult to achieve in down pipes and connectors. IP advised that Tristel and other suppliers had not come up with a suitable solution as by their active gels and foams break down Chlorine Dioxide	
• TW/TM advised that there were products which would work but these were not suitable for use in a live patient environment	
• TW/TM advised there were significant pieces of work being done on drain contamination and that this was now being recognised as an unintended consequence of pseudomonas guidance on not cleaning drains	**HPS/HFS**
• Use of POUFs can contribute to drain splash back due to the reduced proximity between the tap POUF and the drain which causes aeroionisation	
• TM asked that Board ensure flexible hoses are EPDM	
Discussion occurred on tap selection	
• Optitherm tap suitability for use was discussed. TW noted another client of his was having similar issues with taps but he has other clients who have no issues. The Horn taps may be "holding" the contamination of the system due to the complexity of their makeup. Most clients who have contaminated system end up removing the taps completely as they are challenged to bring system under control for extended periods of time	
• The Horne tap is rough on its internal surfaces. Any alternative for Optitherm tap was discussed. This also has a rough inner surface. It can be stripped and cleaned easier than the current Optitherm taps. They do have flow straightners in them which would need replacement.	
• TW suggested that the Delaby tap was considered as it has a smooth polished surface. IP showed an image of this tap. This tap has disposable parts that can be changed	
• TW/TM confirmed that the Chlorine Dioxide regime should be fully implemented before changing the taps. Sanitise the system then sanitise the taps. The Delaby tap with a disposable spout and built in POUF is worthy of full investigation	**IP**
• Discussion occurred on the proposal to start dosing at 1ppm at the raw water tanks	
• TW/TM confirmed shock dosing was extremely disruptive and their experience suggested that continuous dosing over extended time is more effective in the long term. The system needs to be monitored closely and increasing to 2ppm at weekends may be an option	
• TW/TM highlighted that typical healthcare pipework is oversized by at least 25% which in itself creates challenges with ensuring that pipework is kept bio film free	
• TW/TM confirmed that there is no way to anticipated how long it will take for the system to be sanitised but that patient safety required to be kept as focus with regular testing and	

POUFs fitted everywhere to safeguard bio film deposits being removed. The level of contamination will increase as bio film is removed. It could take several years for the POUF to be removed and system brought back under control	
• Chlorine Dioxide levels in hot water supply need to be higher than in cold water supply. The key to ensuring high performance of the Chlorine Dioxide system is to ensure that the efficacy of the dosing plan is above 80%	
• Localised ward dosing for high risk areas should be build into the procurement process	
• TM/TW agreed that the Chlorine Dioxide dosing levels and management needed to be closely monitored and tracked to ensure efficacy. In some sense until start of dosing the size and scale of the problem is in some ways unknown	
• TW/TM had different views of the level of bio film contamination in the system	
• IK asked if samples could be taken and sent to a lab to get results on bio film contamination levels – IP to arrange	**IP**
• IK asked for clarification on acceptable ppm and shock dosing	
• TM/TW asked are all TMVs really required in all patient areas and agreed to forward a questionnaire to inform of contamination will increase as bio film is removed it could take several years for the POUFs to be removed and system brought back under control	
• TW/TM confirmed that Chlorine Dioxide would be effective on saphoritic organisms and fung but that the technical group needed to be focused on an ongoing basis to get this right	**All**
• It was confirmed the group will meet weekly until the end of the calendar year with HPS/.HFS support	
• A month sub group of the technical experts will meet to review actions and evolving situation to include TW/TM	**IP/AG**
• TW/TM confirmed in their experience that Renal Units water supply when properly managed is not adversely impacted by Chlorine Dioxide dosing. IP provided the example issued with papers. Renal alarms should be fitted	**IP/AG**
• Carbon filter fitment on water outlets as a precaution should be reviewed by water group	**IP/AG**
• Review of specialities in the unit needs to be undertaken with clinical colleagues to determine other areas which may be impacted by Chlorine Dioxide use. Teresa Inkster to undertake when returns from leave (ECMO/Cardiac Heaters/ Coolers, Aseptic Pharmacy, Clinical Physics)	**TI/IP**
Date & Time of Next Meeting	
The next meeting is scheduled for Friday 3rd August at 11.00am in Meeting Room, CMB Facilities Hub, QEUH	**Water Tech Group Members**

Water Review Meeting (Technical)

Friday 3rd August 2018 at 11am in Meeting Room – CMB Facilities Hub - QEUH

Present:

Mary Anne Kane (MAK) (Chair)	Interim Director of PPFM
Ian Powrie (IP)	Deputy General Manager – Estates
Alan Gallacher (AG)	General Manager – Estates
Andrew Wilson (AW)	Senior Estates Manager – QEUH
Colin Purdon (CP)	Senior Estates Manager
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS – Teleconference
Ian Storrar (IS)	Principal Engineer – HFS – Teleconference
John Hood (JH)	Consultant Microbiologist
Apologies :	
Teresa Inkster (TI)	Consultant Microbiologist
Iain Kennedy (IK)	Consultant in Public Health Medicine
In Attendance:	
Allyson Hirst (AH)	Admin to the Interim Director of PPFM

Item	Discussion	Action
1.	**Minutes from Previous Meeting (20th July 2018 and 27th July 2018)**	
	Notes of the 20th July were recorded as an accurate record of the discussions. Members agreed to review the content of the 27th July meeting and revert back to AH with any comments	**All**
2.	**Rolling Action List**	
	Requires to be updated	**AH/MAK**
3.	**Sanitisation Procurement Update**	
	IP reported that the procurement deadline for submissions had been extended to the 6th August and will be evaluated on either 8th or 9th August. IP agreed to provide an update to the next meeting. It had been determined by GBeattie and HMcIntyre that an independent cost advisor is brought on board if only one bid was received and IP reported that TM had indicated that he had information on similar, although smaller, projects costs for NHS trusts in England and this would give us some idea if the bid was appropriate. MAK noted that we must be able to demonstrate value for money.	**IP**
4.	**Water Tank Sanitisation**	

	IP provided a rundown of the results received from the most recent Potable & Legionella samples taken after each tank was cleaned, generally the results where clear with the following exceptions.
	
	The standard TVC and potable water results were negative with exception of
	
	• Raw water tank 1a Drain – TVC (22°C) - 1cfu/ml
	• Raw Water tank 2B Drain – TVC (37°C) - 4cfu/ml
	• Bulk filtrate tank 2B Drain –
	  ○ TVC (22°C) - 1cfu/ml
	  ○ coliforms - 1cfu/100ml
	
	Bulk Filtrate tank was resampled as this result was thought to be thought to be an environmental contaminant.
	
	On the back of these results IP had proposed to TI (ICD) that General Gram negative and fungi samples be taken and repeated monthly as a base line, TI agreed the samples
		AW/IP

	were taken on the 26/7/2018 and the results where tabled. The Raw water tank 2A drain connection presented positive results of 1 cfu/100ml (Acinetobacter Johnsonii) and 23 cfu/100ml (Delftia acidovorans) but it was not clear if this was an environmental result from the drain connection or issues with the water. The Bulk filtrate storage tanks 1B & 2B drain connections both had positive results 17cfu/100ml Pseudomonas/>100 cfu/100ml Acinetobacter gyllenergii and 39 cfu/100ml Pseudomonas veronii/34 cfu/100ml Delftia acidovorans respectively, this was suspected to be related to the extension of the tank drains points to improve and facilitate testing access were it was not clear that the new connections had been sanitised before testing? It was noted that this was possibly environmental but it was agreed that there should be a clean and sanitise of the sampling points and a retested. Report back to the next meeting – if results had been received. The micro filtrations units also showed counts at all sampling points, however there is a lack of clarity on the sample point locations and whither these results where pre or post filter? IS asked if the incoming water was ok. Tank 2A recorded positive results in one section of the tank 2B no positives. It was noted that the bulk tanks themselves were negative so far. IP agreed to clarify with DMA on the recorded locations of each filter drain point as the numbers on the report appear to be inaccurate to what is known. IP agreed to provide an electronic copy of the results to the members for their information (copy attached). IP suggested that the tests should be rerun for the tank room – all agreed that this would be acceptable to clarify. Bulk water testing is negative but due to uncertainty retesting to be carried out.	**IP**
5.	**Flow Regulator Testing**	
	Results received back from the regulators that were sent for testing after 1 month of use. The results indicate that there is bio film present but not visually. It was noted that within 1 month of installation a bio film has developed and this would indicated that there is a need for a monthly replacement programme. It was noted that within the hospital there are 2500 regulators and to allow this to happen within a one month period would require more resources and access to all areas to allow this to happen. It was noted that the threads on these regulators are delicate and can sometimes take a longer period of time to change over. The members discussed the option of attaching POUF to each and every tap comparing the cost with the costs of changing the flow regulators and it was agreed that a comparison would be worked up to determine the way forward at this time. It was agreed that this is likely to only be required until CD is established within the system. It was to be noted that the areas of high risk patients have a POUF installed. Estates to work up the costs for changing, sterilising, additional POUF being located and resources required for each of the possible options and bring back to the meeting The members discussed the possibility of high risk patients being located in areas out with their usual wards and it was considered that rooms in each ward are specifically designated for any high risk patients with POUF installed. The number of rooms on each ward was not a decision that could be made by Estates and this would require to be clarified and determined by ICT colleagues. It was agreed that IP will put this in writing to TI and TWalsh for a decision to be taken. Testing will commence next week with the sterilisation of the regulators as the sanitisation equipment had now arrived on site. Estates now have a table top as well as a larger machine which will allow the sanitisation of smaller components as well as large pieces of equipment where necessary. It was noted that not all part of the taps can be	**AW** **IP**

	sanitised using the proposed thermal system and would still require to be purchased. It was noted that IP had previously contacted Horne to determine if the thermostatic elements could be cleaned but concerns on the destruction of the wax seal would occur but it was agreed that the equipment we have should be used to test this theory and determine the way forward. At this time the santisation process was a 4 stage process but this would change as the CD took hold of the contamination IP spoke to an article he had within the Deeper Journal of the Water Safety Forum who had only recently had their first meeting. This article included some interesting information on similar issues in other parts of the country, automatic flushing being an assist in assisting the management of the water systems and it was agreed that this would be forwarded to members by IP.	**AW/IP/CP** **IP**
6.	**Water Coolers/Provision of Drinking Water**	
	It was noted that work is still to be concluded around this – it was noted by IS that the document was draft but this was intended for the Boards to take and manipulate to their own requirements. It was noted that if we need to increase the ppm we will need to include filters to ensure that the drinking water is still palatable and drinkable – POUF and filter. The temperature remains an issue for some and this is being worked on. Patient hydration remains a concern and the actual impact of having the water coolers removed needs to be clarified. It was noted however, that there is a large number of coolers on the QEUH site compared with other sites in Glasgow. A review of the patient hydration policy is required to ensure no impact. It was agreed that if the water is potable it is drinkable with the alternative of provision of vending machines	
7.	**Chlorine Dioxide**	
	The initial plan indicated that we would push 0.5ppm for a period of four weeks and then shock dose the system. After discussion it was agreed that shock dosing was difficult to delivery in a hospital environment and now looking at a higher level of continual dosing, establishing the back ground levels required and phasing up with multiple distribution sites across the hospital. Not dosing at the raw water tanks as they feed into the renal unit and can cause damage to the filters. Add the CD at the filtration tank and at the back wash cycle with lines from the booster pumps as this will allow the CD to be utilised to combat the bio film in a specified area to that we are then boosting so that we hit each stage to combat at each level and also at the heat station with dosing at the return and the cold water distribution to hit each zone with a fresh dose of CD with the advantage of this delivery system being that if any point fails we can boost it from another point. In order to carry this out we proposed to start at 1ppm for 24-48 hours and with manual monitoring to establish if residual at this time and if now ramp up to 1.5ppm and monitor weekly. If still not up then to 2ppm for three months to allow the CD to overcome the bio film. After this point if there are still residuals within the system we would need to ramp up again but at this point a risk assessment will need to be carried out. Phased installation is proposed with 2-3 teams working staring in the water tank in RHC heat station with a dose of 1ppm – this is thought to give the best chance to control the children's hospital quickly and allow the efficacy to be determine. HSF and HPs are asked for their thoughts on this – IS asked for the process to be written down so that a more thorough review can be undertaken and IP noted that he was almost finished writing this up and would forward as soon as completed. It was noted that this was possibly the best option due to shock dosing being so disruptive to hospital services. This will give flexibility with dosing but with the fully knowledge that shock dosing may become a requirement. The proposed installation will allow us to fine tune the zones and increase and decrease if and when required. If	**IP**

	above 0.5ppm the water is not suitable for drinking and continual monitoring will likely prevent this but there needs to be a process in place to ensure that we are not providing drinking water that is not acceptable – options to have the water tested before it hits the outlets.	
8.	**Drain Cleaning**	
	AW reported that this needed resources put back onto this and will provide a written update for the next meeting.	**AW**
9.	**Flow Straightner Programme**	
	Estates are currently working through the programme. Update to next meeting	**AW**
10.	**POUF**	
	These are being changed to the agreed timescales and signed off – lower risk areas now have 61 days with high risk areas remaining at 31 day changeovers	
11.	**AOCB**	
	Corrosion in pipe work within BMT – this was within the heating system not the domestic water system – it was noted that the pipe work is insulated and a very slow drip leak caught between the insulation and the pipe work had cause the corrosion and then only noted once it had come through the tile. Initial repair work carried out to make safe and then after clinical discussion to ascertain isolations required before carrying out the full repair. It was noted that the push fit connections previously fitted had caused a failure and previously leaks these had been repaired but there was a loose bolt fitting that had allowed seepage. It was noted that the ceilings within the BMT unit were different as they had access hatches with the most recent checks being carried out during other works in January of this year. NICU Water Supply – MAK had asked for a report on this incident and AW explained that with a duty and standby set up the standby had not kicked in and there is no automatic bypass of the filtration plant. If there is a failure then it would not be appropriate for the clinical team to bring water from the maternity unit as this is CD treated and not suitable for neonates. This matter needs to be clarified with clinical staff AR reported that she had taken the previously asked questions to the HPS Review Group and will now be taken to their Steering Group. Risk management of the POUF, flow straightners etc long term use – AR will respond to these questions formally	**???**
12.	**Date & Time of Next Meeting**	
	The next meeting is scheduled for Friday 10th August at 11.30am Meeting Room, CMB Facilities Hub, QEUH. MAK agreed that TM/TW next attendance would be 31st August	**All** **IP**

Water Review Meeting (Technical)

Friday 10th August 2018 at 11am in Mary Anne Kane's Office, JB Russell House and via teleconference

Present:

Mary Anne Kane (MAK) (Chair)	Interim Director of PPFM
Ian Powrie (IP)	Deputy General Manager – Estates
Andrew Wilson (AW)	Senior Estates Manager – QEUH – Teleconference
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS – Teleconference
John Hood (JH)	Consultant Microbiologist – Teleconference
Iain Kennedy (IK)	Consultant in Public Health Medicine
Apologies :	
Teresa Inkster (TI)	Consultant Microbiologist
Alan Gallacher (AG)	General Manager – Estates
Colin Purdon (CP)	Senior Estates Manager
Ian Storrar (IS)	Principal Engineer – HFS
In Attendance:	
Allyson Hirst (AH)	Admin to the Interim Director of PPFM

Item	Discussion	Action
1.	**Minutes from Previous Meeting 3rd August 2018)**	
	Notes of the 3rd August were recorded as an accurate record of the discussion with the exception of section 4 which required clarification to be forwarded to members	**AH/IP**
2.	**Rolling Action List**	
	To be updated	**AH**
3.	**Matters Arising**	
	AR noted that after discussions and review it had been agreed that the Water Incident Report was not in an appropriate format for forwarding to the Scottish Government and it was considered that a summary report was more appropriate. It was noted that the report had not included crucial information and this would be addressed in the report to the Scottish Government and MAK noted that it would be a missed opportunity to include some of the findings from the investigation. Included in the main report are ventilation, water, roots and branches including – cleaning and nursing practice and the build environment MAK noted that the review of the water incident paper had produced some 200+ comments on accuracy, layout and contents and the relevance of some of the information – these will be forward to AR later today The 2A/2B report will be submitted at the end of September Ventilation – IP and JLeiper are working to pull together for information on ventilation to assist AR with her report including PPVL/isolation change – the facts as they are will b presented to AR.	**AR** **IP**
4.	**Procurement of Sanitisation**	
	IP reported that 1 bid had been returned 2 of the possible bidders had withdrawn due to lack of resources to meet the demands of the project. IP noted that a review of the bids had indicated a higher than anticipated costs but noted that all within reasonable value for money. Comparable contracts carried out for NHS England were of similar value and the company proposed to take this forward had proven efficacy in their product with this type of work being their single focus. It was agreed that paperwork should be concluded and a waiver prepared for sign off by MAK and MWhite and aim to sign off next week and get the order placed.	

	MAK noted that a paper on this had been seen by the most recent Capital Planning Group (CPG) and had been approved for progression. MAK noted at the CPG would have further submission to resolve this issue in the coming months. It was noted that the contract costs came in at £860K + VAT bring this to just under £1M. This included the plant, chemicals, out store and replacement of the expansion vessels but not the filtration plant which would be sourced via Veola or the emergency connections. The timescale for this was 4 weeks from order place and schedule from their bid indicated that they can delivery to our timescales but it was noted that the tender was 1 week late being delivered and reviewed with previous indications it would start on 10th but now pushed back by two weeks. Milestones to be noted and reported to the CEO – order, installation, start, review, timelines etc A pre start meeting will be set up after the award is processed and from this dates can be firmed up. IP has prepared a paper with all this information included As a starter plan for progressing the tank room and children's hospital would go live in mid October but definitive time lines will be reported. IK asked if other companies had indicated if their timelines would have been better – IP noted that this was not possible to know as they had not submitted a tender as they could not provide the resources required to complete. IP noted that the award winning company were market leaders in their field and have proven efficacy and specialists in their field with proven results.	
5.	**Drain Cleaning**	
	AW reported that a redirect of resources to complete the flow regulator programme had mean that this had not progressed but noted that this had now almost concluded with around 5 to complete and these were due to access issues. AW was asked to confirm the numbers and notify once completed and when resources can be redirected back to drain cleaning. AW confirmed that once these were concluded the flow regulators had been changed within both hospital and the programme which had started on 6th June would restart again on 6th September to follow the 3 months change programme. It was noted that 2A had requested a drain clean after a visit from HPS who had noted that there was a fine film found and AW noted that this was one of the first areas to have a drain clean and AR suggested that a view of the area is taken and a drain clean carried out. It was noted that a suitable chemical had not yet been found and IP will continue to source a suitable product. AW to liaise with local ICT to determine an appropriate methodology for carrying out the drain cleans in this area and it was noted that dependent on the agreed methodology it may include additional time for each clean. MAK noted that it would be challenging for the staff as well as clinical impact to carry out cleans on a regular basis and IP noted that once the CD was progressing through the system it may not be necessary to carry out so frequently. AW will discuss with Susie Dodds on an agreed way forward.	**AW** **AW**
6.	**AOCB**	
	Susanne Lees Report in Glasgow Format – this was to be concluded by members and MAK asked that comments are sent back to AH for inclusion and be reviewed at the meeting next week. JH reported that he had made contact with colleagues at Leeds University Hospital to request information on their water feed to the neonatal unit as it is known that they have a CD plant. It was not likely that neonates would be ingesting water from the tap or being washed in it but information is required and decision made on this supply. Baby Feed Unit – definitely to be moved to ensure that the water used is not CD dosed and noted that this and the labs would not be included in the CD dosing – AW to follow up with CP to conclude the initial discussions on the design work carried out and it was made clear that this needs to be concluded prior to the CD dosing commencing.	**All** **JH** **AW/CP**

	AW asked the group for clarification on areas that were highlighted by DMA for installation of POUF, Vending coffee machines in staff areas and atrium and boot wash in theatres along with ice machine in theatres. After some discussion the group agreed that the coffee machines did not require as the temperature of the water would kill off any bacteria, boot wash was for cleaning theatre clogs and the water is of sufficient temperature to negate any issues and would not be in contact with patients and the ice machines need clarification if this is for clinical or patient use. Noted that there is a boot wash also located in the children's theatre and should be included MAK noted that she was on leave for the next meeting and this would be chaired by IP in her absence.	
7.	**Date & Time of Next Meeting**	
	The next meeting is scheduled for Friday 17th August at 11.30am Meeting Room, CMB Facilities Hub, QEUH or by teleconference.	**All**

Water Review Meeting (Technical)

Friday 17th August 2018 at 11am in CMB – Meeting Room 1: Facilities Hub [and via teleconference]

Present:	
Ian Powrie (IP) (Chair)	Deputy General Manager – Estates
Alan Gallacher (AG)	General Manager – Estates
Colin Purdon (CP)	Senior Estates Manager
Teresa Inkster (TI)	Consultant Microbiologist
Iain Kennedy (IK)	Consultant in Public Health Medicine [Teleconference]
Ian Storrar (IS)	Principal Engineer – HFS [Teleconference]
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS [Teleconference]
Apologies:	
Mary Anne Kane (MAK) (Chair)	Interim Director of PPFM
Andrew Wilson (AW)	Senior Estates Manager, QEUH
John Hood (JH)	Consultant Microbiologist
In Attendance:	
Fran Hollowell (FH)	PA – David Stewart [admin cover]

Item	Discussion	Action/ Lead
1.	**Minutes from Previous Meeting 3rd August 2018/10th August 2018)**	**IP**
1.1	Notes of the 3rd August 18 - all were content with the clarification forwarded to the group.	
1.2	Notes from 10th August – Meeting note recorded as an accurate record of the discussion.	
2.	**Rolling Action List**	**IP**
	Actions updated as per attached Rolling Action List - refer to this list for further details. Items closed: 23/39/40/41/43/49/52/53/54/55/56/57/60/61/63/70/71/72/75/80/84 **Additional Actions:** Actions 54/55/56 - CP to check completion dates, for the meeting note; Action 61 – AR to resend Review of Sensor Taps and Literature Review to group members; Action 83 - There is a need to understand both the filter agreement, and the subsequent financial commitment – to be added as an agenda item for the Water Technical Group meeting on 31/08/18.	CP AR AH
3.	**Susan Lees – Report/Action Plan**	**IP**
3.1	[1] Commissioning Issue; Is guidance required from HFS perspective on Action Plan? All agreed, not at present, although should be considered as a long term requirement. It is unclear as yet as to whether additional work will be required	
3.2	[2] Training has been implemented at various levels, and is approximately 70% complete. An 'in house' module is being developed iro risk identification and water management - this has not yet been ratified. Support will be required for the delivery of awareness training. This training should focus on current issues and not replicate current standards. Once the face to face training has been completed, it is intended that a Learn Pro module will be put in place. IP/Phyllis Urquhart to progress ratification/training dates.	IP/ Phyllis Urquhart
3.3	[3] Disinfected tools – Ongoing. Timescale has not yet been agreed. Work outstanding [including detail around contractors], and how work will be progressed – accreditation information is available.	
3.4	[4] Water Safety Group – Ongoing; Meeting to take place with MAK/TI/Tom Walsh. Clinical aspects to be included for discussion at this meeting.	
3.5	[5] Ongoing - Links with [4] – needs to be discussed at Water Safety Group.	
3.6	[6] Developing an Asset Register. IP/Phyllis Urquhart extracting asset information, and is currently being progressed.	
3.7	[7] Wash Hand Basins [WHBs] – Completed; Is there scope to remove from single room	

	accommodation? AG noted that this is a Clinical decision, and is not an Estates role. All agreed that the building has been designed to appropriate standards and any subsequent issues should be dealt with as they arise.	
3.8	[b] Flushing IPCT – Ongoing [MAK]	**MAK**
3.9	[c] Partial - Ongoing [MAK]	**MAK**
Fire Alarm disrupted meeting: on return apologies were noted for IK/IS, due to time constraints		
3.11	[8] Design Guide – this is covered within the Guidance. Temporary monitoring in place in terms of tank temperature [cold water from storage – 2% rise is allowed, within a 4% fluctuation across the overall range]. Not more than a 2% rise has been recorded to the final outlet, which is within the agreed range. Building design is maintaining the temperature regime. The installation is therefore working within required parameters.	
3.12	[9] Challenge – No inserts. This remains 'Ongoing'. It is achievable, but range is limited.	
3.13	[10] Completed [F] ; SOP in place for filter changing	
3.14	[11] Completed [F]	
3.15	[12] Completed [F]	
3.16	[13] Completed [F]	
4.	**Update: Drain Cleaning/Flow Regulator Change**	
	CP noted: • The drain cleaning has been completed and 'Open Plan' work is almost finished. • The Flow Regulators [digital locks]; numbers required. • Drain cleaning in 2A/B; Pictures were received from HPS of black material around drains. TI requested drain cleaning at the local water group meeting on August 15th. • TI reported 3 more cases of Klebsiella in spinal injuries, Issue with the showers not draining was discussed - estates colleagues are reviewing • DMA now have start date.	
5.	**Procurement of Sanitisation**	
	Procurement: Current Status - 'Out to Tender', with one response received and two apologies noted [as they did not have sufficient resources to meet our requests]. This is progressing well. The tender evaluation has been submitted to Mark White. [Director of Finance], and is awaiting final sign off. Continual dosing [@ 4ppm]: Outline proposal is available iro the dosing regime [document has been distributed]. This will be more expensive, and will result in changes to the overall cost model	
6.	**Fault in Filtration Unit of NICU**	
	Information recorded at Action Point 87 refers; Action Ongoing. Feedback has been sent to the Unit, and affects only NICU at the moment. This issue regarding filter failure within the Neonatal Unit was raised at last meeting. IP recommended that if this reoccurs, then Neonatal should not decant water from Maternity for ingestion [not bathing] as this water has been treated. Feedback indicates that it is the intention for ingestion only at the moment. A weekly check has been implemented – noted that if filter is found to be blocked, this will indicates an increase of debris, and will be useful to ascertain how quickly the blockage had occurred.	
7.	**AOCB**	**All**
7.1	Water Quality Reports: IP noted the water test results for Tank Room, with most results negative from the filtration plan. Those dated 15th relate to cold water tank/environmental. Points to Note: • Results suggests an issue via mains; • Drains have not been capped – it is not clear as to whether they had been sanitised. They will now be capped and sanitised, which will be a protocol change. Agreement has been obtained to take sample from tanks. However, it is still to be clarified as to how long sample should be run. All agreed that 2 minutes would provide enough flow from the body of the tank [high flow on connection]. Mel will contact DMA for revised SOP to be produced. This should be ratified at this group; • Raw Water Tank; greater than 100 – this suggests that the drains have not been sanitised/capped. Await next monthly test before clarification; • Filters – The majority of positives on the filters confirm that the upstream of filters are working appropriately;	IP

	• Filters - Representation of layout. Now using numbers 1 – 9 to identify the areas under discussion. This numbering convention needs to be consistent with DMA standards. IP to put relevant numbers onto each of the connections to replicate numbered chart. He will confirm this in a SOP. **Action -** IP to put relevant numbers onto each of the filtration plant connections to replicate numbered chart - he will confirm this in a SOP.	IP
7.2	Chloride Dioxide; Water Treatment Protocol – Discussion is required as to whether this is a viable way forward. This item is to be included in the agenda for the next meeting, on 24/08/2018.	FH
8.	**Date & Time of Next Meeting**	
	Date and Time of Next Meeting – 24th August 2018 at 13:30 – 15:00hrs Large Meeting Room - CMB Building Facilities Hub – QEUH or by teleconference <u>Apologies noted for this meeting from</u>: Ian Storrar Colin Purdon Annette Rankin Allan Gallacher	

Water Review Meeting – Meeting Note

Wednesday 22nd August 2018 at 8 a.m. in MAK Office, JB Russell House [and Teleconference]

Present	
Jonathan Best (JB)	Director – Acute Services
Jim Leiper (JL)	Lead Project Manager (attending by teleconference)
Tom Walsh (TW)	Infection Control Manager
Apologies	
Mary Anne Kane (MAK)	Interim Director of PPFM
In Attendance	
Fran Hollowell (FH)	PA – David Stewart

	Discussion	Action
	Review of Guidance	
	JL confirmed: • Review of SHTM and Ventilation will resume following the review of the HFS Report • Water Investigation Interviews have commenced from 16th August 2018.	
	Governance	
	• Update @ Board meeting on 21/08/2018 was confined to wards 2a and 2b [HAI Scribe]. • Requested data has been submitted [HFS/HPS] – there have been no comments received to date. • JL noted that the Incident report has been delayed, as per Annette Rankin [Nurse Consultant – Infection Control]. He noted potential difficulties in respect of clarification of the report detail, due the complex nature of its content. JB recommended a meeting with HFS/HPS in order to influence the content of future guidance.	**MAK** **MAK/JB**
	Action Plan	
	• Dental Chairs – email correspondence has been received from Maxiofacial, confirming the service agreement is in place. • Scanners – Lynne Ross is taking this forward and will update/confirm once Service Contracts are in place. No response from Lynne Ross as yet – TW to pursue this.	**MAK** **TW**
	Taps	
	• Still awaiting national guidance - this is being followed up on a weekly basis. JL noted that research findings needed to be factually based and not subjective. At the Water Safety Group on Friday 14/08/2018, Sandra Devine noted little difference in standards with current taps. Replacement could result in significant implications with the manufacturer in terms of ratifying the particular tap protocols in order to mitigate risks. In addition, there are potentially significant financial cost implications @ £5m. A possible solution could be to maintain, report on current position and then deal with issues as they arise. • Infection Control Risk Assessments within high risk areas are ongoing, and include the monitor of flushing regimes. JB considered it prudent to review the current risk assessment activity, with a view to assessing the evidence that the flushing regime was actually being undertaken, and therefore mitigating this risk and it was noted that SDevine and TInkster have progressed this. All agreed and TW advised he would take this item to the Water Safety Group meeting on Friday 24/08/2018.	**TW**
	AOCB	
	• Filtration Plant – Ongoing action: Allan Gallacher [General Manager – Estates] has encountered delays when querying expenditure/the management of the revenue consequences. JB advised that the overall expenditure package has increased, and the Capital Planning Group is aware of, and content with the expenditure to date, and the governance groups monitoring this area. The request for additional funding will be ratified via the Corporate Management Team, who will require assurances around the safe operation of the system. JB will pursue this matter with Mark White. • CNO Letter: TW has submitted the CNO letter – complete. • A Project Manager/team to take forward the outcome of the Report was discussed, for	**JB**

	agreement with CEO, once the HFS Report received. • Approach to Multiplex and Currie & Brown – some of the outcomes from the HFS Report may give us additional background to pursue this further. Next step will be to discuss this with Jane Grant [CEO] in order to maintain momentum in this area. Further action is deferred until the report is received. • National Guidance – remains ongoing, as at 22/08/2018.	
	HFS Report	
	• The HFS report was expected by Friday 17/08/2018. All comments were collated and submitted to HFS by the deadline date of 10/08/2018. AR had previously advised that further information was required – to check who Annette Rankin is discussing this issue with and advise the group.	**TW**
	Date and Time of Next Meeting	
	The next Water Review meeting will take place on Tuesday 28/8/2018 at 8am – either in person at MAK's office, JB Russell House or via teleconference. It is intended that there will be one meeting per week until further notice – details will be within the diary request.	**All**

Water Review Meeting (Technical)

Friday 31st August 2018 at 11.30am in Meeting Room CMB, QEUH

Present:

Mary Anne Kane (MAK)	Interim Director of PPFM
Ian Powrie (IP) (Chair)	Deputy General Manager – Estates
Andrew Wilson (AW)	Senior Estates Manager – QEUH – Teleconference
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS – Teleconference
John Hood (JH)	Consultant Microbiologist – Teleconference
Teresa Inkster (TI)	Consultant Microbiologist
Alan Gallacher (AG)	General Manager – Estates
Tim Wafer	?
Tim Makin	?
Brad ?	?
Apologies :	
Colin Purdon (CP)	Senior Estates Manager
Ian Storrar (IS)	Principal Engineer – HFS
Iain Kennedy (IK)	Consultant in Public Health Medicine
In Attendance:	
Allyson Hirst (AH)	Admin to the Interim Director of PPFM

Item	Discussion	Action
	Bulk Water Storage Tank	
	The DMA method statement for sampling in tank rooms to allow modification of the current methodology and it was noted that pseudomonas was not an appropriate way of reviewing results. It was noted that there were a large number of samples and it was suggested to filter the samples to give a better indication of what was happening. Filter part numbers were being used to identify and now samples only being taken from points 9, 7 and 5 to give a clear reading and will allow monitoring the output	-
	Disinfectant	
	1% chlorine minimum and it was also noted in section 5 Dettol in inappropriate as is Iso???? . IP agreed to arrange for the method statement to be updated. All present were happy to endorse the statement	IP
	Bulk Storage Tank Details	
	Positive results are still being recorded and mainly from drain point but with very low levels from tank numbered 2B. The majority of samples are positive but these are drain connection retests. TM noted that there was no dip method statement and this needs to be clarified – IP agreed to progress the dip method. IP noted adverse results are from the drain connections and thought that this was due to environmental conditions in the tank rooms and TI arranged air sampling to be undertaken and noted the following • Cockroaches • Fungal odour • Room was not ventilated • Water ingress • Floor was noted to have dried out algae on the floor It was agreed that the area was to be cleaned, repainted with anti fungal paint, removal of equipment stored and this will be disinfected prior to use, fix the man hole causing water ingress and pest control asked to come in deal with the cockroaches. IP suggested that further sampling is undertaken after the works are carried out and that HEPA filters are used to scrub the air prior to sampling being undertaken. Preventative measures to be put in place is ensure all relevant works are carried out as above, monitoring and reporting any issues with the room through the relevant channels, not	IP

	to be used as a storage area and to ensure the area is kept clean and tidy and ensure that the level of the water remaining in the sump pump is altered to ensure less standing water. It was noted that it was difficult to ventilate this room due to its location and it was noted that the ducts will be used as part of the chemical dosing process. Review the possibility of using the corridor as ventilation to be considered.	IP
	CD Tender Status	
	IP reported that the tender had been returned 3-4 weeks prior. Due diligence has been carried out and a letter of appointment was issued on 30th August and a PO raised later today. A prestart meeting is scheduled for Wednesday 3rd September. IP noted that there is a 4 week lead time for equipment and manufacture. Flow through vessels are to be discussed for replacement – in review with the company a simulated flow through had been offered and IP has challenged this in the tender process and the company have acknowledged and will provide true flow through vessels. Lead time on this is more than 4 weeks and will hold up the CD implementation but it was noted that there is no point in commencing the CD work and pushing through the old vessels and IP will reemphasise this at the meeting next week. It was noted that guidance for these vessels was not specific enough and remain to be installed using the simulator valves and MAK suggested that this is raised with the Department of Health and HFS agreed to progress this. The contract was awarded to Scottmass.	HFS
	Contract Status	
	A bid for capital monies to enhance the micro filtration units. It was noted that any failure can cause the tank to become empty before issues can be resolved and with the new process we can fill the tank in less than half the time and additional connections to the adult hospital as a failsafe for the hospitals and it was important to address this at this point as it became clear we did not have it in place and to ensure that for business continuity we have resilience built into the system.	-
	Continual Water Treatment Protocol Paper	
	This paper was prepared for the dosing levels for CD initial and how this will ramp up to 2PPM and to ensure residual chemical was retained within the system and it was noted that we also need a descalation process after achieving the residual to a maintenance level and it was agreed to update the paper to reflect this. There will be an impact to the contractor and this will be part of the discussions. It was noted that the RHC and localised areas will be hit with CD at the same time to achieve the levels required. Following which the adult hospital will have their install which takes around 3 weeks to conclude. It was decided to carry the work out in this order to that the high risk areas are dealt with early including – ITU, BMT and then move towards the less high risk area. Reference to shock dosing was noted within the paper and whether we would use POUF. It was noted that the continual dosing will have the POUF remain in place to catch any dislodged material for a period of around 6 months. The question of all areas or just high risk – If this could be reduced then it would provide some savings but the costs requested were for the worst case scenario but will pair back if possible. MAK reported that there has been some difficulty in ensuring the capital for this project but there is a patient risk and there is no other way to deal with it. We need to provide due diligence using the POUF and we are using this as protection for every patient and MAK has asked for guidance from HFS and is awaiting this but noted that she would be more comfortable to prevent any bio film that becomes dislodged is captured and this would also be a reassurance for patients and staff. It was noted that the POUF may dam the system and cause it to slow down and counter effect to ensure that the water legs are properly flushed and the CD brought through. Full bore flushing could alleviate this. TW noted that augmented care patients are the main risk and there was further discussion that there would be high risk rooms allocated on each ward that are specifically designated for those particular patient groups and there would be merit in writing up a protocol for clinical staff so that they have a process to contact estates to immediately react to provide POUF for any additional rooms. TW also noted that the levels we are using are sensitive and less likely to cause biform dislodge and that it would be so delicately coming through the taps that it is unlikely to	

	be noticed and as the method we are using we should focus on the patients that are high risk and not for any of the areas outwith but agreed with the additional rooms in each ward to account for any high risk patients that may be admitted. It was agreed that other patients would be unaffected by any bacteria that may come via the taps.	
	It was noted that the hot water will be dosed by CD and will cause to gas off but it was noted that this makes the CD more effective but on the other hand it also increases the risk for corrosion to metal. And it was noted that we would require to be very vigilant after this commences and carry out checks. IP noted that he was aware of the corrosive nature of the CD gas to the pipework specifically in crimped connections causing stress crack corrosion but noted that the max CD of 4ppm for residual and drop back to 2ppm kept this within acceptable risk. It was noted that this was high for a hot water system and the manufacturer states max is 5ppm and the Board will take the risk and it was noted that the warranty would become nil void as soon as CD commences. But it was noted that we have no choice in this as we need to carry out the work to ensure the water is safe. It was noted that our hot water temperatures are not consistent at this time and we are working with the contractors to rectify this including the demand not being achieved during summer and the concern was that this would worsen during winter months. It was clarified that the group agreed that POUF would be used in high risk patient areas and a determination of the number of rooms and their locations to be clarified and TI will progress this.	TI
	Legionella Testing	
	This was carried out as per the policy and no positives have been found initially but a result was returned for level 7 in the adult hospital with <1500 – additional flushing regimen was put in place and sanitisation will be carried out and in any other areas found to be contaminated. It was noted that this has not been seen up to and during the recent events. It was noted that this could be present within the bio film and CD dosing may cause this to be released. Showers would be the main area of concern along with respiratory patients. It was noted that the recent find had been dealt with and a determination on the best method of sanitisation. Checks to be carried out on whether the optitherm taps in this area had been checked and will be sampled.	-
	Transfer of Neonatal Supply	
	Progressing and will be complete prior to the CD installation.	
	Drain Cleaning	
	Still progressing noted that 2A and 2B are being redone. It was initially noted that patients could remain this had been altered and it was noted that this will now take longer than first thought. Growths found in the drain connection has been treated with disinfection using the drain plugs as demonstrated by IP and followed up with sanitiser product. Trials will be carried out and all present were happy with the proposal. It was noted that the silicone washer was the likely cause of the recontamination even though it is impregnated with biocide. The silicone seal is RAS approve and IP suggested that the silicone is sent to the labs to determine its ability to withstand the CD and IP also agreed to check the RAS approval. IP noted that he was scheduled to meet with Armatage Shanks in October to determine if this connection could be modified to prevent the growth. Those present agreed that a pilot of this could be progressed and benchmarking levels agreed with clinical colleagues	-
	Additional Measure for Prevention in High Risk Areas	
	Marquick sinks replacement during tap review in 2A, 2B and 4C. The options included with this sink would provide mitigation to some of the issues were are currently seeing. MAK asked if it was necessary and ware fining issues within these sinks and growths being found in drains and if this works it would be a model for other areas although it was noted that there was a splash back from the tap water velocity and the position of the tap but it was noted that this was compatible with the taps that have been selected.	-

	Sensor Taps	
	Psudomonas levels are reported low in areas with this type of tap installed as they are programmed to flush at appropriate intervals and thereby negate the need to physically flush – used as an example of good practice. Simple taps have proven to be effective but these are not recommended by HFS and HPS.	-
	Sentinel Point Monitoring	
	Compiling a list of the points is proving illusive and was being reviewed by IP and TW. It was agreed that two far points and 1 near point and will be used for monitoring and microbiological monitoring and will allow monitor the chemical level at this outlet and use the DSR raw hot and cold and this will show the difference between the hot and cold system. Micro samples taken from previous areas but agreed that the DSR would be used as a base line for hot and cold system. Are Scotmass assuring the efficacy of CD is clear? They are it is above 95%. Automatic monitoring will take place in designated areas as well as manual monitoring. Automatic monitors will provide early warning of any higher rates. This will be front ended to BMS and on the bespoke telemetry system and managed by the manufacturer but NHS will have access. Any alerts will be fed back to us by the telemetry system and auto shut off if in excess of CD detected.	-
	TVC Monitoring	
	IP and TI have worked on this to a conclusion. The will determine the values for removing POUF. It was noted that it will take time to achieve the chemical levels required and proposed build up the data prior to the installation so that we can review at the CD is processed through the system will this will provide a baseline – this will be carried out for the next four weeks using the sentinel points in each of the eight systems. IT was noted that this paper will required to be changed to accommodate the changes to the proposals on the areas that should have POUF installed	TI/IP
	Renal	
	IP reported that he had met with technical and clinical teams. The outcome was positive and supportive of the proposals but concerns were noted from the clinical team of CD reaching the patients. IP reported that carbon filter will not remove at 2PPM and revising the model for the tanks and booster pump dosing to cut off if CD exceeds 1ppm and dose to 2PPM at the distribution stations. When the CD reaches the heat station and to the branch that feeds RD and the pipework will be modified and so does not capture the local treatment thereby not dosing the RD unit. Endoscopy also represented at the meeting and their plant will be treated in the same way. Monitors will be put in place to shut down the RO plant prior to any CD getting anywhere near o the patients and they were comfortable with the concept but noted concerns with the shutdown of the system but it was explained that the system is set such that it should not happen but safeguard. IP has retained notes of the discussion	-
	Clinical Equipment Impact	
	ECMO is carried out using distilled bottled water so therefore not an issue for this service. Bypass machines are on primary and secondary circuit and so no risk to the patient. TI noted that there is aerosolisation from this machineries cooling system and had previously caused issues and TI agreed to pick this up but noted that CD would have no impact. Infusion also on primary and secondary circuits but the service will check this and report back but thought no issue from CD. Labs have confirmed that no satellite labs with connection to the water system. TW noted that the audiology department should be checked as they do use a piece of equipment that could potentially use potable water to put into a device but there should be no impact to patient unless they had additional clinical issues.	-
	Flow Regulators Testing Results	
	Graphs show the bio burden on the flow regulators on page 9 of the report. After 1 week no indicators, after 1 month and after 2 months results are still awaited but some details known and recently submitted 3 month and <10 recently. It was agreed that a	

	bar chart would show this information for ease of understanding. It was agreed that these need to be changed/cleaned at least monthly – determination if the regulators are to be cleaned and or sanitised. Horne have been asked for their opinion on this and concern on retrograde contamination – no guidance received on either changing the design or the opinion. There was a discussion on the possibility of putting a filter further back into the system to see how the regulators react when cleaner water is running through them. IP suggested this previously and was told at the time that this was against regulators – it would be good to see if the regulators were the issue or the water causing the issues. The group discussed that this could be a national issue but should we be informing other Boards at this time as we are not sure that this is a regulator problem or is this is being caused by the water issues. The regulations now tell use to remove these from the optitherm taps but as this was causing splashing which then goes against the regulations but there is a risk to augmented care patients and it should be notified to Public Health England. POUF being added to the taps with removed straightners and this is controlling the flow but this is a short term measure. It was anticipated that once the CD has taken control of the system it will become clear if the straightners are a cause or just an effect of the water and if the latter then a regulator maintenance programme can be set up to change at regular intervals thought to be quarterly. AR agreed to contact Monklands to determine their change pattern and ask them to sample their regulators. TW noted that there are other hospitals who have similar issues with their flow straightners and no known issues with their water system at this time. TW noted that he would be happy to approach one of his clients who have the same taps if they would be happy to provide a few of their flow straightners to allow us to check so that we can rule these out.	AR
	Psudomonas Guidance	
	This is currently in draft form – AR noted her concern that it should be called something different as it encompasses other organisims – this is being considered and will be updated	AR
	AOCB	
	TM noted that he was impressed by the levels or work being carried out to resolve the issues that Glasgow have been experiencing compared to other hospital Trusts who have similar issues but are not working so hard on ensuring this is resolved.	-
7.	**Date & Time of Next Meeting**	
	The next meeting is scheduled for Friday 7th September at 1pm Meeting Room, CMB Facilities Hub, QEUH or by teleconference.	**All**

Water Review Meeting (Technical)

Friday 7th September 2018 at 11.30am in CMB – Meeting Room Facilities Hub [and via teleconference]

Present:	
Ian Powrie (IP) (Chair)	Deputy General Manager – Estates
Alan Gallacher (AG)	General Manager – Estates
Andrew Wilson (AW)	Senior Estates Manager, QEUH
Teresa Inkster (TI)	Consultant Microbiologist
Iain Kennedy (IK)	Consultant in Public Health Medicine
Ian Storrar (IS)	Principal Engineer – HFS [Teleconference]
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS [Teleconference the attended]
Apologies:	
Mary Anne Kane (MAK) (Chair)	Interim Director of PPFM
John Hood (JH)	Consultant Microbiologist
Colin Purdon (CP)	Senior Estates Manager
In Attendance:	
Allyson Hirst (AH)	Admin to the Interim Director of PPFM

Item	Discussion	Action/ Lead
1.	Minutes from Previous Meeting 17th August 2018 were confirmed as an accurate record of the discussion	
2.	**Meeting of 31st August – Water Technical Group and Water Experts**	
	IP reported that at the last meeting of the group included TW and TM and discussions took place about the location of the POUF during the CD dispersal. It was agreed at this time that these should only be located within the high risk ward and will not be required on every tap throughout the hospitals. To this end the TVC and continual monitoring papers will require to be updated. The rational behind the decision was that the organisms that are being found are not pathogenic to those who are not immune suppressed. It was agreed to change the documents to reflect this to ensure full documentation Sampling was agreed to be taken in the 4 week run up to the CD commencing and this will provide a base line in which to work with and this will commence in the coming weeks. It was noted that within the papers the details of the escalation was detailed but agreed that a de-escalation is also prepared and documented. IP and TI will meet on IPs return from leave to conclude the documents as the CD programme was scheduled to take place mid/end October	**TI/IP to update reports**
3.	**Bulk Water Storage and Tank Micro Filtration – Air Sampling Results**	
	TI reported that the recent air sampling of the tank room had found fungi. Due to the counts found it was not possible to determine types and determined this was not necessary as it was clear there was fungal growth. The findings were found to be higher than would normally be found in an area like this. IP noted that there had been a leak found in one of the tanks which had led to residual water in the room and this is being cleaned. A duct into the room was also found to have water contained which was coming from a leaking manhole cover – this was being repaired but also noted that there was alga on the floor – albeit dry at the time of sampling and was considered to be the source of the fungi in the air sampling. The corridor outside was sampled and noted there was a considerable drop in the counts. Work has been carried out in the area to alleviate further issues and the room will be monitored. Plumbing items in the store room tested positive on surface swabbing for fungi which will be identified. All plumbing items stored within this area will be sanitised and checked to ensure clean and appropriate to use. AP asked how long the room had been in this condition and IP noted that the water ingress was	

	within the last three months but the other matters he could not comment. Pest control have also been contacted as there was found to be an infestation of cockroaches in the area. IP also noted that the filtration plant backwashed are sent to the sump which then gets sent to the drain but there is debris left and a review of sealing this off from the environment. Two industrial HEPA filters are being installed to scrub the air to get this under control. Sample points are also being altered and capped to ensure that sample points are away from the floor and sanitised again to ensure no environmental exposure. AW noted that the tank will be emptied on 12th September, repaired and sterilised prior to refill	
4.	**CD Update**	
	IP reported that a pre start meeting had been scheduled for this week. Progress was agreed and there will be a 4 week lead time to finalise the layout design along with the equipment purchase. Chemical store requires a building warrant and until this process is completed a temporary store will be erected within the tank room in the basement. IP clarified that the process for introducing the CD into the system including the monitoring system which will give indications of the strength of the CD in different parts of the system including early warning of any issues with the RO. Veola are reviewing their control arrangements and safeguards will be put in place to ensure as far as possible we have covered for every eventuality and a meeting with Renal team is scheduled for 5th October to review plans and respond to any questions. Having sufficient monitoring will allow the CD to be decreased and increased as required ensuring the agreed levels are being reached throughout the system. AR asked for clarification on the 3 year time frame that has previously been mentioned – this was clarified that until the CD is running through the system and samples are returned it will be difficult to determine how long it will take but we need to take into account that the system is relatively new and pipe work is still in good condition the bio film should not provide any resistance to the CD. At what point can the POUF be removed? – this cannot be clarified at this time and will be determined by the results received from the monitoring. It was noted that the surface of the internals of the taps may prove more difficult to clean with the CD and at this point we need to consider removing the taps and carrying out sanitisation separately. Once the dosing starts the risks will be reduced but timeframes cannot be given until the process is underway. Agreed that a meeting needs to take place with the adult's representatives to ensure that they are fully aware of the purpose and reasons behind the POUF and to ensure appropriate areas are fully covered. This will also be the best opportunity to put in place plans should shock dosing be required. RHC has already commenced their planning and is progressing. Outages to the water system – these will be kept to a minimum and will be fully discussed with the clinical teams and allow planning for preparations to be put in place for this period. Once fuller details are received from the supplier this will be clearer. Shock dosing would only be considered if what is being planned in the timescales is found to be having little or no effect. At this point a decision will be required to continue on or put shock dosing plans into place. It was agreed that shock dosing will provide us with many challenges to clinical workload Installation of the CD will require break into the pipework and at this time the opportunity will be taken to get samples of how the CD reacts to any bio film found at this time. Quick and rapid dispersal will be the first priority but noted at this time some areas of the adult hospital will be affected.	
5.	**Other works**	
	At the time of installation we will take the opportunity to install emergency connections to the tanks in the basement as this had not been included in the original design – this was	

	currently sitting with procurement for processing	
6.	**Neonatal**	
	Quick quote was carried out along with a design review and these will be concluded by 14th September and there is a maximum timescale of 2 weeks to conclude necessary works and noted that this was well within the required timescale.	
7.	**Other Control Measures**	
	Haemato oncology – replacement of sinks. It was agreed to review of this separately. It was noted that further information should be available after meeting with Armitage Shanks which will discuss a review of the drain set up and possibilities of modifying these to alleviate the current issues.	
8.	**Blood Cultures**	
	Further cases of bacteraemia found and drains issues are reporting a match to the patients. Drains have been swabbed and noted that staff are reporting black material coming up specifically within small WHB in patient rooms. TI agreed to check 1B as this is also an area used by immuno suppressed patient groups.	**TI**
	It was noted that two different sinks are being reviewed – clinical sinks cleaned early June trough sinks were cleaned in early July. These require to be dismantled to be cleaned properly. Clinical sinks were cleaned two weeks ago in 2B and last week in 2A with only one remaining to be cleaned but this was delayed due to access. A discussion took place on the patient rooms and what is being done to these and what could possibly being put down these or causing the bio film to grow at this rate. It was agreed that before doing more with the drains we need to understand where this is coming from – the comparator of 4B which is clear and no other trough sinks are reporting any issues. IP suggested a CCTV survey of the drains to rule out other possible issues – blockages etc. It was suggested that we carry out weekly cleans to reduce the burden with acticlor – clarify the strength to be used and then monthly if the problem clears- who will carry this out – not clear at this point. It was also noted that the shower drains in the haemato oncology wards are reporting to be pooling and this could be caused by hair loss – estates teams are to carry out drain cleans and report back. It was noted that if we put 1000ppm acticlor regularly down the drains we may need to have additional consent from Scottish Water – this needs clarified. AG agreed that Martin Johnston would check this as part of our PPC permit. IP noted that Hycin was being trialled as a drain cleaner as it contained CD.	**Estates** **AG**
	The group agreed that there needs to be something being put down the drains that is providing nutrients when the water going down the drains is filtered through the POUF and ne needs to be investigated. TI noted her previous comment about toilet plume – unfiltered water comes into the toilet pan and aerosol coming out as there is no toilet seat! IK noted that he was not concerned about the toilets as there have been little outbreaks reported from this as a source and far greater risk from what is going in than what could be coming out.	
	The group discussed how the bacteria gets from the drains to the patient – do we need to clean the drains within the patients shower rooms? IP noted that these are traditional central grating and rooms will need to be vacated as the IPs requires to be opened up. Mechanical cleaning or chemical disinfection. Agreed that this could be carried out as part of the additional works planned for next week – AW was asked to take this forward and could be carried out as part of room validations but it was noted that this will add to the timeline of this work. Agreement was reached that Hycan to be pushed down drains and sinks on a weekly basis in 2A, 2B and 1B- once TI has confirmed after reviewing. Shower traps – check access and clean	**AW** **TI**
9.	**Drain Cleaning Status**	
	Trial with Hycan with clinical stopper and sanitising the surface for 2 minutes with flushing. Swabbing carried out prior to and after to determine if required efficacy. AW reported that the programme had not progressed as there was a resource issue – high risk areas are completed but 4 bedded areas are not completed and this to be tabulated	

	on the programme so that we can see clearly. AW confirmed that he has raised this at relevant level. Hycan trial will be reported back to the group – benefit that it can be used whilst the patient is in the room and is CD based. Agreed the following - weekly cleaning of all drains in 2A/B with Chlorine dioxide - this includes CHWB, bathroom sink, trough sink and shower drain - probable monthly cleaning with brush agitation method depending on success of above - regular cleaning with the contact chlorine dioxide method which is currently being trialled on a sink in 4B - this will replace the above two measures once we have demonstrated efficacy and agreed the frequency - drains in ward 1B to be cleaned and spigits replaced, could be done out of hours as this is a day unit	
10.	**Spigit**	
	IP reported that he was reviewing the design of this with Armitage Shanks to widen the opening to prevent obstruction and review of the seal material and noted that water and silicone can encourage growth of mould and discussions will also include the rough castings in contact with pooled water – after this meeting IP will report back to the group	
11.	**Flow Regulators**	
	IP noted that the report had been received from the testing company. He noted his concerns that the santisation did not appear to have cleaned the straighteners appropriately but he also noted that the results returned were confusing and had doubted that the results were correct. He has asked the company for clarification and a review of the results as even new straightners were recording low levels of contamination and it was agreed that we should discontinue the use of the sanitised straightners and only progress with new ones at this time to lessen any risk until the testing company can clarify the results	
12.	**Date & Time of Next Meeting**	
	It was agreed that the meeting time for this group should be altered to commence at 1pm – this would be confirmed by diary request and venue confirmed. Meetings with the water experts was discussed and it was noted that a discussion with MAK should take place to determine the frequency of these going forward	**All**

Water Review Meeting (Technical)

Friday 20th September 2018 at 9am in Meeting Room 5 – Laboratory Building - QEUH

Present:	
Ian Storrar (IS)	Principal Engineer – HFS
Dennis Kelly (DK)	Authorising Engineer
Karen Connelly (KC)	General Manager – South part-meeting
Billy Hunter (BH)	General Manager – NEW
Andy Wilson	Senior Estates Manager – QEUH part –meeting
Mary Anne Kane (MAK)	Interim Director of PPFM
Gerry Cox (GC)	GJNH
Eddie McLaughlin (EMcL)	Principal Engineer – HFS
Tim Wafer (TW)	Water Solutions Group (via telephone) – part meeting
Tom Steele (TS)	Director of HFS – part meeting
In Attendance:	
Allyson Hirst (AH)	Admin to Interim Director of PPFM

Item	Discussion	Action/ Lead
1.	**Purpose of the Meeting**	
	Where are we, what we have done, what's still to be done– and are we ensuring there are robust procedures in place.	**All**
2.	**Chlorine Dioxide**	
	Approach – slow dose ramp up with initial strategy to get main plant areas installed first dosing micro filters as issues found in these areas. Initial dosing levels 1ppm levelling at 0.5ppm this will give opportunity to determine best level	**Water Technical Group**
	CD on all riser units – going up to 22ppm and can go higher if required	**Water Technical Group**
	CD going to all hot circuits stating at 1-2 PPM	**Water Technical Group**
	Aim not to shock dose initially and see where the first penetration takes us which will be fully monitored including early indication of bio film loading	**Water Technical Group**
	CD installation progressing and on programme with install in 2 weeks with live at the beginning of November	**Water Technical Group**
	There is no guarantee that any system we install will negate the gram negative bacteria form all aspects all specialists – water, microbiologists and Department of Health and various other agencies have indicated that the most likely to work is the CD but no guarantee. There has been more success with these systems than any other – it will provide the right contact with the biocide and degrade the bio film. Efficacy of the CD in pseudomonas is fast acting – as soon as it hits it reacts with flow acting biocide better than fast acting	
	Copper Silver does work but stains all the sanitary ware and no baseline to see how effective it is being and break through can reoccur	
	Future water supply will be filtered and then treated with CD	**Water Technical Group**
	CD has been successful in other areas and has been successful for Legionella other Boards have used chloramination – Crosshouse and have seen good results but a national picture is required	
	Renal and the effect of Chloramines – checks and meetings carried out with technical staff at this	

	ward and both parties happy with proposals and early warning system that will be in place.	
	Questions	
	Dosing hot water systems is the efficacy appropriate – New formulations of CD show less loss then previously. Dosing hot systems showing excellent results	
	What other options have been considered – all options were reviewed including Clorus2 and the WTG had reviewed and determined that CD was the better option as was proven in health care environments – other options including – copper silver, hydrogen peroxide were considered but determined that they were not proven to work and this was not the time to test. IP has written up a paper which details all the options considered and why they were ruled out.	**IP Paper to be shared**
	How do we plan to roll out the checks in the ward – remove monitoring in strategic places. Monitors will be linked to the BMS and a communication package to review the trending of the CD round the site. There will also be manual testing with specific CD test kits to determine the penetration. Drawings will be used map the efficacy around the site and thereby allowing the dosage to be adjusted. Schneider is in place to take this to conclusion. The BMS has the capacity to deal with the additional monitoring – yes and will there be enough staff around deal with the number of potential alarms – TW and IP will review this and write up for presenting at the WTG in October.	**TW & IP**
	Where are the remote monitors – Risers, endoscopy, renal, post and pre carbon filter and in other strategic locations to allow checks to be carried out level by level. It was noted that there was nothing to stop additional monitoring being added and relocating if appropriate.	
	Do the monitors cut into the pipe – no they attach the outside of cold water system pipes	
	Water System – Multiple tanks with one combined system. There are multiple injection points in the system with the dosing carried out in the local tanks rooms – this will ensure sufficient levels of penetration. The layout of the system was considered and included in the specification of the system and will allow us to isolate to a certain degree for some areas.	
	GC noted that CD plants are problematic and fail regularly. MAK noted that this was not NHS GG&C experience – we have had one failure at GRI in 10 years and this failure produced a high count in one showerhead. The system at QEUH once bedded in will be monitored remotely and less manual input required.	
	Have we considered all the options? – all view points and expert advice should and given – CD is the best option	
	Is it normal to go to straight to continual dosing – yes if shock dosing is implemented the smell, possible effects to the pipework and decant of the hospital would be required. Discussions took place with clinicians and this was not seen as an option to be taken forward and during works prep will be undertaken to allow this to happen in the future if required	
3.	**Shock Dosing**	
	Should we shock dose 2A and 2B? – this is to be considered during the decant. MAK noted that strip out of the ward will need to be accelerated because of the situation we need to get this work and decision on taps made and moved forward. Drain surveys have been carried out in several rooms and there is nothing significant found – no blockages or mechanical defects. This will be extended to all rooms after the decant. It was noted that bio film is being seen in the drains and this is very unusual for a building which has only been in operation for 3 years.	
	Proposed Plan – remove and reinstall new pipework back to the riser and shock dose the pipework to ensure spotlessly clean and if the ward needs to move back then the ward is covered and not affected by the slow dosing of the system. Shock dosing would not be possible if the ward had patients. TW noted that concern that new pipework in 2A/2B could become recontaminated from the old system. It was noted that Scotmass can provide us with a small unit for the two wards and this could be installed within a week if this is the way we decided to move forward.	
	POUF – add a POUF filter to the incoming water line – this was discussed at the WTG and was determined that this was not appropriate due to the challenge of accessing the pipework but it was noted that 10-20 inch inline filters and it was agreed to review this option	
	It was not clear on the amount of bio film and it was known that shock dosing can bring the counts up in a heavily contaminated system. Samples of pipework have been sent to the labs but nothing from the modular sections.	

4.	**Drainage**	
	Reviewing different options for drain cleaning. TW noted that there was a product on the market from Germany that gave continual thermal treatment to the drains which consisted of a unit that was attached to the pipework. There was no element of drying out due to the design. TW noted that he would obtain a sample of the unit and bring to the next meeting on 3rd October. MAK noted that this would be worth reviewing for high risk areas specifically and a review of the hygiene models for these areas. AW noted that his concern was around scalding risk, and possible damage to the pipework – agreed that this will be fully reviewed and questions answered. If the bio film is growing at the Spigot would this unit be of benefit? – yes this could provide additional assurance to the clinical teams and the work being carried out on 2A/2B will give opportunity to provide a long term solution. At this time we are pouring chemicals weekly down the drain and agitating monthly but there are concerns that the chemicals could be degrading the seals but this device could negate the need for this. JL noted that we have no time to trial this property and would need to rely on previous outcomes from other users but there is some research that indicates that this is a process that is proven to be affective in drain cleaning but it was noted it inhibits the growth of bacterial and numbers improve and the cost per unit suggested that 1 ½ euros per day to run in energy. All agreed that there was no agreement that this is coming up the drains but could be going down into them. It was agreed that this could be the way forward as it fulfils our needs	
	Drain Seal – seals that have been removed and new have been sent to the labs to determine how long it takes for bio film to grow this was not concluded yet as there had not been enough time to gain full results but should be ready next week to be send to the lab to determine organisms	
	Route of transmission to the patient – unknown and difficult to determine the route and may well be the perfect storm that has caused this – water, patient and environment. The water coming from the taps is clean as it is being pulled through a filter and it was hoped that the proposed thermal clean will be as beneficial as it has been found to be in German hospitals.	
	Size of Traps – is this significant – possibly, shallow seal and could vent back into the room.	
	Dynamics of the drainage system – high volumes can create a wave/washing effect and especially if shallow. Overloading the traps and altering the dynamics of the system. It was noted there were no emitting valves – all done through the roof. It was noted that a wave/washing effect may never be possible to prove or measure. If sanitisation of the trap is installed it can be reviewed in a live situation and if not appropriate it can be removed. Other items to note – we could change to install deep seal traps and could it still exceed the design of the system, change the flushing element to prevent the overload onto the drains. TW noted he was not clear on how the modules are interlinked and noted that the couplings can cause some issues with flexible piping and could see something similar on the drainage – this was not clear on the drawings but looks like a traditional plumbing installation below the slab to the traps but better to have a closer look to understand this better.	
	Debris and other items were found at handover stage of the project included – rubble, plastic and papers etc and it may be that there are still remnants of this sitting within the system that is not become visible or been found	
	Enzyme based products appear to have the desired effect and can deal with the bio material disinfection and suggested that we trial in a few sinks for a short period of time to determine if this is sufficient for purposed that we require. IS agreed to provide feedback when he gets this	
	Pressure survey on drains – not required as would not provide any information not found by other means but noted that a camera review may capture the washing back into the trap leaving bio film	
	Is there any surcharge from toilets or showers? – there was nothing reported from users about smell which would be apparent if this was the case. There are many reasons for the level to drop below the seal level	
	It was noted that we could have too many sinks as changes in nursing practices have meant that these sinks are not used as much as they once would have been thereby causing issues	
	It was noted that 2A/2B are regularly flushing as per SOP	
5.	**2A/2B**	
	MAK noted that the intention was to strip back the pipework as far as possible including the taps. When the patients move out estates move and get the work started. Reviewing the drawings for the building it would be impractical to go too far back with the pipe work and Multiplex have confirmed that there are no flexible joints in the modular connection with no long horizontal runs. Drain Connections – noted that on inspections from the outside it looks like the gaskets are exposed	

	and could potential be degraded by the chemical sued to clean the drains but noted that this is not found in all areas only in some. Staff noting what they thought they saw was silicone was actually the gasket but with the transition from ceramic to plastic there will always be a groove but this should be minimal.	
	The bio film has been variable in all different areas and it appears that RHC is worse than the adult hospital. Bio film itself is invisible to the naked eye but bio mass is what we are seeing and it was noted that it is usual to see bio film in a water system. There are three possible causes – water systems, drainage system or air system with interactions brining all this together and it was noted that even with POUF fitted in this area the bacteria could be being introduced by simple hand washing into the drains	
	Where have the growths come from? – some growths found in other areas but the heaviest growth has been found in 2A and 2B	
	Level of Assumption that the drains are the cause – it was noted that the bacteraemia found was unique but noted that this is a national centre and we have the sickest groups of patients on this site with susceptible patients and bacteraemia are prevalent in this patient group.	
	Haemato-oncology patients are the group being seen with the bacteraemia but the highest risk patients in BMT have not experienced it even though there has been bio film found in their area	
	MAK reported that a new bacteraemia was recorded and this was the reason for the decant decision being actioned with another being checked today with a high chance that this was ward acquired and we will find out today if this is linked back to water and or drainage. In both cases the POUF would have been fitted but not if the patient was in visiting the department prior to the POUF being fitted and this could have been caught from the drains. All patients with bacteraemia (23) have been linked to 2A/2B and this is the reason to move the patients to the other ward.	
	To facilitate the review of the drains and water system the ward will be moved so that a full check can be carried out to get these ratified, cleaned and tested including the water to check that the POUF are working appropriately and not being compromised at any point even though we have had assurances that they are working as they should	
	Valves will be altered to allow us to add a shock dosing system if this is decided and review the timetable of the decant of patients if this is required	
	Tap Disinfection – worked for legionella and should therefore work again for disinfect of the ward taps but will take this opportunity to determine if the taps are to be changed whilst the ward is empty	
	Air Handling Unit – filtered but not HEPA filtered and not been sampled	
	Swabbing to be carried out in ward to be moved into to offer a baseline and to give confidence that these are clean areas being moved into. And replicated in the ward prior to patients moving back into the ward – those in attendance agreed	
	Move back to 2A/2B needs to be clarified and agreed	
6.	**Taps**	
	Contour 21 used with NHS Scotland – how many of these are showing the same issues – this was not known – "black gunge" is being seen in other areas of the hospital but the concerns are due to patient demographic	
	Dark Valley have offered a ward of taps to try out during the decant and we need to clarify the sinks and taps to determine what we are doing during this time	
	It was noted that there was not a clear suitable alternative to the taps that we currently have or the basins and not determination or advice given from relevant parties	
	What is the purpose of changing the taps – we have the opportunity during decant and would restore confidence from the clinical and public view point. TS noted his concerns that we were changing things for the sake of it and to consider all options before pushing ahead with this. Opinion from those present – no benefit to changing the taps and fit on POUF. WHB – noted that we have hundreds of the same design/type all over Glasgow and no issues reported with these	
7.	**Ventilation**	
	HFS were asked to review 2A/2B ventilation by Scottish Government. This remains unknown if part of the current issues	
	AHU manufacturers drawings required for HFS	?
	No HEPA Filters but are within the BMT rooms	

	JL noted there are other issues including chilled beams, ventilation air changes for general warts and neutropenic patients and there is no stipulation in the guidance to cover these. JL noted that the ER's are not very well written and there is room for improvement from the contractor – 2 – 21/2 air changes per hour in the patients room, flow of air from area to area – extract in the room not behind the patient bed head but on the ceiling and subsequently changed by estates to the ensuite and to make a more conventional set up. Letter box into the toilet doors to allow air flow.	
	Air tightness with a modular ceiling being installed not adequate and estates have subsequently seal rooms to ensure pressure differentials and this has been achieve for the most part. JL noted that even with all this work there are still some issues being found but noted that this was lead by poor guidance. This alludes to certain aspects and is open to interpretation. It is not possible to redesign significantly due to the chilled beams and ability to change. All duct work has been designed and installed to cope with a certain level of changes and therefore make the system noisy but JL noted that estates are reviewing this to determine if further work could be carried out to improve the system. Recirculation vie the chilled beam is 1/3 fresh and 2/3 recirculated. There is no evidence that the ventilation is contributing to the water issues. It could happen via aerolisation cloud from the sink and not dispersing appropriately – possible.	
	MAK noted that an independent survey was carried out to determine what we can and cannot do with the sizing of our ducts specifically around 2A/2B as they have susceptibility to move changed in their environment and these are not the same issues raised from the adult hospital . This could be a perfect storm cause the issues that we have found ourselves in at this time	
8.	Agreed Actions/Points	
	• CD commence – November	
	• Shock Dosing – causes more problems that it could solve so focus on decant works	
	• No benefit to tap replacement	
	• Replace drains	
	• Drains to be cleaned	
	• WHB only if taps are determined to be changed	
	• Bio film Mapping – concluded next week	
	• Shock Dosing – install injection points within 2A/2B in case required at a later date or during decant	
	• Swabbing 6A prior to and after clean	

Water Review Meeting (Technical)

Tuesday 2nd October 2018 at 1pm in CMB – Meeting Room Facilities Hub

Present:	
Ian Powrie (IP)	Deputy General Manager – Estates
Alan Gallacher (AG)	General Manager – Estates
Andrew Wilson (AW)	Senior Estates Manager, QEUH
Teresa Inkster (TI)	Consultant Microbiologist
Robert Rankin (RR)	Aecom Project Manager
Colin Purdon (CP)	Senior Estates Manager
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS [Teleconference the attended]
Mary Anne Kane (MAK) (Chair)	Associate Director of Estates and Facilities
Tom Steele (TS)	Director of Estates and Facilities
Denis Kelly (DK)	Authorising Engineer
John Mallon (JM)	Technical Services Manager
Emma Heggarty (EH)	Aecom Project Manager
Eddie McLaughlin (EMc)	Associate Direct HFS
Billy Hunter (BH)	General Manager (NEW Sector)
Karen Connelly (KC)	General Manager (South)
John Hood (JH)	Consultant Microbiologist (GRI – GJNH)
Tim Wafer (TW)	The Water Solutions Group
Mike Hemmingway (MH)	Aqua Free
Jim Leiper (JL)	
Apologies:	
Ian Storrar (IS)	Principal Engineer – HFS
In Attendance:	
Allyson Hirst (AH)	Admin to the Director and Associate Director – Estates and Facilities

1.	**Purpose**	
	The purpose of this meeting was to discuss a range of issues, reach agreement and move forward a plan that will be implemented across the whole estate. With recent events within the children's hospital and the decant of 2A/2B to floor 6 within the adult hospital this has had an impact on the previous plans. It is anticipated that this meeting will clarify the new plan moving forward and document the decision making process for this incident.	
2.	**Action Plan**	
	This was completed prior to the tender process and due to annual leave it has not been updated. A meeting with the contractor is scheduled to review timelines and this will facilitate the update of this document which will be presented to the next WTG.	
	IP noted that there has been some delay in signing of the PO but this was now progressing.	
	External House to store chemicals – this was within the programme but noted that there are building warrants required for this and may cause delay but contingency plans were being reviewed in this event – update to the WTG later this week.	
	Chemical Dosing – this was planned to be a continual dosing system with ability to shock dose if required but noted that there are detrimental impact to clinical services	
	Bulk Water Micro Filtration – disinfection and clean and continue to monitor with resilience built in with ability to refill tanks quickly if required.	
	Calorofier Inspection and Cleaning – prior to switching on the plant – domestic hot water switched off, cleaned and sanitised and dump then commence the CD through the heat station – this will be programmed into the planned works	
	Expansion Vessells – these were found to be non compliant – not flow through and this has been included in the works for the CD installation	
	Servicing Booster Pump – prior to any chemical to allow monitoring of condition pre and	

	post CD.	
	Continuous Water Treatment – IP reported that a paper has been produced to show the escalation process – starting low and increasing to 2ppm for cold water and 4ppm for hot water. The reason for the higher rate within the hot water is that CD gases off and this will maintain the levels. A de-escalation process is to be added to this paper.	
	Proritise the feed to RHC – bulk storage, boosted lines and plant room with independent dosing to plant room 41. It is anticipated that simultaneous implemention will give appropriate levels to RHC. It was intended to implement by the end of October and this will be dependent on the programme from the contractor but will push for this timeline.	
	Action – augment the paper with de-escalation process, change the microbiological results and a programme of when we believe the POUF can be removed. Results will be to the regulation standard for 4 weeks and then if remaining at these levels then acceptable to remove POUF.	
	Efficacy control measures to also be included in the paper – prior to any sampling we need to achieve a 0.1ppm level of CD as a residual moving to 0.2ppm as a minimum standard to achieve the dosing rate.	
	Once system is in place we review the risk assessment as the system will be in category 3 fluid and should be included into the scheme.	
	Criteria to be prepared by TI and JP	
3.	**Dosing Methodology and Shock Dosing**	
XX	To increase the levels to shock dosing we would need to stop the use of hot and cold for consumption but we cannot afford to dilute the dosing strength of the water during the shock as any water used will dilute the disinfection but this will be a challenge to the clinical teams – meetings will be held with the clinical teams – initially scheduled for next week but postponed until the end of the month. Aim of the project is to continually dose and not shock dose.	XX
	How these decisions were made via WTG – in order to disrupt the bio film and bring system back we have to achieve a residual CD level in the system and we should see the levels drop and bio film become dislodged. Initially we thought to shock dose but because of the complications of the site it was decided that CD dosing was a better option although will take longer but will allow the water to be used as will be within the WHO Standards for drinking. As we watch the dosing levels we can adjust to ensure it remains below the regulation for safe drinking.	
	It was considered that continual dosing for 3-6 months would suffice to bring the system back under control but it has been noted that in other sites with similar issues it took around 18 months to have full efficacy – although it was noted that our system is newer, pipework smooth and should work more effectively. After 3-6 months to disrupt the bio film and bring the system back under control if not then a shock dose regimen will be considered	
	Business Continuity the hospital remaining functional during the works to rectify the water and the services could not manage for more than 24 hours without access to water. Shock dosing is the last option and only if we can guarantee but cannot so will continue with the continual dosing.	
	It was agreed that it would be a major challenge if we required to shock dose within the adults hospital – no plans or discussion have taken place and this needs to be progressed. It would not be possible to decant wards and shock dose individually as the water system links with above and below but it would be possible to push disinfection at higher levels if needed to individual wards.	
	What are we doing to the water system during the decant of the ward in regards to water – if we shock dosed the single ward prior to the installation of the CD system we would be pushing contaminated water into the remaining system and potentially reseeding the system just cleaned and so should be delayed until the CD is installed and running. Will this take 3-6 months – not necessarily we can shock dose but will need the back up of the CD already continually dosing.	
	JL asked if in line filtration was possible to allow shock dose and do an entire ward, do we have space to accommodate something like this? This would allow shock dosing – IP noted that it would be difficult to gain access to get these changed in the pattern required. We	

	could shock dose every outlet and reintroduce the water supply therefore no gain in shock dosing but continual is considered to be the better option.	
	Can we fit a unit into 2A/2B until the other main unit is installed – yes. As part of the designed installation. Within the cold water supply the pipes are branched off and does not come from the plant room. In order to get a more effective control we are installing alpha unit to dose the water in 2A/2B and could be modified to feed the hot water but would need to extend to TCT and would need to modify the project and include another unit. Principal is solid. All taps, toilet POUF and taps required to be changed in DSR and clean rooms and pedestal taps and cannot have POUF fitted	
	The decant of 2A/2B requires us to carry out further work and we are trying to escalate to get the ward safe and children moved back in and what is the impact of the programme already set out? – WTG members agreed that this programme has been discussed and reviewed and noted that the biggest risk for shock dosing was toilets being out of commission for 24 hours	
	For 2A/2B to get patients back in – 100% POUF and CD system installed we should be able to move patients back. POUF in toilet facilities means access to the IPS panel and requires the room to be empty and will impact on the activity of the ward as we progress into the winter period. TW noted that we could use 90 day filters and change quarterly only for toilets – only not carried out previously due to access. Agreed to discuss with clinical teams to inform their expectations.	
	IP noted that to add the alpha unit would mean a variation to the contract and we could request 2 alpha units to give continual dosing and ability to ramp up – no risk to the children, parents or staff. Is this the right thing to do? If when the ward is closed then we can negate the POUF in the toilets and shock dose without patients and then continual prior to patients being returned and test the WC to ensure they are not contributing and the POUF are working – timescales for this?	
	IP noted that with the ward empty and all POUF removed and shock dose and full boar flushing will gives us a better change to get system under control and reinstate the POUF for general use. Air Handling Unit – within BMT and vents to external but TCT has a shared extract with other wards.	
	DK noted that the new builds have previously taken longer than we think it might but agreed that the bio film could take longer to remove but the CD should kill the bacteria that we need to remove.	
	Ward 2A/2B – it was agreed that we could do more than one shock dose but the manufacturer of the pipework recommends not more than 10ppm for a max of 6 hours but we do not have any advice on repeated shock dosing – ie every seven days. Shock dosing was not within the manufacturers warranty but as we have already used chemicals in the system it was unlikely we would be using the warranty on the pipes with any success.	
	TW noted that shock dosing can give more issues and it is better to go slowly	
	It was noted that we are aware that we could have issues with the pipe work but the continual dosing we should not see the same level of contamination and with possible issues to the pipes – this is not see with CD use. It can do in older systems with corrosion issues prior to the CD and the CD then removed what was holding together the pipework. It was noted that stress cracking can be caused by CD. Technology produces better quality CD and this has less effects on the pipes – ie chlorite binding to the materials.	
4.	**What Are We Doing in 2A/2B**	
	Fit CD unit, shock dose and then continual dosing. Do we need to consider replacement of plumbing including fixtures and fittings – is this the way forward. This will allow the patients to move back in – TW clarified that CD at 10ppm is high dosing not shock dosing	
	IF POUF is at 100% we do not have issue with the water system coming to the taps as the water will be clean. It was noted that we have 4 recorded failures but it was agreed that this is unheard of and had to consider other factors causing the results – poor cleaning, patient contamination, showerhead being contaminated with inappropriate contact with floors and drains. It was noted that various filters from different brands have been tested to extreme and have yet to fail. It was noted that we need to know that these filters are safe and maintaining safe water – could there be any mitigating factors – no issues reported from	

	patients using these. Drain cleaning was being carried out around these different areas – could it be surface contamination and not affecting the water coming out. Should we add a filter prior to the water coming into the ward to give double protection – not viable option – noted that the POUF have been changed short of their allocated time due to works being carried out in the ward.	
	Control Measures – POUF and Cd – would we need to have the continual dosing, shock dosing whilst empty, would we do this if we change all the pipework etc – yes to have the CD continual and high level dosing which can be carried out whilst ward is empty. IP noted that if we install local treatement plant to both risers to cover 2a/2B and TCT, all filters off for full boar flushing, high dose CD run and monitor. Agreed the monitoring regiment – once a week or more to check impact as desired. Max 0.4ppm with residual of 0.2ppm	
	Accelerate the Process for 2A/2B – A detailed plan is required on what work will be carried out prior to move back in by patients, how long this will take to achieve. IP noted after his meeting with the contractor he will be able to determine the install of the Alpha units this should take around 2 weeks. This will hopefull address the pipework and taps to some degree – replacement of the components within these as necessary. How long will it take to get the system under control – this is the unknown as the bio mass is not known but once the testing begins after the CD implementation we will have a clearer idea.	
	POUF review – this was noted as a good product and has been fully tested and not finding anything untoward. It was noted that this was likely retrograde contamination from touching or splashing etc. Awareness is high amongst staff and parents so unlikely to be from this but it would be difficult to determine where these results came from. Filters to be tested when removed for CD full boar flushing and reported back.	
	Splashing from Outlets – It was considered if this could be something coming back up from the drains to the POUF. Flow regulators have been removed and therefore have no flow control and this could be the cause of the splashing – this should be considered in the works to take place in the wards. Pall have been asked if the POUF can have a regulator attached to prevent this. It was noted that we were not challenging the integrity of the POUF but we need to find out why there were positive results. It was noted that the POUF will not remove the CD but will allow the CD to run through and have impact on the drains.	
	Agreed to shock dose the system - high dose CD – and reapply the filters and disinfect the taps but noted that we cannot add the flow regulators back on as they are attached to the same point at the POUF. Can we break into the legs going into the outlet and create a valve – crudely but this would be non compliant as there would then be a restriction in line and allow bio film to connect. IP noted that Contour taps have a service valve in line – similar is better but DK noted that we need to balance risk. If we don't change the taps now we may have the same issues again.	
5.	**Taps**	
	Marquick 21 was previously agreed at WTG but the issue on in line filter and left us determining if correct solution but because of the acceleration of the empty ward do we make an exception for this ward. MAK suggested that we do not have a product or manufacture in place that satisfies all our requirements. CD dosing and taps changed decided at WTG.	
	Does running the CD keep the taps clean with maintenance. IP noted that taps should be stripped down, replace consumables in the taps and reinstate.	
	Do we need to replace the taps after all. Cleaning as previously described and the potential commercial impact to Horne as these are used nationally but after reviewing the Horne tap it was determined that this was over complex. It was determined at an earlier meeting of the WTG that these taps were a risk for the high risk patient groups and this would be a perfect time to carry this out and it was noted that pipework will be require to be changed and discussion took place on the possibility of concluding this within the time to get the ward back to normal use. It was agreed that there would be additional time to accommodate this.	
	It was agreed within the members that it would be preferable to replace the taps due to various aspects of the taps and potential issues although it was noted that the other taps had similar issues	
	It was noted if an alternative product – commercially not only this site but others that have	

	this product. All agreed this was a huge call to make and TI noted that were only talking about 2A/2B and the main point is patient safety. It was noted that we could have contaminated water and the taps are not the issue but it is not possible to ascertain this for certain.	
	What tap fits the IPS – Dark Valley, RAS approved and will take the POUF but noted that without the POUF will need flow control. Flow straightners are not recommended in current guidance.	
	It was noted that flow straightners under current conditions are changed once per month – after CD implementation this would be less and noted that some sites do not need to change these on any kind of programme. We have defined areas that we have been recommended not to use flow straightners.	
	Changing the taps will provide a visible change to staff and parents	
	Do we change the taps ? – Marquick or Dark Valley?	
	We do need to be cognisant that we are progressing into winter and the clinical impact and so we need to make decisions – those in attendance agreed to change the tap to Dark Valley as it does not hold water as other taps do, it does have a flow straightner but we will remove this for 2A/2B and attach POUF. The manufacturers are developing a spout to allow removal of the flow straightner and we can change over to either flow straightner. From a timing perspective Dark Valley fits the IPS and working to modify and we can use the POUF. In order to change these we will need to drain the system to replace the pipework to within 300mm and this can be done without interfering with other wards water supply.	
	Decisions agreed on	
	PPM for continual dosing and escalation process starts at ;	
	Cold Water – 1ppm	
	Hot Water – 2ppm	
	Within 48 hours no residual developing then increase to	
	Cold Water – 1ppm	
	Hot Water – 3ppm	
	Three days later no residual	
	Cold Water – 2ppm	
	Hot Water – 4ppm	
	For 2A/2B suggested starting at 4ppm for both hot and cold – this will allow to show how quickly this will run through the system – this seems sensible to progress with this paln and will assist for the impact to the rest of the hospital. IP agreed to write this up for 2A/2B for Friday's WTG.	
	Aqua Free – Presentation	
	Mike Hemmingway gave the members a presentation on Aqua Free products available – presentation is available to review	
	Drain Survey	

Water Review Meeting (Technical)

Friday 5th October 2018 at 1pm in CMB – Meeting Room Facilities Hub

Present:

Ian Powrie (IP)	Deputy General Manager – Estates
Alan Gallacher (AG)	General Manager – Estates
Andrew Wilson (AW)	Senior Estates Manager, QEUH
Teresa Inkster (TI)	Consultant Microbiologist
Iain Kennedy (IK)	Consultant in Public Health Medicine
Colin Purdon (CP)	Senior Estates Manager
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS [Teleconference the attended]
Mary Anne Kane (MAK) (Chair)	Associate Director of Estates and Facilities
Tom Steele (TS)	Director of Estates and Facilities
Denis Kelly (DK)	Authorising Engineer
John Mallon (JM)	Technical Services Manager

Apologies:

Ian Storrar (IS)	Principal Engineer – HFS

In Attendance:

Allyson Hirst (AH)	Admin to the Director and Associate Director – Estates and Facilities

Item	Discussion	Action/ Lead
1.	Update to the CD Plan after meeting with the contractor IP reviewed the project plan and confirmed that work will start on site on 22nd October although this is dependent on plant being manufactured on schedule and payment process being concluded. By 18th November the basement, tanks and primary distribution to the water lines with 1ppm capped moving through the system – the lower dose was to ensure no impact to the renal department. Plant room 41 goes live date is the same. IP noted that the first areas to see CD dosing will be Adult and RHC at low level – proportional dosing based on flow to both tanks and as previously requested the prioritisation has been altered to ensure that ward 6 within the adults was treated at an early stage by treating the heat station which feeds 3-11	**IP/AW**
	Ward 2A-2B will start around 12th October - with a two week installation period and IP intends to meet with Morris and Spottiswood to review additional works and define these Stack is the next priority which will go live by 23rd November with other areas cascading from this and completion of the installation to the entire system with CD flow by 25th January. Initially this will be a managed service contract with Scotmass with input from Estates staff	**IP/AW**
	MAK asked – as this roles out what is the impact to the adult hospital in terms of shut down, loss of service. IP reported that there would be some loss of service during the break into the pipework but this would be carried out as far as possible during overnights and quieter periods. All of this information will be obtained from the contractor as their meeting and a paper created to show the details. With regards to CD impact this will be negligible in terms of dosing but this will ramp up as monitoring determines to ascertain the impact on the biomass. MAK noted that business continuity would need to be prepared. IP noted that at this time he could confirm that each local heat station will be out for 24 hours for hot and a max of 4 hours for cold and it was the intention to pre fabricate as much as possible off site to minimise the disruption to the areas to allow drain down, break in and weld to accept the new pipework. It was agreed that TI/KC/MAK and IP meet to ensure that the details of this were clear and understood. IP agreed to do further work with the contract to that this is minimal. IP noted that each heat station covers several wards and the clinical director noted her concerns about the unknowns coming into the hospital during the periods of outage. IP noted that as theatres is supplied across two systems and can feed off one as the other is being worked on. MAK asked what does this mean at 1ppm at tap level – IP noted that this is unclear until	**IP**

we have opportunity to check levels as it progresses and it was hoped that this would be clearer by the end of January and noted that the whole site will be receiving CD treated water by the end of November. Multiple dosing units to support this will be installed by end of January 2019 to bring greater flexibility and penetration

TI asked if there was a microbiological criteria – IP noted that there was a plan in place to check levels from sentinel points prior to the installation and continue once dosing was in progress to ascertain if we are achieving results as predicted. A test will be carried out 48 hours after initial input of the CD and this will allow the levels to be adjusted accordingly. It was intended to forward to the labs samples for TBCs to identify the chemical impact on what is already there. TM indicated that this was very labour intensive and asked if was relevant. IP noted that the samples were only to determine if the CD was having the desired affect and show if there is any improvement to the system and it was anticipated that around 60 samples at a time would be sent forward – one from each sentinel point. And it was agreed that unblended water from the DSR will also be sampled **TI/IP**

JM noted that the labs could cope with these sample levels if just for what was described by IP but identifying isolates would compete with patient input and it was agreed to check if this could be carried out at evenings or overnight to prevent patient impact. **IP**

IK asked if there was any dubiety that the sample pot will now show accurately what is happening in the system – there is a neutraliser in the sample bottle that ensures that the sample gives an accurate record of what is going on in the water system

Within IPs document it was noted that legionella count was not accurate and should be amended – it was noted that if were changing our acceptable levels number then this would need to be ratified at the Boards Water Group – IP agreed to update the numbers on his paper. **IP**

2. **Ward 2A/2B Workplan**

The following was discussed in some detail

- How the works would be procured, costs etc and how this will be charged
- Which works are essential to get the ward back open again
- Addtional works to carryout whilst we have the ward empty
- EH agreed to create a gant chart to show the timescales and programme
- Programme the removal of the POUF
- WHB and Drainage – agreed to review
- Toilets – sampling agreed and possible solutions – lids and flush
- Drainage – review of surveys
- Ventilation – site wide issue – timescales that are indicating to return the patients does not allow this to progress
- Fire Compliance – enhancing the works being carried out
- Electrical Inspection Testing – on going
- Wish List – decor, nurse call, security changes – all considered and some can be carried out when ward is in use again
- Deep clean and replacement of POUR and the HPV added to the plan
- Change out IPS panels to give ease of access – but only if timing allows
- Change position of the flush to ensure that lid was down prior to flush – this would leave a hole – can we cap it – no replace the panel – agreed to check on lead times and if would be possible

It was agreed that this covered the discussions at the IMT and additional water meeting

Water Treatment Variations – discussed with Morris and Spottiswood – for the inclusion of 4 alpha units for the risers and procurement and provision of these units. Confidence that this could be turned around within 2 weeks and IP agreed to update for the next meeting IP

3. **Costs**

These are sitting with the DoF but MAK noted that indicative prices should be added to the schedule to start dialogue with the DoF on costs codes to be used for the 2A/2B scope of works as no allocation has been made for this

4. **Taps**

It was agreed by the group that the Marquick 21 was not necessarily a good solution

A matrix was created and the group discussed the options for the 2A/2B taps – the matrix was created and scored with input from IP/TW/JL. It was noted that the issues that we have experienced meant that we would prefer a tap which had no slug of water remaining. It was noted that there is no guidance to determine if this was a cause of the issues but it was noted that with CD pulling through the taps would negate this. Air ingress was the preferred option and being demountable to allow cleaning and maintenance, internal surface preference for smooth to allow cleaning and to give little opportunity for biomass to cling and grow. Direct replacement – two of the three negate the need for new IPS panels with a redesigned flow straighter redesigned version for use in Glasgow made from ABS – and not the same time as other manufacturers and therefore will not have the same issues. The group noted that there was still some concern about having a flow straighter including in another tap. It was noted that the flow regulator and straighter is being referred to the two separate parts of the unit and it was noted that the straighter within the Dark Valley is more of a regulator for smooth flow of water and Horne regulators and straighter is a combined unit. The straighter for Armitage Shanks is copper based and the Dark Valley version is made of antimicrobial impregnated ABS, plastic. The group had previously discussed not using any plastics but noted that this was impregnated with antimicrobial. IP noted that timelines were tight to order this and bring this matter to a conclusion to allow installation and it was noted that there needs a consensus that we need to have agreement overall. IP reviewed the reasons behind each of the scoring matrix and clarified for the group to their satisfaction on the reasoning's behind each decision including the taps being suitable for chemical cleaning. The Horne tap does not recommend chemical cleaning. Cleaning was possible for all taps just that some were easier than others and it was noted that Dark Valley can be broken down into components

Similar levels of water is available from all the taps. Guidance recommends 4-6 litres per minute. Splashing within the sink from POUF – IP has discussed with Pall on the reduction of splash from the filters **IP**

Dark Valley taps will require re piping works and discussion took place on raising the tap level from the sink at the same time to accommodate the POUF – it was noted that when the POUF comes off the taps would be too high and thereby cause excessive splashing

Supply of Taps – Dark Valley – within 2 weeks, Marquick 2-3 weeks – difference is not notable

Data on the flooding of the tap – not taken forward by any manufacturer although Horne do state that there should be water remaining

User Feedback – Marquick – established and known, Dark Valley – not so well known but have made amendments to accommodate our specific needs

It was noted that a previous statement from Public Health England that if we had opportunity for copper we should take this

The group discussed timelines for change of IPS and plumbing access including complete off site, use of local companies, creation of a patrice to make it cheaper and quick to install

In conclusion Marquick 21 and Contour 21 decided as the tap of choice for 2A/2B and IPS panel progression will be taken forward by AW **AW**

5. **Sinks**

From recent blockage in 2C it appears that the horizontal drains on the sinks are causing some concern. Items have been lost down the drain and IP noted that there is a cross member that can be added – IP will bring this to the table when talking to Armitage Shanks **IP**

Are we planning on retaining the sinks or changing – can these be altered – no guidance offered. The decision of the group was to remove and replace the sinks to the clinical trap type in the Contour 21 as it was easier to maintain and noted that we do not have any anti siphon and we should move to S traps, close coupled trap arrangement with short distance between discharge and water seal

Anti-siphon – trial to be progressed on one trough sink in the treatment room and on another clinical WHB and how are were testing the effectiveness – test the drains and the output and cleanliness of these – will require laboratory testing and methodology to be worked out to ensure accurate reporting **IP/AW/TI**

IP noted that if we change the sinks in 2A/2B then these would not be suitable for the clinical sinks and the thoughts are that this will not have the benefits for the issues we have and there are some concerns on maintenance, water and electrical ingress but it was noted this is might be of benefit to trough sinks and not for the clinical WHB and it was agreed to pause this for the moment – AW will progress with CP to cease the order

6. **Toilet Seat Selection**

This has commenced. IP noted that there are seat options - not normal clinical seating and need to check the foot print is compatible – IP will update for the next meeting **IP**

7. **In Line Filter Update**

The question was asked can we fit a big filter on the cold supply – IP has calculated the volumetric flow and it was noted that we would need a high flow capability and IP noted that this was not a viable option and there was not sufficient space to accommodate sufficient to keep our flow. With the CD, toilet seat the risk should be removed.

8. **Portable HEPA Units**

Mobile unit run at a lower noise level – not complains at 4 but at 6 there is – is there sufficient filtration at 4 – not been reviewed by ICT **TI**

9. **Drain Mapping**

AG noted that this will be completed today – AG noted that the information has been gathered from various ICT staff with a visual inspection – further investigation on any overlapping same supply etc – AG will get this progressed and summarise this information and share with IMT – this requires to be completed prior to next meeting **AG**

Mapping of the Adult Hospital – possible use of the supervisors and domestic staff to carry out during normal duties – clarification on what they are looking for – possible to use pictures to determine levels as an aid **KC**

10. Special Feed Unit

CP advised that the water supply for the unit is to be removed from the RHS supply – tendering has been received and it was intention to award contract today or Monday and will fall in line with the programme of works on Adult and Children's CP

11. AOCB

Offer of support from Scottish Water – This was decided against as we are still progressing this – will be reconsidered if necessary but clarification on what they can offer

Application to Scottish Water to complete a change of consent for drainage – forwarded the variation and now has been noted that the campus discharge level is incorrect now needs to be reviewed

2A/2B Works Group – EH will lead this group to ensure progression of the works. Membership and meeting frequency will be reviewed by EH and AW EH/AW

Call with Scottish Government – cognisant of the amount of work to be undertaken and winter planning requirements, finance arrangements and requirements of finance TS

Procurement – use Morris and Spottishwood or via our own Procurement - IP will progress this with Gordon Beattie IP

Enzomatic – Do we want to use this? Has the cleaning agent had any detrimental affect on the sinks? – IP will review with Armitage Shanks and update at the next meeting to clarify actual product used IP

Water Review Meeting (Technical)

Friday 12th October 2018 at 1pm in CMB – Meeting Room Facilities Hub

Present:

Ian Powrie (IP)	Deputy General Manager – Estates
Andrew Wilson (AW)	Senior Estates Manager, QEUH
Teresa Inkster (TI)	Consultant Microbiologist
Mary Anne Kane (MAK) (Chair)	Associate Director of Estates and Facilities
Tom Steele (TS)	Director of Estates and Facilities
Emma Heggarty (EH)	Aecom Project Manager - Telecon
Karen Connelly (KC)	General Manager (South)

Apologies:

Ian Storrar (IS)	Principal Engineer – HFS
Alan Gallacher (AG)	General Manager – Estates
Colin Purdon (CP)	Senior Estates Manager
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS [Teleconference the attended]
Denis Kelly (DK)	Authorising Engineer
Eddie McLaughlin (EMc)	Associate Direct HFS

In Attendance:

Allyson Hirst (AH)	Admin to the Director and Associate Director – Estates and Facilities

1. Apologies

Noted above

2. Previous Notes

Previous Notes of 5th October were recorded as an accurate record of the discussions

3. Ward 2A/2B Work Plan

EH reviewed the Workplan/Scope document including

- Items out for procurement – with return of information by Monday and orders placed
- Toilet Seats – noted that there are some issues with the install of these and determined that this would be put on hold until further discussion take place – not detrimental to the programme continuing as these are short lead time and easily installed. It was noted that there is a paper on this and TS requested sight of this. It was also noted that the seat configuration may or may not impact on the comfort of user due to back rest and this would need to be resolved also — AH
- Marquick Taps – this was still to progress to quick quote and will progress early next week with two days to turn around so potentially doable for the end of next week. Supplier will provide torque settings to ensure that the taps are not over tightened during fit. Costs for these will be defined late next week along with installation details
- IPS Panels – this was thought to take around 4-6 for order, lead time and delivery but if quick quote avenue was pursued this would mean additional weeks to conclude. A waiver would be required due to the costs involved but IP noted that the supplier considered would be able to provide fitting with tap and basin within the costs and could achieve the delivery time required. Agreed a survey to be carried out to ensure proportions are accurate. Co-ordination with the taps supply is required. Costs for these changes are in the region of £100k plus for 75 channels. EH was asked to check industry prices for this to ensure that we are paying a fair price. — EH

MAK noted that we need to pull together the whole costs to present to MW including the Alpha units and extensions to the variation. MW needs to understand the full position and to provide the project with a cost code

Tap Choice – The group again reviewed the taps to ensure that we had chosen the best option we could for the ward after it was noted the previous matrix referred to in last weeks meeting was found to be inaccurate. After again reviewing the options of the taps the group

came to the agreement that the Marquick Taps we the best option but with agreement that the Dark Valley taps were a good product and would be revisited if required for another area. It was agreed to have all costs back by the middle of next week and would allow further discussions
Sequencing of the works was critical, pipework needs to be accurate so that when the pre made panels are delivered they are easily fitted. During the interim period the CD will be install and running but IP noted his concerns that we may not have the sanitisation of the pipework before installation of the taps.
Variation to the contract for Scotmass and commitment required from Board prior to preparing the units. The difference in price is around £90K + VAT and will instruct the capital team to proceed with this later today to proceed with the variation to the contract

3. Drainage Works

AW noted that the survey works are now completed and noted that he has a substantial report but gave a summary to those present including

- CCTV was abandoned due to several changes in direction of pipework
- Some water retention noted
- No blockages
- 4 into 1 soil pipe vent
- Pebbles lodged in the vents on the roof
- Anti siphon traps recommended – this has already been agreed by the group for clinical sinks
- Confirmation to be sought if any of the issues noted had impact on 2A/2B – AW will report back
- Drain runs lying at an angle can be identified from the survey but it was not thought to be an issue
- Replacement of vent cowels and removal of soil pipe to remove the pebbles and resurvey

TS noted exhaustively and invasively and nothing beyond the areas causing concern in relation to 2A/2B
IK noted that reassuring the results of the dye test came back showing adequate flow and dye running to where it was intended to go to

Ward Changes

- Sinks - TI reported that agreement had been reached to remove the trough sink within the treatment room and replaced with a clinical WHB and that the bathroom with toilet could be removed as this was not required by this patient group and is never used. Agreement that ante room sinks within BMT can be removed and replaced with a worktop as this was more useful for practice. It was noted that this will need to be clarified with IMT prior to any changes being made.
- Playrooms – 2 sinks to be removed as not required
- Pharmacy Room – sink can be removed
- Plastic Inserts in Sinks – Previously noted issue with these – can these be cleaned – noted that as CD is passing through the system these will be kept clean and a review of the material these are made from – IP will progress with Armitage Shanks
- TI agreed to forward a full list of the changes to IP – this will change the scope of works and it was agreed that a final date for changes to be included should be confirmed

Ventilation – Interim report should be available this time next week with a full report on 29th October and this should make this clearer but noted this is likely to be part of a wider piece of work across the hospital.

- IS noted that once completed works in BMT air permeability tests will be carried out to ensure rooms are back to standard.
- Options for ventilation should be included within the ventilation report and this could have an impact on the work we are planning to do. It was anticipated that this will come back with a lot of different requirements to provide air changes. It was noted that this was not within the scope of work we are completing at this time. TS asked if this work

was imperative or could this be left at this time. It was noted that the was set up as a general ward area but it was noted that the TCT part of TCT ward does not meet the requirements and is seen as a risk. EH asked if this was appropriate at the time of the construction or was this a latent defect. IP noted that a general ward has 3 air changes per hour and sufficient but neutropenic patients require more? MAK noted that there was no guidance around Haemonc and other patients within the adult environment but it was noted that neutropenic patients require more positive pressures. It was thought that the system cannot be updated as it stands and would require to have extensive work carried out.

- It was agreed to map out the rooms for pressure levels. IP suggested that we could possible get at least a few of the rooms up to the correct pressure. There was consideration that if we could convert ward A to a HEPA filter environment and this could give positive pressure environment by air sealed doors at the entrance. Agreed to map the rooms and feedback by Monday of next week
- Additional air sampling of the ward was not required as there was sufficient data on the air within the ward

Opportunity Works – these were works that were not necessary for the standard of the water but to create a better environment or best carried out when the ward was empty

- Wall repairs and paining including the removal of some of the transfer images that were damaged
- Inclusion of a nurse call within the consultants room
- Door entry changes
- Tidy up the utility sink and the broken tap in staff toilets
- Decoration – an opportunity to brighten up the ward
- Clarification from TCT on the changes to the decor will be required as this was funded from them
- Clarification on some of these matters required from the Consultant in charge and TI will progress and update
- Agreed that the ward would not be requested to fund the changes during decant as would be the normal situation

Fire Compliance and electrical inspection and testing is completed

EH noted that the weekly Wednesday meeting will be used to discuss the scoping document in detail and provide an update to the WTG
IP noted that deep clean and sanitisation to be added along with air permeability prior to deep clean in rooms 17-24 including HPV in all areas. HPV costs will now increase as we are now including the common areas with an additional week added to the programme to complete – a plan will be created

4. In Line Filter Update

Covered at the last meeting of WTG and was agreed that this was not feasible due to flow rate requirement or for space to accommodate and change as appropriate.

5. Chlorine Dioxide

IP reported that the weekly contract meetings are progressing and working through the programme details with a start on 22nd October with go live on 19th November.

6. Installation Impact

Water service isolation schedule to be reviewed with Anne Harkness for impact on clinical activity – tentative dates. Scot mass will firm these up. Scheduling break ins to cold water taking 4 hours for each system followed up with hot water system which will require a 24 hour shut down but noted that when the cold is turned off the hot will also be impacted. It was intended that the work would take place between 12 midnight and 4 am when there is less demand on the system. The break into the hot water system will also see the expansion vessels work being carried out which will in tail sanitisation and pasteurisation prior to CD being allowed to progress through. Contingency plans will be required to be put in place – gels and wipes can be used in the interim. It was noted that the A&E

departments will be the biggest impact as these will both be turned off at the same time. IP has drawings and schedule of shut downs to ensure clarity of the areas affected by each of the shut downs
Communication with the clinical teams for adults and discussions with RHC teams have already been taken forward.
It was agreed that we will be cognisant of busy periods and work will take place around this and recognised that the planned 12 midnight – 4am may be the busiest time for A&E and as this is a major trauma centre other plans may need to be put in place. This was not possible for RHC as there was no alternative – it was noted that there was confidence that the service can be kept running during the shutdown periods
Agreed to look at contingency for A&E for the future

7. Lab Test of Sample Baselines
TVC paper has been updated and re circulated with today's papers

8. Drain Mapping Trends RHC
Full mapping has been concluded and it was noted that no trending was highlighted
KC showed some samples of the drains being reviewed after providing domestics with visual aid to create a grading of the status of all the drains within the hospital. Clinical WHB within adults are showing debris in the drains.
It was suggested that we use a product within the drains and KC noted that the horizontal drains were worse with most scoring 1 or 2 on the visual scale

9. Waste Pipe Presentation
A presentation was given to the group on each of the options which were in turn discussed the pros and cons of each proposal

10. AOCB
IP reported he met with Pall and they have removed some of the POUF for samples including SDI and EDS tests and these will require a period of time before these will be returned. Dip tests are relatively clean and returns classified as normal. EDS Specturm analysis will produce a report and review the rust found and where this has originated from. IP has to forward water samples to Intertec to determine if the rust particulates have spread with a further batch provided from different levels to allow us to track back from supply
TI reported that there had been two samples from NICU that came back positive. It was noted that previous filters that were thought to have failed had been proven to be fully functional. It was agreed to get supervisors to review cleaning practices with domestics to ensure this is not something happening due to cleaning
Test Plate for review of WC plume – being undertaken along with swabs of the ventilation grills
When will the patients move back in – difficult to say but at the earliest the work will conclude around 21st December so unlikely that the patients would be back in the ward before the start of 2019
M&S have not yet provided a programme and this will be dependent on material and supply. IPS panels are critical to concluding the work within the suggested programme. IP suggested that quick quote could be used to determine who in the country has the capacity, lead times and costs

11. Date and Time of Next Meeting
Friday 19th October at 9am in the CMB Meeting Room – QEUH To Note

Water Review Meeting (Technical)

Friday 19th October 2018 at 1pm in CMB – Meeting Room Facilities Hub

Present:

Ian Powrie (IP)	Deputy General Manager – Estates
Andrew Wilson (AW)	Senior Estates Manager, QEUH
Teresa Inkster (TI)	Consultant Microbiologist
Mary Anne Kane (MAK) (Chair)	Associate Director of Estates and Facilities
Tom Steele (TS)	Director of Estates and Facilities - Telecon
Emma Heggarty (EH)	Aecom Project Manager
Karen Connelly (KC)	General Manager (South)
Alan Gallacher (AG)	General Manager – Estates
Colin Purdon (CP)	Senior Estates Manager
Denis Kelly (DK)	Authorising Engineer

Apologies:

Ian Storrar (IS)	Principal Engineer – HFS
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS [Teleconference the attended]
Eddie McLaughlin (EMc)	Associate Direct HFS

In Attendance:

Allyson Hirst (AH) Admin to the Director and Associate Director – Estates and Facilities

1. Apologies

Noted above

2. Previous Notes

Previous Notes of 12th October were recorded as an accurate record of the discussions

3. Ward 2A/2B Work Plan

EH reviewed the Workplan/Scope document including

- CD – order placed and on track
- Items 1B – 4D all quoted by M&S and awaiting final sign off. Anticipated completed today and works concluded by 5th December – 1 week for clean up, HPV etc and conclude this by 12th December
- Taps – order quote received and awaiting information on lead time
- IPS Panel order placed
- WHB and other materials quotes due back today
- Drainage – remedial works progress and AW will progress further this afternoon there are no concerns around timeframe
- Decoration – clarity required on the extent of decoration – AW had discussed with MHutton to provide a clear request list by Monday

Others -

- IP noted that improvements to the lighting is being reviewed
- Sampling – will commence Monday to provide a baseline
- Water Sampling – baseline TVCs to determine the effects of CD – this has not commenced but will progress. These tests will be carried out regularly to determine the figures. It was noted that this was not expected to change until the pipework is changed and dosing takes effect. No testing will be carried out during shut down. Sentinels on the wards are designated testing points. IP noted that as this was a relatively small area he anticipated seeing results fairly quickly. Twice weekly testing was agreed
- It was agreed that once the CD was progressing through the system it was important to ensure that water was being pulled through the system and a flushing regimen was agreed to be implemented – this work to be recorded and documented and regimen tweeked as required

- It was noted that the new pipework will lessen the biofim mass within the system and so it was important to test before and after to determine that the CD dosing was appropriate
- Base Line TVCs – baseline to be determined prior to works and dosing – 1 set of tests to be carried out prior to CD
- Discussion on how best to ensure that it is ready for high level dose after the work is completed on pipework. CD commences next week for a short period of time and it was decided to take samples after to determine if any impact by CD and the agreed dated based on strip out of the plumbing and then high level dose as a cleaning method for new pipework. It was agreed to commence at 2ppm initially as this will indicated what effect CD is having
- Toilet Seats – It was noted that there was conflicting advice but TI noted that there was more evidence for than against but would review further. IP noted that he was planning to order these and have ready if not required these could be put to use in other areas
- Removal of Trough Sinks – some decisions agreed – anti rooms decision to be clarified and should be known after IMT later this morning. In the areas agreed the pipework would be removed and the walls reinstated
- Ventilation – it was noted that the report has been received but not yet reviewed. It was agreed that this could be shared with the members of the group
- MAK noted that on the basis of review any modifications to the system would not be able to happen in the decant period but we will review how this could be facilitated with the ward reoccupied. Agreed that detailed discussions with clinical and TI is required. IMT will require an update and ventilation is likely to be raised. It was noted that this should be noted as just received report and required time to review. It was agreed that we need to be careful of the wording used – the ventilation is not broken but needs to be improved
- Dirty Prep Works – cistern feeding a stop hopper disconnected as a little used outlet, sink, worktop requires to be removed. IP noted that these are all over the site and we need to consider what happens to the others across the site. What actions generically across the whole site on little used outlets and this will be for discussions after the 2A/2B works are concluded

4. Installation Impact Update

Installation Impact Update – A meeting was progressed with AHarkness and a programme of interruptions was discussed. This will be taken to clinical groups to determine the impact within clinical and a further meeting with RHC was scheduled for this pm to review their schedule. It was noted that both EDs will have loss of water during shut down at the same time and there need to be clarification on how many portable WHB will be required

5. Drainage and Survey Feedback

AW reported that all documentation was now received back including CCTV images. Due to the size of this document it was agreed to circulate to the members the conclusion but noted that the remainder of the document was available for review if requested.
IP reported on the feedback from the outlets and drainage and the findings from this Conclusion that the contamination of the down pipe from the outlet to the trap noted the trap is clean with no evidence of contamination and it is what is being put down the drains that is causing the issues along with materials used for the connection. Work has been carried out on the silicone washers on the existing spigits tested and noted that even with the newer material there is still growth occurring quickly. With silicone washers breaking down quickly but it was noted that the seen ponding issue will not happen with the new WHB. Actions already underway with the changes to 2A/2B and these will be reviewed nationally. Closer monitoring of the new sinks to ensure no deteriorisation
It was noted that the basin being seen in QEUH is the same as that in the newly refurbished ITU at RAH should these be changed bearing in mind that the patient group is different. TI thought they should be changed and MAK agreed to discuss with HMcIntyre. It was noted that DK had, in light of the issues at QEUH, reviewed the drains and noted ponding in these. TS noted that this is an opportunity to remove prior to ward being put into use.

6. Sink Survey Conclusions

Domestic supervisors have now inspected all WHB within QEUH and have scored the levels of contamination – it was the same group who carried out the checks in both adult and children's and noted that the vast majority of clinical WHB have level 4 contamination with patient WHB being around 1-2 with the exception of those that have been subject to drain cleaning regimen.
It was noted that the clinical WHB still has aluminium spigit and the group asked if this contributed to this – yes
Is this the same across the Board – yes – more contamination in the clinical WHB
Drain cleaning implementation within the entire Board to be considered after the works in 2A/2B are concluded

7. Pall Filters Feedback

The potentially failing filters have been returned to Pall and Intertec and it was noted that none of these have found to have failed and contaminants were found within the filter including rust and we are carrying out further work to determine if this is local or systematic of the building. Several water samples and filters have been sent to Intertec for review from 2A/2B – the findings have suggested that there is something within the system which is not stainless steel and this needs to be traced back. It was noted that there was a check carried out at commissioning and nothing was found. Information on this check to be located and forwarded to the members of the WTG for information. Intertec have requested permission to cut open one of the filters to investigate further – this was agreed.

8. Test Plates

Agreed to commence testing on Monday 22nd October including the ventilation grills to be swabbed

9. AOCB

Intertec report to be circulated to the members
Clarification of next meeting that TM to be invited to attend – discuss to ensure he attends during relevant discussions

10. Date of Next Meeting

26th November 2018 at 1pm in CMB – Facilities Meeting Hub – QEUH or via telecall All

Water Review Meeting (Technical)

Friday 26th October 2018 at 1pm in CMB – Meeting Room Facilities Hub

Present:

Ian Powrie (IP)	Deputy General Manager – Estates
Ian Storrar (IS)	Principal Engineer – HFS (telephone)
Andrew Wilson (AW)	Senior Estates Manager, QEUH
Teresa Inkster (TI)	Consultant Microbiologist
Colin Purdon (CP)	Senior Estates Manager
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS
Mary Anne Kane (MAK) (Chair)	Associate Director of Estates and Facilities
Denis Kelly (DK)	Authorising Engineer
John Mallon (JM)	Technical Services Manager
Emma Heggarty (EH)	Aecom Project Manager (Telephone)
Karen Connelly (KC)	General Manager (South)
John Mallon (JM)	Technical Services Manager - GRI

Apologies:

Tom Steele (TS)	Director of Estates and Facilities
Alan Gallacher (AG)	General Manager – Estates

In Attendance:

Allyson Hirst (AH)	Admin to the Director and Associate Director – Estates and Facilities

1. Apologies

As noted above

2. Previous Meeting of 19th October 2018

The notes of the meeting were accepted as an accurate record of discussions.

3. Ward 2A/B Work Plan and Costings

EH gave a brief overview of progress noting
Costings – CED completed later today
High dose CD agreed for the end of the works
PipeWork – On order arriving Monday 29th October
Taps – these will be delivered in a couple of weeks
Modifications – these have commenced
Clinical Wash Hand Basins – equipment is ordered and will be on site on Monday 29th October
IPS Panels – ordered – these will be on a phased delivery. Ordered from Crawfords and will require a site visit from them
Trough Sinks – this is yet to be determine what is going and staying – Jamie Redfern is co-ordinating a meeting for Tuesday 30th October to conclude
Toilets – samples were taken this week and results are now returned – they recorded nothing over 100 but retesting carried out and some returned >100 and requires further review. TI noted that samples from taps with filters off and noted that these results require to be quantified. The outcome of this will provide baseline counts and it was fully anticipated that these will rise once CD is progressing through the system
Panel Sampling – this did not occur due to logistics but it was agreed to progress once the ward is occupied as a better option
Toilet Lids – these are now ordered and will arrive on site on Monday 29th October.
All other issues are being progressed with Morris & Spottiswood who will confirm their programme and conclusion date

4. **Toilet Seat Discussion**

TI has reviewed some literature on this subject and this was circulated to the members for their information. It was noted that there is more evidence to have these in situ but it was understood that hand washing protocols would need to be further encouraged of the young patients as this introduced a possible contamination and it was agreed that this decision can be finalised at a later date.

5. **Ventilation**

Final report is due on Monday and a meeting is scheduled for Wednesday to review the findings from this but noted there are capacity issues within the system and not as much capacity as was initially thought. This will cause some issues in fulfilling the requirements previously discuss and it was agreed that if not able to conclude within the decant time line will be considered for a future date.

It was noted that there might be a possible negative pressure within the ward and this would not appropriate for this particular patient group and they require to have positive pressure before patients are moved back in.

Further discussion on what would be required and what the solution would be – new fans, new motor etc It was noted that at commissioning there was likely positive pressure but as the filters wear then negative pressure but it was noted that the ward was designed as a general ward not a specialist ward. Noted that 4B was designed appropriately and the paediatric was designed appropriately for general haem onc but not BMT patients.

Should the chilled beams be removed – this would involve major works being undertaken. Asked if it is appropriate to have heam onc patients nursed in these rooms – TI noted no. Chilled beams are a source of water and have recirculation capacity and possible passing on infections. Guidance states that this patient group should not be considered for this type of installation. It was noted that there are no dew points and therefore has internal rain effect in the rooms. Previously discussed at IMT and WTG and concluded not appropriate. During design it was thought that advice was sought for renal patients.

It was determined that if this work was to progress it would require some service co-ordination and access to the ward and it should achieve positive pressure.

It was noted that there is a ventilation meeting to be held on Wednesday 31st October and this will be used to discuss this further and to ensure that the ward was appropriate to bring patients back in – including HEPA filters.

6. Other Works on the Ward

Decoration – flooring, paintwork and some mural removal

Fire Compliance – largely complete

Electrical- complete

Addititional works – being reviewed and discussed but it was noted that works are still being requested and where do we draw the line- this will be raised at IMT later today and suggest that all requests are to be submitted by Monday or will not be considered.

Also noted was :

CD Equipment would b on a managed service contract – order raised and funding sourced

Cleaning – will be carried out in the week after works are completed

It was noted that Morris & Spottiswood have committed to the scope and timelines. EH noted a positive update with the caveat that there are some outstanding issues to be resolved.

7. Test Plate – Update

As the water was now turned off in the ward it was decided that this would wait until water was returned to the ward at a later date.

8. AOCB

Water samples had been taken from various points with the buildings and the following was noted

Under threshold even though still seeing debris and checked against Scottish Water threshold nothing from the sink- Intertec indicated 3ppm and all results are under this

Ultrafiltration – High counts but expected as this will gather over longer time. IK will need to review further before committing a response

CD Going Live Today – advice offered from the water experts that this would be better once full flow through the system. Agreement that we begin at lower levels and monitor – once wash hand basins and taps on then CD can begin to flow. Disinfection process to be in place prior to Morris & Spottiswood will connect the taps and sinks with appropriate handling process. It is possible to have high dose but agreed to go with low dose continual until works in complete and then move to high dose
Information from IS to be circulated to the members – 3 presentations
Ideal Standards asked to confirm that the chemical progressing through the system and its impact on the gaskets or contour seal
JM asked if all the base line testing was completed – for the moment but will continue after water is turned back on in around 3-4 weeks
KC asked if the parents beds on the wards could be adjusted as they are proving difficult to clean – a review of the information will be taken to IMT for approval
EH noted that Jim Cummings will be replacing her from now – JC will be added to the circulation for the Water Technical Group distribution list

9. Date of Next Meeting

2nd November at 1pm in Facilities Meeting Room – CMB – QEUH. It was agreed that this meeting will focus on ventilation and an agenda will be produced after Wednesdays Ventilation Meeting

Water Review Meeting (Technical)

Friday 9th November 2018 at 1pm in CMB – Meeting Room Facilities Hub

Present:

Ian Powrie (IP)	Deputy General Manager – Estates
Ian Storrar (IS)	Principal Engineer – HFS (telephone)
Andrew Wilson (AW)	Senior Estates Manager, QEUH
Teresa Inkster (TI)	Consultant Microbiologist
Colin Purdon (CP)	Senior Estates Manager
Annette Rankin (AR)	Nurse Consultant Infection Control – HPS
Mary Anne Kane (MAK) (Chair)	Associate Director of Estates and Facilities
Denis Kelly (DK)	Authorising Engineer
Emma Heggarty (EH)	Aecom Project Manager (Telephone)
Karen Connelly (KC)	General Manager (South)
John Mallon (JM)	Technical Services Manager – GRI
Tom Steele (TS)	Director of Estates and Facilities from item 7
Alan Gallacher (AG)	General Manager – Estates
Iain Kennedy (IG)	Consultant in Public Health Medicine from item 4

Apologies:
None

In Attendance:
Allyson Hirst (AH) Admin to the Director and Associate Director – Estates and Facilities

1.	**Apologies**	
	As noted above	
2.	**Previous Meeting of 26th October 2018**	
	The notes of the meeting were accepted as an accurate record of discussions.	
3.	**Ward 2A/B Work Plan and Costings**	
	EH gave a brief overview of progress noting	
	Progressing well and on track to complete by 5th December	
	Trough Sinks – this is yet to be determine what is going and staying – awaiting feedback from Jamie Redfern. IP noted that this needs to be concluded as there are other works that will be delayed by this not being determined. IPCT recommend that these are removed and this is supported by Emma Watson but the consultant needs to approve. It was noted that HAI Policy Unit and Lead Microbiologist agreed that these should be removed. AR noted that they may have a clinical argument for keeping these and this is accounted for in the SBar. TI noted that this is a nursing issue and they are happy that these are removed and it was noted a similar change in nursing practice was carried out in 4B and they have no issues with this. AW noted that this could potential affect the programme concluding when we have previously stated. It was agreed that the group support TI, local Infection Control and HAI. MAK noted that we should have full clarification prior to anything being removed. MAK suggested that a further email to JR to clarify the clinical reasons behind keeping these and give a deadline. If no response then they are to be removed.	
	Bristol Maid Holders – TI, AW and SD have met and agreed that these are not to be installed.	
	Water Scope – Progressing	
4.	**CD Procurement**	
	IP reported that CD will be turned on Monday and progress through the main index lines and will be drawn through each out for 15 minutes to ensure efficacy. Overall procurement completed but noted issues with compatibility in the tank room and this requires a review of the process. This will include a review of the costs and this is being discussed with contractors at this time. Further capital has been requested in light of this. IP noted that it is not possible to strip out	

	existing pipework as this would be too costly and take additional time and resources. Multiplex have been asked to provide RAS approval certificates for the current pipework and clarification as to when this was approved. This will give us assurances that the pipework can with stand the CD and the chlorates within but the contractor requires a letter of comfort to proceed.	
	IS asked if there had been any noted corrosion from the 304 pipework – IP noted that he had only witness corroding on the valves which are iron. It was noted that if there are carbon steel valves throughout there could be an issue of corroding. It was agreed that this could be the cause of the metal findings in recent testing of the water but noted that this was within agreed parameters. During 2A pipework strip out noted 2 or 3 express fitting have been carbon steel and not stainless steel but it was agreed that carbon steel was not unusual.	
	It was noted that M&S employees who previously worked for Mercury reported that the system had water in it for around 9 months during building and had not been aware of any flushing taking place	
	It was agreed that this information should be recorded and written up and how decisions were made for future reference. DK and IP to progress this and IS offered his assistance if required. It was noted that this could be a factor on the issues we have been seeing and failures in the processes.	
	A new order of pipework as well as fittings and flanges is required and this will add time but IP is progressing to conclude to ensure that the CD is progressing through the system as per the original time line by placing a temporary dosing system in the tank and generate CD in there but noted it was not the same with less control over the dosing but it was proposed as a short term measure with heat station and distribution at the same time and go live around 26th November. Pipework does not impact on 12th December conclusion	
	IP reported that any impact would be felt in the Adult hospital. IP noted that he had a meeting set up with AHarkness but had to cancel this to deal with the pipework issues. IP will need to review the timelines again after this and reset his meeting with AHarkness. It was thought that the field equipment can be progressed and move to the other works after the Christmas break. MAK noted that due to winter pressures there should be no break in's to the water system during January/February. IP noted that this has been made clear to the contractor and will be part of their plans.	
	Installation Impact – a further meeting was scheduled for earlier today with RHC colleagues to review the impact. From this meeting KC noted that they had discussed contingency arrangements for the 4 hour down time and determined that additional portaloos are required with all other aspects remaining the same. MAK asked that all of this is written up so it is fully understood and agreed. KC noted that this was planned and further communication will be sent out to relevant parties	
5.	**Shower Heads and Hoses**	
	AW and CP noted that he may have an option to improving the costs in changing these throughout the hospital with some costs coming down is replacement heads and hoses. AW brought a sample of an option offered by Pall who have offered 1000 units to trial free of charge with only one part that requires to be changed quarterly. DK asked for data to prove their robustness and Pall will supply. It was thought that Belfast hospital is using these and case study information should be sought from them and a review of how these are used. It was noted that shower heads and hoses are scheduled to be cleaned quarterly but with this product only one part required to be changed and it would be easily identifiable by colour as to which required changed. It was noted that this would require to be taken to the Board Water Group for approval prior to any trial taking place. It was noted that the guidance did not require any documentation of showerheads change process or schedule but it would be beneficial to have this similar to the decontamination process where they would be tagged and or serial number attached. IP noted that microbiology have indicated that these products are effective initially but when contaminated there is some reduction in their effectiveness. It was agreed that disposable options may be the way forward in high risk areas. After further discussion the group agreed that these do sound like a good product and it would be beneficial to review this further and is worthy of some investigation but we would need to consider any potential issues. CP noted that the shower heads in the retained estate are now at the end of their life and after reviewing options this product was offered as possible solution. IP suggested that disposable shower head and hose	

	are good for high risk areas and with the longest possible filters fitted this would trigger the changeover. MAK suggested that we run a long term test of this to verify Pall's findings to ensure they work as thought in real terms with all interactions playing a part in verifying their worth. A price comparison should be verified between disposable and these. It was thought that 1000 may be too many to trial and we should request a smaller number. It would also be beneficial to have a test within a CD area and contact with George McCracken for his view on these. The group agreed to discuss further at next week's meeting and AW should provide a pro's and con's list for review.	
6.	**HFS/HPS Report Update**	
	This has now gone to Scottish Government and there will be a meeting with relevant staff set in a few weeks but it was noted that Fiona McQueen will be required to review this before it goes further – AR will follow up	
	AMorrison will review the HFS section of the report and this was anticipated to be completed next week and noted that both reports need to be brought together and read in conjunction	
	MAK noted that she has asked AG to review HPS report and write up a narrative on this with a view to close these down and this in turn will be the response to HPS report and same to be carried out for HFS report	
7.	**Ventilation**	
	IP gave an update on the recent review of ventilation within the wards 2A/2B and noted	
	The upper part of 2A is ventilated as a standard generic ward. Testing was carried out and found positive but once this was reviewed it was found that these were not accurate as IPS panels were removed and room and ward doors were open at the time. AR asked if this was same at commissioning – IP noted that there was no data recorded for pressures just air changes. What was the thinking behind this set up as it was always known to be housing Schiehallion patients. Not known why but it was not a Board conscious decision. It was noted that the clinicians are concerned and need to understand this. JLeiper's ventilation report noted that it was derogated from 6 to 3 and the interpretation of the contract was a blanket approach with exception to the BMT ward which was different and no reps from client side were aware of this of the capability to challenge this. TI noted her own concerns on the duct work and the possible links to the gastric issues within the ward. A copy of this report will be forwarded to HPS when reviewed. It was not thought to be a deliberate error it just wasn't picked up at the time. AR asked if there was different guidance – not just on isolation rooms and it was agreed that the guidance was not suitable for neutropenic or haemato patients and SHT203 should have been referred to instead.	
	During the investigation an issue was identified that dirty extract is cross connected to clean extract fan and clean extract duct is connected to dirty extract fan. Clean fan associated with supply fan and link and thereby dirty could be recirculated back into clean and this ward should be getting 100% clean air	
	It was noted that this may explain why there has been an increase in the bacteraemia found in this ward. TS asked if this set up was by design or by error. IP noted that this was in error but should have been picked up in commissioning. IP noted that you would not usually find this unless investigated. The Ventilation Report has three recommendations 1. Improve situation 2. Create sb0 isolation suite within the war 3. Upgrade the entire ward to higher containment The group discussed the options in detail and concluded that 2 and 3 would mean the ward would be closed for 9-12 months and 1 would not comply with guidance but would provide positive pressure but this then reduces when the filters are requiring to be changed. IP noted that the fan size would be increased for higher air volume and allow compensation for filters getting worn out and would include HEPA filtration and this will require additional changes. Is asked if any down side for AHU – none it can cope with the increase in size but noted the duct work on the ward are on their limits but could improve the room air by around 5L and by changing the pressure in the corridors this will improve the pressures within the rooms. IP then	

	noted that 3-5 Pascal's could be achieved and as part of the fabric seal of the rooms would be reviewed and made more air efficient but this is difficult to determine as it is not design mode.	
	TI noted that HEPA was the priority and then positive pressure. If this is consistent then happy with less than 10 Pascal but not negative pressures and air changes are not so important. HEPA filtration would only be achievable if we change the AHU and the manufacturer will carry this out on site. The positive pressure will be improved but the downside to this is unable to increase air volume and this is prevented if doors are opened then pressure will drop and will take time to recover and there will need to be a management of this to ensure it does not drop. Pressure drops will be monitored to determine the timeline for change of filters with warning systems within the rooms to ensure that these are notified	
	HEPA Filtration filters are supposed to last anything from 3-5 years but these filters will require additional changes. The three AHU that supply these wards will require alterations and the removal of the thermal wheel, separation of the extract and installation of HEPA filters, increase of the fan size and rebalance the system. AW noted that correcting the routing, not changing but separating the thermal wheel and fixing the new duct work in place in order to separate the two. IP will write this up for TI to review with work taking place in plant room 41.	
	AR noted that this helps to explain some of the issues that have been experienced in 2A/2B but IP noted that the proposals still do not meet guidance but will give better results to the ward. The down side is that it is not possible to complete this within the timeframe to move patients back in December and will likely move this to end of February. A SBar will be required to ensure that this is documented properly.	
	It was agreed that deliverability of 2 and 3 were unlikely as there was insufficient space to progress this and agreed that option 1 was the only option to reach as close as possible to requirements	
	As this was not achieving 10 Pascal differential pressures this is not meeting guidance but TI noted that the HEPA filtration could supersede this Pascal achievement but it was agreed that she would review this and confirm.	
	IP noted that as previously stated there is no source to determine air changes but was has been formed for odour dilution. It was suggested that 3 air changes was sufficient but anything around 1 ½ becomes dangerous with our plans we to have 3 ½ to 4 but to increase positive pressure then air changes are reduced. KC asked if we should put in automatic closing and keep open devices that have a timer to close within a specified time to assist in keeping the pressures?	
	IP noted that HEPA filtered air will be pushed through the patients rooms and out into the corridor which will have extract and no supply as this will assist with the positive pressure. TI questioned the air being pushed out of the patient room would then not be pushed into a HEPA filtered corridor and there was risk of infections being spread into the corridor. IP agreed to write this up so that it could fully be reviewed.	
	After some discussion on the options it was clarified that the patients would not be moving back next month as originally planned. And it was agreed that we need to have a full solution in place to ensure that all facts were clear and plans in place but it would be necessary to inform the clinical teams that they would be remaining where they are for the meantime to allow staff planning. Agreed that an option appraisal to ensure that clarification of the date of return is then provided to staff.	
	IP noted that the work plan for the ward will alter depending on what is decided and will therefore have an impact on the M&S work	
	A review of the previous discussions on ventilation should be carried out and a search was to be carried out for minutes of meetings on this topic.	
	TS noted that we should have certainty that this will not impact on other areas	
	TI asked if this is the same set up in 7A/7D noting that they have not had outbreaks relating to air. But there is a need to check the pressures – these checks will be carried out along with 4D.	
	IP suggested that a switch off of the extract and test the air down system – this would involve only a short shut down but would affect several floors on each leg and would require a person on each floor at the toilet extract with further checks in general rooms.	
	TS asked if we should bring back the designers to discuss this matter as we do not have access to this data only commissioning data which does not show these issues. It was agreed to go via Multiplex to progress this and agreed the best way forward was to approach via letter and then formal negotiations along with the other discussions required with the construction company.	

	Key Points	
	7A/7D – negative pressure, three air changes	
	4C – rooms are positive, HEPA required	
	5C/5D – 3 air changes and slightly negative. Not all rooms are showing the same and therefore risks to people in the corridor – this is a priority to be reviewed. AW has instructed to see what can be done within plant in place and test – review after this is carried out	
	4C – same check but other way round – to create more positive pressure. AW noted challenge putting in HEPA filter will cause pressure to drop	
	It was agreed that this is all written up, agreement reached on what is required in each of the wards and areas. Determine who this is going to be presented to staff, patient and the wider as necessary, providing assurances that we are doing something to change this/fix this	
	It was agreed that by the next meeting we should have response to these areas that are critical as noted above. IP noted that certain areas around these wards will have impact with these changes and will require a rebalancing of the AHU	
	Agreed to discuss further at next weeks meeting	
	JLs Ventilation Report can be shared	
	Matt Lambart's Report to be shared with TI and AR and marked draft and in confidence	
	IP noted that if we want to conclude this by February we need to begin gearing people up. It was agreed to allow Matt to conclude his work in 2A/2B before extending to other areas at this time.	
	IMT is being arranged for Tuesday and TI noted that we would not have full information by then and TI would ask for limited representation and provide further update at Friday's IMT	
8.	**AOCB**	
	DK noted that he had provided appropriate training for M&S staff working within the hospital as they were not appropriately trained. It should be noted that other contractors may also require some training as assurances from M&S as part of the framework were inaccurate. DK agreed to review names of those working on the site and conclude if registered competent	
	IMT Tuesday – should include information on ongoing remedial works and therefore longer out of ward and we should plan for next Friday to have a plan to tell the clinical teams. Agreed to forward plans to TI who will review with Peter Hoffman to determine the way forward	
	IP asked IS – as part of the work on the basement pipework – expansion vessels on the cold water supply and 4 small on side of pressurisation pumps – is there a way to add flow through? IP will forward information to IS for review	
	Tim Wafer – will require to be involved in the write up of the works and IP is in contact to keep him updated	
	IS agreed to provide presentation from a recent conference he attended that would be of interest to the members	
	HFS Report- final iteration of this will be ready next week. TS noted that we need to be clear that all outstanding issues have been agreed and resolved – report to be forwarded to TS	
9.	**Date of Next Meeting**	
	16th November at 1pm in Facilities Meeting Room – CMB – QEUH.	

Water Review Meeting (Technical)

Friday 16th November 2018 at 1pm in CMB – Meeting Room Facilities Hub

Present:

Ian Powrie (IP)	Deputy General Manager – Estates (Chair)
Ian Storrar (IS)	Principal Engineer – HFS (telephone)
Andrew Wilson (AW)	Senior Estates Manager, QEUH
Iain Kennedy (IG)	Consultant in Public Health Medicine (telephone)
Annette Rankin (AR)	Nurse Consultant Infection Control– HPS (telephone)
James Cumming (JC)	Aecom Project Manager
Apologies:	
John Mallon (JM)	Technical Services Manager – GRI
Tom Steele (TS)	Director of Estates and Facilities
Alan Gallacher (AG)	General Manager – Estates
Mary Anne Kane (MAK)	Associate Director of Estates and Facilities
Colin Purdon (CP)	Senior Estates Manager
Karen Connelly (KC)	General Manager (South)
Dennis Kelly (DK)	Authorising Engineer

In Attendance:

Allyson Hirst (AH) Admin to the Director and Associate Director – Estates and Facilities

1.	**Apologies**	
	As noted above	-
2.	**Previous Meeting of 9th November 2018**	
	The notes of the meeting were accepted as an accurate record of discussions by those in attendance but due to the number of apologies it was decided that this would be reviewed again next week	All
3.	**Ward 2A/B Work Plan and Costings**	
	JC updated that all appears to be on programme and there is no detrement to costs at this time. It was noted that no decision as yet clear on trough sinks and this would likely cause a delay to the completion of the IPS panels, pipework and ceiling works	-
4.	**CD Procurement**	
	IP reported that there are still works to be completed due to the sizing of the pipework – being 304L instead of 316L which will require to be flange cut instead of press fit joints and this has altered the costs. Additional capital has been requested but not yet confirmed. Works that can be progressed are doing so at this time until this can be concluded	-
	Cold water break in are scheduled to start next Thursday and will progress or 2 weeks including all 4 cold water risers and 8 heat stations. Delivery flow through expansion delayed and the programme has been changed to accommodate this. January will see the beginning of this with one installed at a time therefore no impact to service.	-
	It was asked if there would be an issue with funding – not thought so as work is required to progress to resolve the issues.	
	Overall the 4 shut down periods all areas will be without water for around 4 hours over each of the theses planned sessions. IP had met with Renal Dyalisis team and contingencies arrangements are in place. This includes protection against the CD entering their water system. IP noted that there are still some issues to be iron out including the fact that they are supplied by only one look and IP has asked the WTG to approve installation of a second loop as a back up for this area so that they are not reliant on potable water supply. It was noted that there are two in ICU and RHC and the adult hospital With only one loop for Adult renal and if this were to go down we would need to put in emergency connections to continue	All

	service. CD in the potable water will prove difficult to filter in emergency connections and will require another loop during sanitisation and failure or accept the risk of no dialysing during high levels of CD. The renal team are looking for WTG to endorse the additional loop – decided to add to the agenda for next week when it was hoped that there would be fuller attendance.	
	Concerned that as dosing at 2ppm onto emergency connection – local filtration may not be able to cope at these levels – the renal plant is protected at its filters but not when it is attached to emergency connection point	-
	IP noted previous conversations on the connections – capital funding was requested but did not appear to have the support to progress. IK agreed that emergency points need to come out and we cannot leave without back up but the clinical risk needs to e considered. IP noted that he outline costs of around £300K which will require updating to current years prices and if agreement from the group then IP will progress	IP to progress if agreed
5.	**Shower Heads and Hoses**	
	AW reported that he had nothing further on this to presented and would bring back a pricing proposal to the next meeting	AW
6.	**HFS/HPS Report Update**	
	This is now with Scottish Government and there is a scheduled conference call for next week with JArmstrong/TI and TS thought to be participating.	Update
7.	**Ventilation**	
	IP noted that the option we had considered to be the way forward has been reviewed and will not provide the pressures as needed for this ward and we are therefore review alternative works.	IP
	It was noted that clinical staff have been told that they will not be returning to the ward before Christmas as previously thought but likely to be January/February 2019. Review is underway to radically alter the ventilation system and IP and TI will review the scope and progress from this. There was no updated on what a potential solution would likely be at this time.	IP/TI
8.	**AOCB**	
	Water Management Policy during 2A/B ward closure – IP explained that a flushing programme was about to commence once the CD is installed. Flush continuously for 8 hours at the sentinel points to achieve appropriate level at the furthest point and thereafter every 15 minutes until at every outlet and this will be monitored and flushed every day with monitoring and testing and once satisfactory results are achieved the flushing will progress to once a day until the ward is occupied with weekly microbiological testing carried out	-
	JH noted that BMT in GRI was 4 hourly and IP noted that whilst the ward was not in use the additional flushing was only a benefit and would give an indication of what to expect in other areas	-
	JC noted that M&S have not yet given a drop dead date for the trough sinks but it was noted that we were not quite there at this time to impact the programme but until this work is completed we will not be able to complete the ventilation validation as the ceilings will not be closed off. The contractor scheduled to attend next week will be pushed back and their availability determined for the coming weeks	AW
	There was nothing further to discuss and the meeting was closed.	
9.	**Date of Next Meeting**	
	23rd November at 1pm in Facilities Meeting Room – CMB – QEUH.	All

Water Review Meeting (Technical)

Friday 23rd November 2018 at 1pm in CMB – Meeting Room Facilities Hub

Present:

Ian Powrie (IP)	Deputy General Manager – Estates (Chair)
Ian Storrar (IS)	Principal Engineer – HFS (telephone)
Dennis Kelly (DK)	Authorising Engineer
Iain Kennedy (IG)	Consultant in Public Health Medicine (telephone)
Annette Rankin (AR)	Nurse Consultant Infection Control– HPS (telephone)
Colin Purdon (CP)	Senior Estates Manager
John Mallon (JM)	Technical Services Manager – GRI
James Cumming (JC)	Aecom Project Manager
Apologies:	
Tom Steele (TS)	Director of Estates and Facilities
Alan Gallacher (AG)	General Manager – Estates
Mary Anne Kane (MAK)	Associate Director of Estates and Facilities
Karen Connelly (KC)	General Manager (South)
Andrew Wilson (AW)	Senior Estates Manager, QEUH

In Attendance:

Allyson Hirst (AH) Admin to the Director and Associate Director – Estates and Facilities

1.	**Apologies**	
	As noted above	-
2.	**Previous Meeting of 16th November 2018**	
	The notes of the meeting were accepted as an accurate record of discussions with a few agreed amendments. Once these are completed a new set of notes will be issued	AH
3.	**Ward 2A/B Work**	
	JC called into the meeting but lost connection before any update could be noted but IP noted the following	-
	Noted that the programme was progressing to schedule completing by 3rd December	-
	Reoccupation was scheduled for a week after this on 12th December to allow recertification of the services and sanitisation of the ward but given where we are with other issues this was not likely to happen. It was noted that given the general ward and TCT are not occupiable due to the ventilation until at least Feb 2019	-
	2A/B are awaiting capital allocation costs and the accrued costs sit under revenue at this time	-
	IP reported that the trough sinks have been given the go ahead to be removed from the clinical team with the caveat that these can be reinstalled if the en-suite WHB do not show improvement with respect to reducing splash\contamination risk. Pipework installed is capped and labelled redundant until further review and temp IPS panels put in place complete with work surface.	-
4.	**CD Procurement**	
	IP gave an update on the first cold water shut down to break into the boosted line for RHC in plant room 41 and 22. He noted that this has been challenging as the discharge had to be frozen to facilitate isolation as there are no isolation valve in the plant room. All works were completed within the planned time frame and checked with service there was no adverse impact to them. Press office have been updated	-
	A further 3 boosted line shut downs are required with associated cut in for each of the plant rooms. The target date for go live with the Chlorine Dioxide is 29th November but noted there was an issue with the probes on the RO plant and cannot go head until the correct probes are	-

	delivered and this will delay implementation. Assuming this can be recovered for target date. Dosing to the tanks will be carried out on a temporary methodology until capital funding is approved for the change of scope the pipework installation, in order to ensure that water treatment commences on the planned time line, but this is all very dependent on replacement sensor probes being delivered on time.	
	RO Granular Activated Carbon (GAC) filters for the adults RO replaced last week – one is done at a time so there is a time lag in replacements but this also gives a resilience in place for any failure due to age. RHC filtration recharging will be carried out this weekend.	-
	IP reported that we are now considering not to proceed with the external chemical store as after analysing the space it will only hold around 500L of chemicals and it may not be worth creating a building and it was thought it would be better to accommodate these in the basement tank room thereby some savings to the original costs. Safety implications being considered but due to 9 different pumping stations there will be a reduction in chemicals required at each location and with gas monitoring in place to shut down if there are any issues.	-
	IK asked if this had any possible impact on the operation of the plant – bulk storage will reduce time for running before being recharged and IP noted that the duration is not clear at this time but as this is a managed service contract the company are in charge of re ordering via telemetry system to ensure delivery but Board also has access to the telemetry along with BMS with the remote probes not being monitored on BMS but by telemetry. DK noted it was possible to always hold 25L of chemical as contingency as well as stock on site to ensure availability and alarms are in place to notify	-
	2A/B Monitoring Report – IP forwarded to the group prior to the meeting with test results included. IP noted that the planned flushing through to the end of line sentinel points was planned for 8 hours a day and noted that this has been achieved rapidly in the cold but that hot was taking a little bit longer and erratic and this was thought to be caused as the system is still within commissioning and takes 48 hours for probes to bed in and the bio film will be absorbing and using up the CD and this was evident from Wednesday night report noting zero CD so concluded that this was being absorbed by bio film. Agreed to monitor after a few days and noted that this should settle. Microbiological monitoring should commence next Friday and will be dependent on maintaining a residual level. Cut back on doing to 0.5ppm for cold and 1ppm for holt water and reduce to 4 hours over the weekend and pick up again on Monday. This will allow to show a trend and IP agreed to confirm mid week if sampling can commence for all the usual water tests including TVC, legionella and the testing will take place as per the TVC protocol. After 10th December until the Christmas holiday period has passed the samples should be sent to Invertec. JH noted that additional testing was being carried out at Cowlairs and this may impact on the microbiology labs being able to handle this and the water testing results. JH will confirm if this is the case and it was agreed that Intertec could take up water testing if necessary. It was agreed that samples should be forwarded to the lab on a Monday not Friday	-
	Water temperatures – these were recording out with normal scope but it was thought that this was due to the shut down period and has recovered but will continue to be monitored and recorded	-
	IK asked if the CD was running continuously – yes. IP noted that because not bedded in it will be ramped down over the first weekend and pick up on Monday as well as flushing over the weekend and we were being cautious that it will not be monitored over Saturday and Sunday	-
	Installation Impact	
	IP noted that the original plan noted 14 steps including calorifiers and expansion vessels but noted that the expansion vessels will be installed in January one at a time along with calorifiers clean and pasteurisation and restore water that will have been treated with chemical from return so will be clean water once reconnected. Two vessels per day over a 2-3 week period. Programmes are in place with clinical teams which include 3 further shut downs each for 4 hours	-
	IP noted that the next challenge will be on 29th November when both emergency departments will be shut down at the same time and noted that this is more difficult clinically. Adults had noted that they are looking at the possibility of diverting major incidents to another site within the Glasgow area	-

	CD will be implemented throughout the site by 25th January and noted that this might shift slightly due to the changes to the pipework required but noted that once all tanks are altered then the entire site will be covered but not with the required efficacy and with additional booster stations to be added this might be pushed into February.	-
5.	**Shower Heads and Hoses**	
	CP noted that he has forwarded all the literature that Pall had in regards to these shower heads including case studies from other health boards using this product. There was a significant amount of literature to be reviewed and CP invited comments from the members to be fed back to him	CP
	It was noted that this was undergoing a small trial within the staff changing area to ascertain how this performed and to ensure this was suitable for what it is designed for including microbiological testing. It was suggested to wait until the CD is running through the system to determine full effectiveness but agreed to install in a staff area that will not be covered by CD as a test and sample recording	CP
6.	**HFS/HPS Update**	
	AR reported that she had met with Scottish Government who wish to make a few amendments to the report but this has not progressed further than the quality unit	-
	HFS Updated on Dr Ginny Moore's recent presentation on WHB – IP reported that DMA colleagues had recently attended a conference at which Dr Ginny Moore had presented at and noted that Susanne Lee had chaired the conference. IP noted that the information he had seen looked interesting and requested that the information to be shared amongst the members of this group. IS noted that he had been in contact with Dr Moore who had asked at this time that the presentation is not shared and IP asked if it would be possible to set up a similar seminar/conference for colleagues in Scotland. IS agreed to progress this. IP noted some interesting information included within this that reinforces the thoughts that we had on objects in the drain and what is poured down the drains	IS
	Ideal Standard – Waste Outlets – looking to set up a teleconference to determine how to progress – it was thought that they were looking for payment but agreed that this is a manufacturing issue and therefore not appropriate – IP agreed to make contact and set up a call – IS will be included	IP
7.	**Ventilation**	
	IP reported that he was still working on appointing a consultant to complete a design feasibility study and noted that it would be the end of December before appointment could be concluded which will then be completed around February to complete a full feasibility and then move to design stage. IP met with TI and JH mid week to determine requirements for the outline brief and this will then be reviewed and information from this will be issued as part of the tender	-
8.	**AOCB**	
	Drain Cleaning Tasks – Mechanical or Chemical – is this to be continued with no end date or can we reduce frequency. For ward 2A/B being closed and new sinks and pipework introduced it was decided to wait for TI attendance at the meeting to determine for that ward. After some discussion on the new set up in 2A/B and with CD progressing through the system and no clinical activity and the report from Public Health England (PHE) was it necessary to continue the drain clean. The group agreed that they would like some time to consider this but it was noted that if we clean as we do the others we will not be able to determine if the new set up is working as hoped. DK noted that there is no data to refer to and it was agreed that this should be put on the agenda for the next meeting and review the PHE paper and requirements for routine flushing. It was noted that the flushing protocol and monitoring arrangements are onerous and if implemented site wide this will be an impossible task to maintain and it was previously agreed to use the DMA protocol and this needs some clarification	All
	IS asked about previous indication that M&S sub contractors not being healthcare trained. IP	-

	noted that sub contractors people had completed training under the WRAS Approved Contractors Scheme via Scottish & Northern Ireland Plumbing Employers Federation (SINPEF) awareness training, however when asked to present cards they were found to have expired. GG&C arranged to temporary awareness training via Dennis Kelly GG&C AE (Water) to allow works to continue as per the agreed programme with a caveat that they complete a refresher course with the regulatory body **SNIPEF**. IS asked are they competent to work on NHS site? DK noted that the seven he spoke to are to his satisfaction trained to work appropriately but noted that he could not comment on any additional staff. IP noted that plumbers from Livingstone mechanical and Scotmass have legionella control certificates and IP noted that although we specifically requested full certification within our tender and received assurances of WRAS registration, it is evident that there are still gaps in the industries awareness of the importance of this training and a lack of diligence on the part of the these companies.	
9.	**Date of Next Meeting**	
	30th November at 1pm in Facilities Meeting Room – CMB – QEUH.	All

Water Review Meeting (Technical)

Friday 30th November 2018 at 1pm in CMB – Meeting Room Facilities Hub

Present:

Ian Powrie (IP)	Deputy General Manager – Estates (Chair)
Ian Storrar (IS)	Principal Engineer – HFS (telephone)
Iain Kennedy (IG)	Consultant in Public Health Medicine (telephone)
Colin Purdon (CP)	Senior Estates Manager
John Mallon (JM)	Technical Services Manager – GRI
James Cumming (JC)	Aecom Project Manager
Tom Steele (TS)	Director of Estates and Facilities
Alan Gallacher (AG)	General Manager – Estates
Andrew Wilson (AW)	Senior Estates Manager, QEUH
Apolgies:	
Dennis Kelly (DK)	Authorising Engineer
Mary Anne Kane (MAK)	Associate Director of Estates and Facilities
Karen Connelly (KC)	General Manager (South)
Annette Rankin (AR)	Nurse Consultant Infection Control– HPS

In Attendance:

Allyson Hirst (AH) Admin to the Director and Associate Director – Estates and Facilities

1.	**Apologies**	
	As noted above	-
2.	**Previous Meeting of 23rd November 2018**	
	The notes of the meeting were accepted as an accurate record of discussions	-
3.	**Ward 2A/B Work**	
	Ventilation – air testing and ventilation reverification booked and confirmed and will be within the programme timescale	-
	Nurse Call – complete	-
	Door Entry – apart from the software which will be installed once the ward has moved back in as this requires PCs to be in place and staff will complete the allocation process	-
	Trough Sinks – removed and IPS panels completed – shelf to be installed. TI noted that the clinicians had not agreed to this but ICT advice is to remove and this was an opportunity to test. Trials have taken place in other hospitals and is shown to be beneficial. Ideal Standards have also carried out trials and will share the information once published	-
4.	**CD Installation Update**	
	Works are now 50% complete for isolations. RHC will have no further break ins. The isolations which involved both A&E Departments took place on 29th November and there were no issues reported by the service.	-
	IP noted that next week will see further isolations and will require freeze as there are no isolation valves in place but it was noted that there was confidence that there would be no issues.	-
	Time taken to conclude the works – full 4 hours being used with no breeching of this time line and works are planned to ensure completion in the timeframe	-
	6 further break ins required and has been planned to conclude within the 4 hour slot so that there is only one further shut down for the hospital. Each of the break ins will have their own separate teams to carry out the work and noted that the freezing of the pipes requires resources but noted that these are smaller than the first and should take less time than previously in theory	-

	Probes – as noted last week the probes for the CD plant were incorrectly delivered this was thought to delay the completion but it was noted that the appropriate probes have arrived on site and this will put the programme back on track	-
	Going live on the boosted line by 14th December and hot water for RHC and others will fall in after Christmas and into January.	
	Expansion Vessells – will begin installation in January with one installation carried out at a time along with santisation of the chlorifiers and this will involve no down time for users	
	Ward 2A/B Monitoring	
	IP had forwarded the monitoring sheets for 2A/B for manual monitoring of the water noting	
	Hot water temperature over the last few days has been low and potential detrimental but noted that this could be due to works being carried out within the energy centre. One riser has recovered and one has not this will be checked again. IS asked if this was BMS strategy – CP noted that the CHPs were used over the last week but now moved to boilers and this has aided recovery	-
	1ppm for cold and 2ppm for hot within the system before the weekend and dropped over the weekend and ramped up again on Monday. A tracker is in place to monitor. Currently dropping the cold to 0.5ppm as levels were seen to be rising and carried out today with feedback at the next WTG.	-
	Results forwarded for today's monitoring noted that cold water was losing residual in the morning as there is not flushing and the system stops dosing and the impression being given is that the CD residual is being absorbed by what is in the system but recovers once flushing commences	-
	3 days of flushing without taps and it was now thought that we should carry out the first TVC monitoring. This was agreed to commence on 3rd December and results from this will be returned in a few days but checks for legionella will take up to 2 weeks. It was suggested that three clear results are seen prior to taps being installed and it was proposed to take samples every three days. TI agreed but noted that filters should be reinstated and IP noted that he did not want to put the new taps onto the system until the system was clean. Agreed a programme of Monday, Thursday, Monday and if all clear the taps can be fitted thereafter. Agreed that all samples will be tested by microbiology at GRI. IP agreed to confirm the number of samples to ensure that GRI can accommodate the numbers	IP
	IK asked about the variability in the residual ones showing low residuals in 2B - 2B has less outlets and therefore less flushing and less of a draw on the CD. IK asked if this was acceptable, do we need to flush longer – IP noted that this is a manual but is considering automatic flushing initially to pull through and keep these going at the sentinel points but noted that flushing is key to the CD progressing through the site once all covered	
	DMT recording flushings carried out by domestics. AH to check with Pat McGory if this was progressed. This was crucial to ensure that we can record as it was agreed that this was key to the success of CD. AG suggested that a conversation with the domestic supervisors was taken forward and IP noted that this would ensure that we are recording the flushing regimen and agreed that this should be carried out for 2 minutes and 1 minute to ensure temperature is accurate and to ensure that the draw is continued the flushing is imperative. IP will take this up with PMcG and KC	IP
5.	**Shower Heads and Hoses**	
	Members had been sent the literature and were to offer any comments back to CP.	
	AW noted that a decision needs to be taken as the shower heads are coming to the end of their life and noted that the majority on the market at this time have rubber end and these are not appropriate it was thought that those offered by PALL are the type we would choose to purchase but noted that it would be unfair to take the 1000 but would be happy to speak to PAKK to explain the reasons why we would use these. IP noted that disposable and would be an option and to aim for environmentally friendly with a 3 month change over and low engineering and with no cleaning issues reported. 2A/B filters will be added to the taps and showers and IP suggested we adopt the hose with the filtered head and then sanitise with a change over at 62 days. IK noted that he was not entirely comfortable with the use of these but AW noted that we could continue to use as we do our current showerheads at the moment	

	with disinfection at the regular intervals. TI agreed that this was a good option with 2A/B showerheads and hoses as explained by IP. 2 monthly sanitisation. CP noted that the showerhead performs as well as a standard showerhead and AG asked for cost analysis – noted that this has been carried out previously and CP agreed to check accuracy	CP
	Shower replacement for other areas – agreed that traditional shower hoses and heads are not the best solution but agreed this will be discussed out with the meeting	
6.	**HFS/HPS Update**	
	There was no appropriate attendance at the meeting and this will be discussed again next week. HPS action plan is mirrored in the HFS report and agreed to cross reference. Should be reviewed at WTG, IMT and then to forward to corporate meetings	
7.	**Ideal Standards Proposed Clinical Waste Outlet**	
	IP reported that he had a meeting with Ideal Standards on the modification of drain connections and they have offered three proposals and three prototypes and this now requires feedback on our preferred option and noted that the polypropoline and O ring will be different being outwith the water contact. Details of the material is being forwarded to IP and how this is to be torque and therefore not impact on the seal or water way. In order to progress with the manufacture of these they require approval and a video of this will be shared. From a microbiological view point TI agreed to review the material and offer opinion. It was noted that this should be cheaper to procure than the standard product and IS noted that there might be higher numbers if all health boards across Scotland moved to this product. TS noted should we be paying additional for what is considered a defective product – fitting yes but not the component. IP noted that Ideal Standards are not seeing this and it was agreed that IS would take this forward but noted the collective evidence would give us an argument to report as a defect but until then we will be required to pay the cost. TS asked if the bio film and clinical cases are specific to Glasgow – TI noted that it was not found to be the product causing the issue but what was going down the drain and IP noted that colleagues in England had been reporting similar issues as we had. IS will take this up with Armitage Shanks. Should we change all on site? Only in high risk areas at this time before considering all within the campus. IP noted that traps are reporting clear in some areas and others reporting trap and outlet has debris	
7.	**Ventilation**	
	It was noted that feasibility and then progressing to a strategy. TI asked for a timescale to resolve this. TS noted that this was not something that we could have fixed quickly but agreed that it was important that we have some indication of timescale. It was noted that the SBAR has not progressed further at this time and TS agreed that he will progress this forward as of next week and agreed that we need to manage the implications, feasibility and scope of works which will b reviewed with TI and JH for their input and feedback. It was noted that the feasibility will take around 2 months to complete before an outline design can be commenced which will then move to full design works and agreed that we will need to inform affected families and staff that there is a significant time before works will be concluded and that expectations are managed but looking at a 9 month period minimum	-
	Haemato oncology service in Glasgow – was discussed at other meetings and agreed that the BMT programme will continue within the adult ward	
	TS agreed to share internally the potential plans and timelines with relevant colleagues	
	SBAR will be forward to IS for his comments and endorsement or otherwise – IP to progress	IP
8.	**AOCB**	
	Water Meters – IP noted that during isolations and addition of new water meters removal of the old meters showed signs of bio film build up and nodules noted – these have been sent away for analysis	
	Shut Down – IP reported that the shut down on Wednesday evening and work at the pressure reducing value a piece of brick was found in the valve and it was noted that this is more evidence of wilful damage during installation. IP asked what we can do about this – it was	-

	agreed that this needs to be further reflected on. IP noted that the meter showing the bio film build up was showing clean pipework further down the stream. The parts removed have been sent for analysis but feedback from the contractor and manufacturer have noted that moisture caused the film build up. IP noted that with installation and insulation this should have not occurred but it was agreed to test the metal properties to ensure it is of correct quality along with samples of the bio film	
	IK asked if we have reviewed bio film in the wider system. IP noted that stainless steel pipe was supposed to be 316 but finding 304 which does not have RAS approval. Our O&M manual does not state we have this on site anywhere and Multiplex have been asked to provide answers on questions raised and also seeking information on water connections and adoption of side and agreed that this needs further discussion out with this meeting	
	TS noted that a recent call with Scottish Government had been positive with their acknowledgement of the efforts of staff in Glasgow to resolve these issues. Ventilation was raised and programme considerations, SBAR shared. It was agreed that the portion of the ward that could be used was not appropriate to move any of the service back to the area until all the works were completed and therefore not appropriate to continue with the full HPV and clean. IP suggested that air permeability etc to be continued but noted that this would be done again before the patients are moved back this would allow the works to be signed off and it was agreed that	
	Cleaning – programme of on going cleaning is continued	
	Flushing – maintain the flushing regimen nothing that the current programme is manpower intensive but the consideration of automatic flushing would negate this	
	Programme – implications once ventilation impact is concluded and agreed to complete the contractor works and verifications to conclude this aspect	
	HPV – high/low concentration and the efficacy of our methodology. IK noted that we may be doing too much HPV. It was noted that this was an evolving technology and we are learning from using but it was agreed that it is important to follow this up with appropriate cleaning	
	Drinking Water Regulator – had asked if there was anything required of them and it was agreed that it might be useful to have involved in the Board Water Safety Group and agreed to invite to the meeting in 2019 but noted that the dates are not yet circulated for this	
	Level 5 Ventilation Report – AW agreed to liaise with TI	AW
	Drains at Phillips Hill – drain cleaning method to be reviewed. The product mentioned previously was not trialled – steam generation, chemical and it was agreed to review but noted that the drains have been noted as slow to drain and this should be investigated as this could be an initial cause of problems and thereafter review options	CP
	Drain Cleaning – monthly drain cleaning was to be reviewed to determine if there was a positive impact. As we are about to have full capacity CD it might be time to review as there is significant pressure on resources to keep this programme going. Agreed to carry out visual inspections after dosing is in place but will monitor and watch or any build up – TI agreed to consider the proposals and feedback	TI
9.	**Date of Next Meeting**	
	Due to leave and other commitments it was agreed that the meeting scheduled for Friday 7th December would be moved to early the following week and Monday 10th December at 2pm was agreed – A meeting room would be booked and diaries updated	All

Water Review Meeting (Technical)

Monday 10th December 2018 at 2pm in Meeting Room 5 – Laboratory Building

Present:

Ian Powrie (IP)	Deputy General Manager – Estates
Annette Rankin (AR)	Nurse Consultant Infection Control– HPS (Telephone)
Dennis Kelly (DK)	Authorising Engineer
Colin Purdon (CP)	Senior Estates Manager
John Mallon (JM)	Technical Services Manager – GRI
James Cumming (JC)	Aecom Project Manager
Tom Steele (TS)	Director of Estates and Facilities
Mary Anne Kane (MAK)	Associate Director of Estates and Facilities
Andrew Wilson (AW)	Senior Estates Manager, QEUH
Teresa Inkster (TI)	Consultant Microbiology

Apologies:

Alan Gallacher (AG)	General Manager – Estates
Iain Kennedy (IG)	Consultant in Public Health Medicine
Ian Storrar (IS)	Principal Engineer – HFS
Karen Connelly (KC)	General Manager (South)

In Attendance:

Allyson Hirst (AH)	Admin to the Director and Associate Director – Estates and Facilities

1.	**Apologies**	
	As noted above	-
2.	**Previous Meeting of 30th November 2018**	
	The notes of the meeting were accepted as an accurate record of discussions	-
3.	**Ward 2A/B Work**	
	Testing carried out Monday, Thursday, Monday – once results are returned to satisfaction then taps can be fitted	-
	Trough sinks are now removed and held for any future use	-
	Brackets now arrived on site for completion of shelf	-
	Pipe lagging in 2B	-
	Snagging to be completed	
	Air permeability starting today 4 positive and Thursday will see a further 4 after this annual verification check carried out as designed and thereafter the rooms are ready to handover	-
	Metal sinks have not yet arrived on site	-
	Treatment Room – Omission of under bench drawer pack which have now been ordered and should arrive and install within the week	-
	Prep Room – Almost complete with only switch and ceiling tiles to complete	-
	Builders clean will be completed but a decision on deep clean is required at this point	-
4.	**CD Monitoring Report**	
	IP reported the first set of microbiological samples had been returned from last Mondays samples – no legionella results returned at this time. It was noted that all results are within parameters – baseline sample from tank room also included in these. Similar returned samples from sentinel points at the start and end of the ward along with 4 shower points. TI noted that she was surprised the results were not higher but it was a good outcome. It was agreed that the taps may have held the bio burden. CD is circulating below 1ppm and 0.4 – 0.8ppm at outlets but fluctuating dosing level when there is no flow and this confirms that the flushing protocol is key to the success of the CD levels being maintained. Previously DMT monitoring but changing to a symbiotic system – PMcGorry is arranging pricing and there were	-

	no issues to this being achieved. KC and IP agreed to meet to ensure this is concluded. Residuals have been achieved by running 15 minutes twice a day and now running 10 mins twice a day but agreed this is not achievable when service in placed and noted that it may take longer in some areas with bio film present in the taps and it was noted that bio burden may appear in taps so need to be cautious during the coming weeks. It was agreed that it was difficult to achieve flushing within single rooms especially during the night unless patients were using the taps. It was noted that the residuals rose quickly in the morning when use of the water begins. IP noted that provided that we have daily demand and drop off in the night and again in the morning it should be enough to achieve the CD penetration with best results from continuous use and robust flushing. IP noted that the plan today was to go live on the backwash of the micro filtration to the bulk storage tanks and dose to 0.4ppm and give this 7 days to settle and test and the following Monday we should review impact before going live and RHC and continue to monitor. Go live once outcome is clear from the implementation and consider putting this off until after Christmas – TM noted that his preference would be for the first week of January but agreed that monitoring the output at the taps and not stability on the tanks before progressing further to additional outlets and it was agreed better to have staff on site but as there are less staff around over Christmas holidays. JM noted that reviewing the plates were are not seeing the same early results of contamination in environmental testing. All were in agreement that we commence dosing tanks and monitor the bedding in and start further dosing in January.	
	Taps – it was agreed that clear results from today as well as Legionella results being clear that we can commence fitting the taps thereafter – agreed this would be 13th December onwards and only if Legionella and fungi within tolerable levels.	-
	It was agreed that we have no way of predicting what the output from the taps in the other areas of the hospital might be and to be mindful of this	-
	IP reported that he was testing a battery operated flushing device – if this is successful then resources could be reduced but to continue with manual testing. Another advantage is setting them to work through the night and can be used in low use areas and can be tried out in wards to give a baseline	IP
	Baseline date from Optitherms in other areas of the hospital – historic but thought it would be useful to have these to have a baseline result for the hospital which will allow us to determine if we are achieving. IP noted sentinel points for each of the dosing points. JM noted that labs would not be able to cope with the additional if during the Christmas holidays and noted that we roll out taking samples this weeks to achieve baseline retests from this week and next week and then nothing over Christmas and New Year and pick up again after New Year and this will give us a base line. IP noted that this would equate to 16 samples from taps and random showers if required and will also allow mapping of how the CD is running through the system and to where it is hitting. Labs happy to accept the samples for the next two weeks and agreed Monday 17th December samples will be forwarded for TVC's and Fungi with Legionella left until after holiday period as these take two weeks and require additional resources	-
	Mel, Morris and Spottiswood were to be thanked for their hard work to ensure that these works were completed – IP noted that he had thanked them by email but would do this formally	IP
5.	**Disposable Showers**	
	CP reported that he had not received much feedback but noted DMA proposal which shows that cleaning and disinfection was most cost effective. AW agreed to review the costs of heads and hoses per unit but noted that disposal were more expensive but does have advantages to the purely disposable route but it was noted that a change of head it not always beneficial but the hose was thought to have more issues. AW noted that Chalice have a recyclable version and AW agreed to write the information up so that members can review and thereafter decisions to be made.	AW
6.	**HPS Report**	
	AR reported that there was nothing further to update but noted that Scottish Government had requested the rewording of some of the statements for clarity and reference to the HFS report. AR agreed to forward once the changes are completed.	AR

	IS had through AR asked if the corrosion found on the water meters was from chemicals used to clean the water – this would require further investigation and a full investigation to clarify if it was a galvanic reason or similar materials or by chemical reaction.	
7.	**Ideal Standards Proposed Clinical Waste Outlet**	
	IS to report back on the cost proposal for the revised spigit model and TS had previously noted his concerns about the Board pick up these costs and thought this would be a safety action notice from Ideal Standards.	IS
8.	**Intertec Report**	
	TI gave a brief on the feedback of the report noting that it was likely a microbiological as similar results have been seen in the testing of Scottish Water along with another bacterial which is not normally found in water. TI will review the types of microbiological that would cause this. Deposits were sodium phosphate and non uniform corrosion - ferric oxide. Water meter is RAS approved coated internal and is there are spot breaks then corrosion would be possible. It was noted that the meters were only changed to pick up signal from the meter and all were within the hot water system. If these have similar pipework around the hospital this would also require to be checked but this will require a shut off of the water and break in. CP agreed to check with Kerr on the location of the samples and agreed to carry out a meterugical test on meter and if possible to look at the pipes without impact then this will be carried out. Water sampling for trace elements found that there was no cause for concerns and all were within acceptable limits	TI CP
9.	**Ventilation**	
	IP reported that TI and himself and Matt met last week to prepare a Scope of Works for the appointment of a consultant to carry out the work in 2A including Hepa filtration for ancillary spaces. TCT section will require a full replacement and so will require a full feasibility study of the installation and design and then full design to move to tender process. Challenges noted in the sizes of the duct work, heating and cooling achievement locally as removal of the chilled beams and increase in heating and cooling demands	-
10.	**AOCB**	
	DK noted that if only a small amount of water going down the drains we need to be cognisant of previous drain issues but IP noted 5 mins every hour over 24 hour period using battery operated unit and remove at reoccupation with filtration being added back in whilst patient are not round and thereafter – a decision made later depending on the water results	-
11.	**Date of Next Meeting**	
	It was agreed that due to the stage of the process that the Friday 14th December meeting would not be required but agreed that a teleconference would be held on Thursday 20th December at 2pm would ensure that any decision required would be concluded prior to the Christmas holidays. Details of the conference call will be forwarded to members and those available should dial in at the allocated time	All

Water Review Meeting (Technical)

Thursday 20th December 2018 at 2pm held via teleconference

Present:

Ian Powrie (IP)	Deputy General Manager – Estates
Annette Rankin (AR)	Nurse Consultant Infection Control– HPS
Dennis Kelly (DK)	Authorising Engineer
Colin Purdon (CP)	Senior Estates Manager
John Mallon (JM)	Technical Services Manager – GRI
Alan Gallacher (AG)	General Manager – Estates
Iain Kennedy (IG)	Consultant in Public Health Medicine
Mary Anne Kane (MAK)	Associate Director of Estates and Facilities (Chair)

Apologies:

Ian Storrar (IS)	Principal Engineer – HFS
Karen Connelly (KC)	General Manager (South)
Tom Steele (TS)	Director of Estates and Facilities
Teresa Inkster (TI)	Consultant Microbiology

In Attendance:

Allyson Hirst (AH)	Admin to the Director and Associate Director – Estates and Facilities

1. Apologies

As noted above -

2. Previous Meeting of 10th December 2018

The notes of the meeting were accepted as an accurate record of discussions -

3. Ward 2A/B Work

IP noted that the water results received to date were encouraging -

All other works carried out by Morris & Spottiwood were complete with the exception of: -

- DSR Pantry – rooms were locked during works and will commence 14th January -
- Room conversations complete but outstanding issues with under bench storage unit, ceiling tile replacement to be concluded -
- Cylinder holders and medical gas trunking caps to be replaced -
- Stainless steel sinks installed, isolation permeability completed for air testing and some rebalancing work to be carried out in adults and some this is delayed until January -
- Builders clean will be completed by the end of this week with a follow up clean in January and then determine if and when clinical clean is to be completed -

New Taps – dependent on microbiological results it was intended to put install these after 3 acceptable results but there was some indication of fungi – not within the ward – and as discussed at the Ward 2A/B Progress Meetings – it was thought that with the CD now within the tanks and being circulated through the whole hospital water system there maybe impact to ward 2A/B and it was decided to delay the tap fitting until holiday period was over and review again on 7th January. A review of the water testing results would then be reviewed and feedback given – thereafter the taps will be fitted with the fitting of automatic flushing device and cost would be around £25K for the automatic flushing but IP noted that the devices are not RAS approved but manufacturer noted that not for drinking water and for use in the system only when out of use. DK was asked to review the literature as Authorising Engineer. Subject to this being agreed on MAK asked if IP could check capital allocation but MAK noted that this was approved in principal at this time as the ward was closed and it would be beneficial to aid resources for this work and the water was not going to be used for drinking water. DK noted that as the ward was closed and the water would not be used for dinking he could not see a problem with the devices and it was agreed by all that it was important that the water was DK IP

flushed through the system to ensure that the CD was circulated. This was noted as the best option at this time. DK agreed to revert back to IP prior to the New Year.
JO'Rourke is completing the snagging review

4. CD Update

CD has been circulating within the main tanks since 10th December -

JM noted that the reports coming from 13th December water testing were clear compared to previous but detecting fungi that was not there previously. IP noted that there was fungi previously present but would need to review past reports to review the values as comparison but did not consider that these were worse from memory. It was noted that fungi is difficult to overcome and the CD would take longer to take effect. JM noted that these have increased from the first samples taken after CD was running. It was noted that this could be down to the biofilm being broken down but TM and TI would be asked for their opinion. DK noted that we should not have any knee jerk reactions and we should review the results and gather opinion first. It was agreed to monitor and all were in agreement that this could be coincidental. But it was agreed it should be noted for the record that there was an increase. -

IK asked if species of fungi was known. It was noted that it would take time to determine the fungi type but it would take time but it was thought to be environmental. -

IP asked if the labs would be able to cope with around 300 samples which would be taken from sentinel points and IP agreed to forward the details of these to JM to review. JM noted that the legionella results would take longer as these are time consuming and that the lab could carry out around 50 such samples a day but would leave little capacity for other works -

IP was asked to email TI to seek further advice on the results received as required by the WTG IP

5. DRA Update

MAK noted that the changes for the QEUH are currently sitting with symbiotics to determine when these can be included in the software and will be reviewed by the WTG. Upgrade of the domestic sign off sheets should be concluded by the end of January 2019. -

6. AOCB

Roll out Programme - depending on the sample reports this will be determined. MAK noted that feedback delay will prevent this progressing. IP noted that the contract has slipped by 3 weeks due to temporary tank dosing to allow go live on projected date and this means final go live will be 4th February instead of 25th January – all areas will be completed by 4th February -

IK asked why we need samples – it was to ensure that the water has improved prior to taps being put on. MAK asked that IP clarify the dates and reasons to the members of the WTG IP

7. Date of Next Meeting

Friday 11th January at 1pm to be held in CMB Meeting Room - QEUH All

Water Review Meeting (Technical)

Friday 11th January 2019 at 1pm – CMB Hub Meeting Room - QEUH

Present:

Ian Powrie (IP)	Deputy General Manager – Estates
Annette Rankin (AR)	Nurse Consultant Infection Control– HPS
Dennis Kelly (DK)	Authorising Engineer
Colin Purdon (CP)	Senior Estates Manager
John Mallon (JM)	Technical Services Manager – GRI
Alan Gallacher (AG)	General Manager – Estates
Iain Kennedy (IG)	Consultant in Public Health Medicine
Mary Anne Kane (MAK)	Associate Director of Estates and Facilities (Chair)
Apologies:	
Ian Storrar (IS)	Principal Engineer – HFS
Karen Connelly (KC)	General Manager (South)
Tom Steele (TS)	Director of Estates and Facilities
Teresa Inkster (TI)	Consultant Microbiology

In Attendance:
Allyson Hirst (AH) Admin to the Director and Associate Director – Estates and Facilities

1. Apologies
As noted above -

2. Previous Meeting of 20th December 2018
The notes of the meeting were accepted as an accurate record of discussions -

3. Ward 2A/B Work
Taps are to be added. Wash Hand Basins (WHB) replaced with Contour 21 and IPS panels replaced along with modified drain connection with anti microbial connection and loss of obstruction to the discharge flow. Cisterns removed and installed direct flush valves and toilet seats with lists. Once TI returns to work IP will work to carry out testing on these. IP
As part of the works microbiological results were showing clear -
CD was run through the system from 22nd November. IP presented the results from the testing with some results out of spec and some very low level counts which were acceptable with some fungal counts and 4 cuprivadis counts. It was noted that pre results were much higher than acceptable -
Hospital at Night Office – this office was found to have a WHB and sink which is connected to the 2A circuit and is showing high counts. It was suggested that this is a little used outlet and should be removed. IP agreed to speak to service and take forward IP
Dirty Utility – this was not modified during the main works and will be completed next week -
Consultant Room 1 in 2B and treatment room – showing higher counts. The Treatment Room is being modified and should alleviate this area and will be sanitised -
Playroom – WHB and sink showing positive on cold water. MAK noted previous discussion had clarified that these were used for messy play and should remain. -
IP noted that every outlet was tested after CD implementation with good results and the current results being shown are from sentinel points. It was suggested that we address the issues and retest and if still an issue the CD levels to 2A/2B were being increased to 0.8PPM gradually which is anticipated will address the issues.
MAK noted that if sinks are not being used then we have to review them as little used outlets and remove them
It was agreed that until fungi levels are under control ie below 10 before any taps are fitted but IP noted that spigots are proving to b suffering from lack of taps and would benefit from these being attached as soon as possible

It was noted that TVC standard guidance is being followed
Agreed to modify dirty utility and dirty prep being modified and adding Marquick taps
IP noted that cleaners slop sink which is a two stage sink with standard patter and during checks it was found to have flexible hoses fitted – this was though due to the fitment of the hopper and is manufacturer standard. This presents and issue but the solution not clear – these are across the site and need to be checked and replaced. The members discussed the options available and the fact that there is CD now coursing through them should negate any issues. Along with the merits of flexible hosing again and thereby potentially becoming a problem. IP suggested that IP writes to Multiplex noting that they were instructed that there were to be no flexible hoses anywhere in the hospital as part of the installation. It was noted that these have been removed in 2A/2B and this was how the hoses were discovered as the fitting and style of the sink does not allow for the hoses to be seen when reviewing the sink. It was noted that these are in situation within other wards but ICT have instructed these are not used. IP was asked to speak to ICT colleagues to determine their reasons for this and why they are only to be flushed once a week which goes against flushing protocols. IP noted that if these sinks are out of use then discharge will be put down regular WHB in the wards and not down the slop hopper as instructed in guidance
Refurbishment of the remainder of the ward has been completed – general builders clean carried out with clinical clean nearer the time to being inhabited which will be after the ventilation review and any works from that being completed

4. Chlorine Dioxide

Went live within RHC within 10th November
Live on tanks 10th December
The next phase was to go live on dosed lines on each of the 8 domestic hot water heating zones between now and 28th January. It was noted that this had slipped due to the pipework configuration was different from O&M manuals. After a recent project meeting and advice from experts on CD it was noted that given that we have CD at residual levels we can now concentrate on the hot water system and programme will be altered to reflect this and it was now anticipated that the works will now conclude by end of February. Due to the already seen success of the CD it was anticipated that this would remain as is and will reflect a small saving in costs from those previously noted. IP noted that training and monitoring will continue beyond this point but the CD will then be throughout the new buildings on the campus.
It was proposed to hold off on any further testing until the hot water was above 0.1ppm which was in line with TVC protocol. IP explained it was not productive to commence the microbiological testing until this was in place.
Temporary v's permanent unit – clarified that there is permanent dosing in the tanks and temporary individual delivery in each of the tanks therefore now 4 dosing systems and dosing control. It was noted that temporary has more resilience than the permanent and noted that it was not usual to see stable results so early from a temporary system. It was noted that the in tank resilience was longer lasting than the other options. The temporary system was only used as the pipework as not a thought but it was noted that this is installed as a final unit. Alternative dosing mechanism will be retained within the tanks

5. Results from Testing

IP reported that 99 locations were identified from 400+ sentinel points across the site from hot and cold. Monitoring at levels 4, 8 and 11 and not using any wards that have filters on the taps to give a picture of the CD levels and microbiological results associated with this. 0.2ppm on the old water and negligible on the hot water. Generally clear results with those out of spec results highlighted in picked and noted that these were fungal results. Samples from near point and the furthest point to show dispersal. Mix3ed water sample and cold water sample with the difference in the next and hold and cold shows were the residuals are sitting. DSRS monitored both hot and cold and it was anticipated that this would indicated where the issues were and therefore allow us to target these areas specifically using a zoned approach. It was noted that there were 240 samples and none of these were from filtered taps and only those reflecting any issues were shown on the chart – in the region of 30
Further samples – IP suggested waiting for hot water to come up to 0.1ppm and then carry out

the full sweep of microbiological results. IP noted that a full sweep of tests costs around £10K per week and thought to best keep these for once the system is fully running. IP suggested that we could possibly send these to our own labs but thought that the volume may be too much along with all other works for the Labs would be too much and it was suggested that a discussion with JM was required to ascertain availability. It was agreed that for the moment the samples are kept to monthly and send out to external Labs.
AR asked what potential was there for any issues – IP noted that there are some technical issues that he wanted to highlighted and in respect of the water issues we have a protocol of 4 clear testing results while maintaining CD levels and then consider removing POUF in agreement with Infection Control and it is proposed to continue three monthly testing to ensure that the system remains in a stable state. Resilience is built into the delivery system to account for any failures and to allow up scaling in areas which require it. It was noted that there is no guidance to indicate having a CD system installed is required as standard.
For removal of the filters and three monthly testing carried out and full clear tests and then a pattern or ¼ checks will required agreement and protocol clarification

6. Water Meter Corrosion

Analysis of this shows high count TVs metallurgy analysis shows graphite from the cast iron and casing of the valve is poor and the manufacturer has been asked to come in for a meeting to discuss. Details of casing quality and manufacturing standards and internal finishes including paint/powder coating specification. It has been suggested that higher specification meters should be used for potable water systems. Our water has been reviewed and it was agreed that p monitors will be installed so that we have values on any impact that the CD may have on the water. IP noted that other meters that were not removed and will have impact on the CD which will have to overcome any issues around these. It was noted that there may be concerns on pumps etc and IP noted that WRAS approval is not clarification that the product is good but just states that the equipment is suitable for use in or near water. Do we look at the meters – review after the meeting with manufacture and pass this to HFS as this could be a national issue. IP noted that the flange connection was also sent and the report response was shown on screen and indicated a gap that was sufficient to hold several ml of water in place which could stagnate and feedback into the pipework and reseed the system. To this end IP has asked Peglar to risk our potential issues and quality of installation or mis installation of the system. IT was noted that there could be several hundred of these across the site but noted that any water and plank tonic organism coming from this would be swallowed up by the CD residual in the system – TM left the meeting at this point.

It was agreed that this should be picked up again with HFS to ensure that industry standard was being followed and appropriate tools are used and finished appropriately and needs to be investigated. IP to take this up with HFS to ask for investigation to be taken forward. — IP

TVC Protocol will be modified to include three monthly and IP will discuss with TI and ratify at the meeting next week

7. DRA Update

MAK noted that this has not progressed but noted that prior to the holidays a meeting was held to arrange testing in early January and MAK will seek an update and clarify at the next meeting — MAK

Disposable Showers

Costing exercise to be pulled together for the next meeting — CP

8. AOCB

Nothing further and the meeting was closed — -

9. Date of Next Meeting

18th January at 1pm – Meeting Room – Hub CMB – QEUH — To note

Water Review Meeting (Technical)

Friday 25th January 2019 at 1pm – CMB Hub Meeting Room - QEUH

Present:

Ian Powrie (IP)	Deputy General Manager – Estates
Annette Rankin (AR)	Nurse Consultant Infection Control– HPS
Dennis Kelly (DK)	Authorising Engineer
John Hood (JH)	Consultant Microbiologist - GRI
John Mallon (JM)	Technical Services Manager – GRI
Ian Storrar (IS)	Principal Engineer – HFS (Telecon)
Iain Kennedy (IG)	Consultant in Public Health Medicine
Mary Anne Kane (MAK)	Associate Director of Estates and Facilities (Chair)
Eddie McLaughlin (EMcL)	Principal Engineer – HFS (Telecon)
Apologies:	
Karen Connelly (KC)	General Manager (South)
Tom Steele (TS)	Director of Estates and Facilities
Teresa Inkster (TI)	Consultant Microbiology
Colin Purdon (CP)	Senior Estates Manager
Alan Gallacher (AG)	General Manager – Estates

In Attendance:

Allyson Hirst (AH) Admin to the Director and Associate Director – Estates and Facilities

1.	**Apologies**	
	As noted above	-
2.	**Previous Meeting of 11th January 2019**	
	The notes of the meeting were accepted as an accurate record of discussions with some minor typo changes	AH
3.	**Chlorine Dioxide Roll Out Revised**	
	IP had forwarded the project plan to the members prior to the meeting and noted that the works were originally to complete in Mid February but this has now extended to Mid March. The reasons behind the change were that Scotmass the installation company were struggling to keep up the pace with installation. It was noted that the pipework was completed but there had been a delay in the delivery of the unit with a timescale of around 2 weeks to set up and commission each pair.	
	It was noted that 4 hot water were on line this week which means that the RHC is completed and covered by CD for both hot and cold water. And plant rooms 32 and 21 on line this week. The recent installs have started to build up residuals but no values at this time. MAK asked if the programme of works could be accelerated – IP noted that he had tried every tactic he could and noted that the company could not/would not sub contract the work due to the specialist nature of the installation. MAK asked IP to write up a summary of this for the Director and Associate to ensure all details are understood and a letter is being sent to the company to register dissatisfaction on the progress of the works.	IP
	IP noted that there were good residuals being seen in the cold water with 0.3PPM throughout the hospital. It was noted that on Thursday of this week a chlorine smell was reported within the hospital. It could not be clarified if this was from hot or cold but it was considered likely to be from cold water. IP explained that TM and Scotmass had sampled with nothing recording at 0.5 and it was noted that TM thought that this might happen and thought to be caused by biomass break through not chlorine being smelled but similar. IP has asked for a summary of this to be written up so that members are clear and why this has happened. TM did note to IP that this site has reacted very differently from any other site he has dealt with in the past. IP noted that the cold water ppm was dropped by 10% and the hot water by 50% over the	IP

	weekend and will be checked after this but thought that the smell was dissipating quickly. MAK noted that Acticlor was also in use so may contribute to the smell making it stronger than previously.	
	Hospital at Night – positive results found previously as this is located at the end of line in 2A circuit and the majority of the findings had been fungal. After reviewing the room it was noted that the taps and WHB had not been removed and was reported as a little used outlet and after agreement from the service manager it was removed. CD level were increased to overcome the positive results. It was noted that there has been higher results in some of the areas but as the ward was not being used for BMT patients and the results were only slightly higher than we would expect.	
	Ventilation System with 2A/2B – it was noted that because the ward was to be put back into use for clinical services it would not be possible to complete the ventilation review at this time – the move was necessitated by winter pressures and the members asked if the pressures were acceptable. It was noted that the thermal wheels would be turned off and this would reduce the pass through recirculation and the energy efficiency removed but would reduce the risk to patients but noted the risk is only reduced and there would be minute volumes of air that could bypass. In IPs opinion this would be a reduction of 80-90%. No instruction has been given at this time and will not carry out anything until this is given. Discussions have been undertaken over the last week by relevant staff of the Board and the decision taken to move CDU patients as they are a very low risk group. Once the ward is emptied of patients again the ventilation review will continue. IP noted that tender reviews would be undertaken next week and IP will write to MAK and TS detailing the proposal	IP
4.	**Slop Hopper**	
	2A hoppers were removed. IP raised this with ICT and response was non committal response but have no issue with them being used and thought that there were not used sinks but it was noted that these are part of national specification for disposal of waste but IP has asked if they want them removed on the basis of a little used outlet. IP noted if not flushed then there would be around 6 litres of stagnant water and therefore not being treated with CD. MAK noted that nursing should be contacted to determine if these are being used, if not then remove but if they are they can remain in place but will have to be part of the flush regimen. IP agreed to speak to JRogers and SDodd to determine what is the way forward. IT was noted that the slop hoppers have flexible hoses and IP has written to Multiplex and is awaiting a response and MAK noted that this may get picked up in independent review	IP
5.	**Microbiological Sampling**	
	Established that Labs would struggle to cope with the levels of samples and opted to send to Intertec with routine sampling sent to GRI. IP noted that the cost implication would be 177K to implement the TVC protocol. 4 consecutively clear results would allow the removal of the POUF but it was agreed to extend the protocol to provide more evidence on long term CD and determine to have three monthly and three consecutive quarterly and thereafter a statement that the water incident was formally concluded. A revised TVC protocol was emailed to TI and her emailed response was that she agreed with the document contents and it was agreed that this would be ratified at the next WTG that TI was in attendance. It was noted that this was national guidance and agreed within the group that this should not be removed but maybe the national guidance needed some revision – this was being considered. EMcL and IS – we should follow national standards and are attainable but if we needed to alter the testing regimen but only do this outwith guidance as the current levels are tight to bring this back into control accepted levels. It was agreed that we should remain within the national guidance. IP asked if we changed the protocol how would this sit within the guidance but it was agreed that we may not be able to get the count under the 10 stated in the guidance with the relevant expert opinion requested with their experience of others who have gone outwith.	? HFS
	Water Sampling – until 0.1ppm residual is in the hot and cold water – IP can you put a bit in here as I missed this bit as I left the room	
	Report for Ward 2A – areas previously noted at sentinel points and Hospital at Night Office – actions were taken to resolve the counts. Fungal counts found in TCT but recording low – increased CD level in plant and it was anticipated that the next set of test results will reveal if	

	this had any impact. IP noted that he thought the challenge would be within the Horne tap to ensure that this is getting the sufficient levels through the tap.	
	Automatic Flushing Devices – these were unable to be fitted at the POUF were reinstated into the ward to accommodate the temporary patients for winter pressures	
	Taps – all fitted and tested. It was found that almost all leaked. Initially thought that the problem was the bush on the spigot was worn down due to the flushing regimen and the core strainer seal was checked and found to be ok but finally determined that it was the ???? IS noted he was in contact with Ideal Standards – who were meeting internally to discuss and would be in touch with IP over the coming week. IP had, in the meantime, resolved the issue by adjusting the connection. It was noted that a knock on issue from the tap was with the bio guard and disposable spout and was discharging to the right hand side until this was realigned manually. This resolved the issue but noted that this could easily be knocked or moved by accident or deliberate act and this was also raised with Ideal Standard and awaiting feedback on this also.	
	IP noted that a sales rep on site had been shown that the bio guard was not providing a smooth column ad their response was that this was the best they could do – MAK noted that this product was chosen due to the proven results and it is not performing as the literature states and data sheet assurances – this non performance is causing splash and this is not acceptable. IP noted that he altered the angle for the tap as this was directly into the drain but it was not acceptable that this had to be done to make the tap do what is was supposed to be designed to do. It is proposed that the manufacturer makes a visit to site and get this resolved. IP has altered the set up to ensure that temporary patients can be moved onto the ward and reduce risk to them.	
6.	**Water Meter Update**	
	Meeting with manufacturer is scheduled for next week (Thursday)	
7.	**Ventilation Review Update**	
	Tender is due in Friday and will be reviewed and taken forward	
8.	**DRA Update**	
	Symbiotic are updating with revised Risk Assessment and once checked on beta site it will be uploaded for use and training will be provided. Question of how long the tap required to be run – HPS are to advise on this. IP noted that CD exposure to the tap needs to be clarified – not frequently used taps are different from little used outlets and it was agreed that this would be raised with TW/TM. DK noted that he had concerns that there could be difference from tap to tap and we need to ensure that we have residual reaching the taps. IP asked if we should add something to the guidance but noted that maybe we need to be evidence based on what works for our situation as there are may variable but IP argued that is we know the residual levels then we should be clear on how long but agreed to seek advice from TW/TM. It was noted that 1 ½ minutes built in at this time and the ability to fill this in is easy enough for use and for manual versions for each site to standardise the protocol across Glasgow.	IP
9.	**Disposable Showerhead**	
	This would be picked up at the next meeting	CP
10.	**AOCB**	
	New filtration unit in plant room B assembly and installation to be carried out week after next during night shift. Modification of the flow control to give better water balanced and hydraulic balance	
	Issues with pH values and impact to CD – Adding pH metres to the tank room monitoring process within the raw water and discharge from filters and discharge from storage tanks and this will show any impact of the CD on pH.	
	HFS Technical Report – we have not received the final version and still have draft. AR agreed to forward to TS for feedback	AR
	EMcL will replace IS on the group as representative from HFS	

	Frequency of Meetings – MAK suggested that the next meeting was scheduled for 8th February and will involve water experts. The fortnightly discussions will review the progress and any issues that arise in the interim weeks will be discussed by telephone conference call if required.	
11.	**Date of Next Meeting**	
	8th February 2019 at 1pm – Meeting Room – Hub CMB – QEUH – the group determined that the meetings should now be fortnightly with caveat that any issues arising could be discussed with a telephone conference if required	To note

Water Review Meeting (Technical)
Friday 8th February 2019 at 1pm – CMB Hub Meeting Room - QEUH

Present:

Ian Powrie (IP)	Deputy General Manager – Estates
Annette Rankin (AR)	Nurse Consultant Infection Control– HPS
Dennis Kelly (DK)	Authorising Engineer
John Hood (JH)	Consultant Microbiologist - GRI
John Mallon (JM)	Technical Services Manager – GRI
Mark Riddell (MR)	General Manager - Estates
Iain Kennedy (IG)	Consultant in Public Health Medicine
Mary Anne Kane (MAK)	Associate Director of Estates and Facilities (Chair)
Teresa Inkster (TI)	Consultant Microbiology
Colin Purdon (CP)	Senior Estates Manager
Alan Gallacher (AG)	General Manager – Estates

Apologies:

Karen Connelly (KC)	General Manager (South)
Tom Steele (TS)	Director of Estates and Facilities
Eddie McLaughlin (EMcL)	Principal Engineer – HFS (Telecon)

In Attendance:

Allyson Hirst (AH)	Admin to the Director and Associate Director – Estates and Facilities

1. Apologies

As noted above -

2. Previous Meeting of 25th January 2019

The notes of the meeting were accepted as an accurate record of discussions -

3.. Matters Arising

Chlorine Dioxide Roll Out Update

Update on programme – CD plant and expansion vessels – last of the hot water dosing plant goes on line today but pushed to Monday to prevent any possible issues with lack of staff over the weekend.

Boosted water lines are next to commence and then the 8 remove for cold water systems which will provide "belt and braces" to ensure the CD achieves levels required. Updated reports reflect that there is CD within the system in cold water 0.2-0.3 and hot water 0.1-0.15 and this continues up through the building with levels of 0.2-0.3 with residual of 0.1 in all areas of the hospital.

Water testing results have also been circulated with the papers for the meeting

MAK asked when is the project due to complete – 15th March 2019.

Everywhere has CD running through cold water and hot will be concluded by the end of next week. Boosted lines are integrated with renal so as to prevent overdoses and testing will take place on the failsafe so that if CD is detected above 0.7PPM the system will shut off and alarm leaving a 30 minute supply to alert to flush the line and this will reduce the CD dosing and is included as a safety measure.

TM noted that at this stage the CD in the system is incredibly good and it is not usual to see these good results at such an early stage in the process.

CD Smell – MAK and IP visited 1D and 2A as there had been reports of smell of chlorine. Within 1D the smell was noted at the Argo baths – it was noted that the flow rate for these was high – 40-50 litres per minute and with this flow rate the CD can become gas. However the wider thoughts from both Scotmass and TM the biofilm break down can cause a similar smell to chlorine. It was noted that that can be a side effect that cannot be timed or known that it will happen. IP has arranged for 4 ClO2 OEL exposure monitoring tags for placement in any area reporting chlorine type odours.

Acticlor – irritation – IK noted that this is widely used across NHS Scotland. DK noted that if mixed with an acidic cleaner can cause gassing but this would have been neutralised with the

other cleans
1D regularly nurse neonates – feeding these patients? Neonatal rules followed within PICU with feeds from special feeds unit which has its water system removed from the CD supply and it was to be made clear to staff that they should be getting their feeds from the special feeds unit and washing of the patients should be carried out with sterile water and not tap water.
It was clear that a message needs to be relayed to staff and patients that the water is of drinking quality and it would be beneficial to get this statement out and understood and remove the bottled water. It was noted that domestics in the children's hospital were told to clean using bottled water and requests from various departments for bottled water as they do not trust the water but this perception needs to be cleared up. It was noted that the temperature of the water was off putting to some people who think it is too warm for drinking. It was stated that all taps are for drinking water with the exception of Marquicks or mixed taps throughout the hospital
It was agreed that some patients groups will still need to be provided with sterile drinking water as they would normally ie BMT but everyone else should be informed that the water is now safe to drink. It was noted that with POUF still in place then there will still be some dubiety. But it was clear from the microbiological results that the water is very safe to drink the POUF in high risk areas to give added security

Ventilation System 2A/2B
Tenders have been returned and reviewed and a preferred supplier is known. A tender report is being written up but nothing further can progress with this as the ward is now occupied and therefore the feasibility study cannot be progressed until empty again. It was noted that this will be the foundation for other ventilation reviews. It was noted that the CDU ward requires some cosmetic work done whilst the patients are out and this should be carried out as quickly as possible but this will be a clinical decision as the return to the original ward will be there's

Slop Hopper
It was noted that all the wards have one of these within their sluice room. Cistern and flush handle for waste removal. Signs attached to these have noted that these are to be flushed twice weekly. ICT when asked, were not clear why not to be used and are happy for them to be used if staff willing to use. SDodds will escalate this to the ICT SMT and get a decision on whether these are to be used or removed. If these are little used then they should be remove as there is 6 litres of water sitting without flush. -

TVC Protocol Ratification
This was circulated at the last meeting and shared with TI for input and in principal it was agreed. IP noted that extended to cover 4 weeks of consecutive clears before considering removal of the filters and then moving to Monthly then quarterly for 3 consecutive acceptable results to confirm control values are maintained long term. It was noted that we may never get below the thresholds and we may need to accept the results are as good as we can get and monthly checks will remain in the high risks for legionella and pseudomonas in determined areas with monthly checks. Long standing sampling for Psudomonas and TVC protocol for CD need to align. Remain carrying out what is done routinely as well as TVC's CP to verify routine sampling programme. IP CP
JM noted that if this is continuing basis then it will be necessary to review staff and IP agreed to send JM a list of the testing schedule and numbers which will then be compared to the additional work load IP

Tap Leakage and Flow
IP reported that he had met with Ideal Standards this week and reviewed the scenario and it was noted that a similar issue was seen at RAH with their new taps. Ideal Standards did not want to commit to what the reasons were and wanted these independently tested – replacement units are being sent in the interim. The failure part was being reviewed and it was thought that this was due to the flushing regimen but we had considered that the tap should have been able to withstand this. Guidance notes that flow straightners should be removed as they can cause risk and the new tap has a metal inset which should withstand this but noted

that the flow column is also a reported issue – the spout is moveable but should be able to lock into a position so that it cannot be easily moved. IP noted he has worked with facilities to inform domestics and ward staff to show the correct position and how to re position. Designed to hit slightly right for ideal flow conditions but this is causing splashing aligning with the fin gives a straighter flow to drain with little splashing. What is the risk to patients – water now has CD and the water is clean but sink and drain if not being cleaned properly then an issue if the water does not clear equally and hits one side of the drain only. Agreed to review this over the coming weeks and share results

pH Values Update

Nothing of note to update other than the monitors to be installed alongside the additional work in the basement – this will monitor incoming and impact to the water treatment. These will be completed as part of the commissioning on the boosted lines – agreed that this item is added to the agenda for future meetings? AH

HFS Action Plan

AR agreed to take this forward with HFS AR

HPS Report was forwarded to the Scottish Government – nothing heard back from the parliamentary review

4. Little Used Outlets

Sent out the WS01 for feedback from the clinical teams. It was noted that rooms are in use but facilities not being fully utilised. For clinical/operational reasons they cannot be removed but for the outlets that very rarely used ie ward 67 with the bath. It was noted that the bath was condemned but no one had informed estates to this has sat there unused. MAK noted that this would be rolled out via the HEI feedback. MAK noted that HEI noted their concerns about the rooms not having their outlets used and the way to report this or deal with flushing. Education and awareness is required to be escalated to nursing teams when responses not returned from senior charge nurse and follow up when no responses and instruction to the FM and Estates team will be forwarded next week and it was suggested that this is also cascaded down through the Chiefs of Nursing.

As part of the testing results and showing repeating negatives in the Hospital at Night room – two water dispensers connections remain – we had previous confirmation that these had all been removed. CP will instruct the work to ensure these are removed CP

5. DRA - Update

MAK updated that this was now updated on the beta site and work is ongoing with domestic services on sign off cleaning sheets. Reinforcements of the built environment for both nursing staff and estates. IP had forwarded the DRA Protocol for flushing – comments returned and updated and assuming all are happy then this could be signed off. All members are asked to review this and at the next meeting this will be ratified or any comments taken on board All

6. Showerhead Update

Proposal to move from current disinfect to disposable – CP was tasked to pull this together but does not have full information at the moment and is finding it difficult to make this financially viable to take forward. Agreed to further review and bring back to the next meeting CP

7. AOCB

IP noted that water testing results (142) 12 had returned with fungal yeast – These have gone to be typed – TI noted that fungals were normal but this is not suitable for the high risk areas with the hospital -

8. Date of Next Meeting

Friday 22nd February 2019 at 1pm in CMB Meeting Room – QEUH – Dial in details will be available if required

Water Review Meeting (Technical)
Friday 22nd February 2019 at 1pm – CMB Hub Meeting Room - QEUH

Present:

Ian Powrie (IP)	Deputy General Manager – Estates
Dennis Kelly (DK)	Authorising Engineer
John Mallon (JM)	Technical Services Manager – GRI
Iain Kennedy (IG)	Consultant in Public Health Medicine – telephone
Mary Anne Kane (MAK)	Associate Director of Estates and Facilities (Chair)
Teresa Inkster (TI)	Consultant Microbiology
Colin Purdon (CP)	Senior Estates Manager
Alan Gallacher (AG)	General Manager – Estates

Apologies:

Karen Connelly (KC)	General Manager (South)
Tom Steele (TS)	Director of Estates and Facilities
Eddie McLaughlin (EMcL)	Principal Engineer – HFS (Telecon)
Annette Rankin (AR)	Nurse Consultant Infection Control– HPS
John Hood (JH)	Consultant Microbiologist - GRI

In Attendance:

Allyson Hirst (AH)	Admin to the Director and Associate Director – Estates and Facilities

1. Apologies
As noted above -

2. Previous Meeting of 8th February 2019
The notes of the meeting were accepted as an accurate record of discussions with some minor changes – notes will be reissued to the members AH

3.. Programme
Programme has slipped by 4 days for the boosted lines with a go live on Monday. Monitoring system on line and active and we can now monitor the levels in each of the tanks and noted that that the boosted lines are likely to be in backup mode as the system residual ClO2 levels are what we require them to be. If we start to see issues on the distribution then the boosted lines will automatically come into play.
Next week the plan is for the 4 cold water systems to be commissioning and those along with the hot stations all live with a further 4 the following week which will see the installation completed with only snagging and fine tuning to be concluded – full mapping of the information will be completed to provide consistency across the site
Hot is live showing varying residual levels as these are known to take time to build up. Plant Room 41 was the main focus but this is sitting at 0.2ppm which is excellent for hot water. The reports reflect this but noted that a few sentinel points are lower and the remaining hot water systems in the site will take time to build up residuals

4. Chlorine Smell
No further reports since last week – we now have a test kit from Scotmass to respond and monitor if there is a reported problem and we have ordered 4 gas monitors to put in place if any of the smells record higher than the threshold

5. Ventilation Tender - Update
Paperwork for authorisation to spend has been received and PO to be raised early next week with a pre start meeting for feasibility as the ward is now empty. IP met with clinicians and TI to review segregation of ward 2A and the BMT section of the ward if patients are to be there during construction TI noted that Haemonc patients would not be located there as they are high risk patient group. TI will clarify with Jamie Redfern. Design and tender will take around 3-4 months and then work will be undertaken to make the programme tighter – this will allow more time to design TI

6. Slop Hopper Update

Pamela Joannidis to take this to Board Water Safety Group and feedback from this will be reported and then taken to the Clinical Management Team for final approval on any proposed action.

7. TVC Protocol Ratification

TI is happy with this proposal and can now progress

8. Little Used Outlets

Meeting is scheduled for next week to further discuss and take to the Board Water Safety Group thereafter

Little Used Outlet in Basement – recent test results showed high counts. The area was reviewed and found the source was the porter bothy. 5 outlets within the area and are little used – the lines will be cut back and the outlets will be discontinued and WHB will be removed. A re route of the pipework from kitchen and toilets to bed wash bay as these are required – quote for this work will be known later today and should be able to commence quickly

9. Test Results Update

Weekly CD residual test combined with micro testing on 12th February – it was noted that the temperatures were unlikely to be correct and the results would be off as they were taken before hot stations were live. DHW residuals are averaging 0.02 as these are just beginning to develop

Microbiological Testing – 3 legionella have been recorded and this is the first since summer result and it was noted at the time that the incoming water temperature was high – it could be that the bio film is being moved that thought that this is now being attacked by the CD. It was agreed that we should resample and widen the test are to be sure this is not further afield and agreed to sample the areas, remove taps and service exchange the resample to determine if it is the tap of the system along with showers and complete in rooms either side to get a full picture. TI asked for level 4 to be checked 4B/4C to ensure there is nothing in this area but IP noted that this was the only negative results being found. DK noted that if there was any individual hot and cold outlets these should be sampled as well to determine if HW/CW or both CP

10. **DRA Update**

Discussions with PJ and TI next week – days 1-3 only and ready to roll out on flushing at QEUH but some further work is required

Exception report if not flushing on day 1 and day 2 then it would be a member of nursing staff who would need to carry this out

Run as 1 minute per Legionella protocol and carried out as frequency ass domestics are allocated for each of the area

DRA is only relevant on QEUH site and implemented for 1-2 minutes a day but only on QEUH site to ensure that the CD is pulled through the system

Difference with QEUH is the single rooms and the little used outlets that require to be covered

It was suggested that although domestics are not to check the temperatures it would be useful to know that temperatures are at a level that is satisfactory after 1 minute of flushing. It was noted that there is no consistency across NHS Scotland on the timing, recording or temperature

IP noted that the longer the water is run for flushing purposes, water utility & CD costs would increase proportionally.

We need to be clear on what it means to flush a tap and what is expected so that each flushing is carried out in the same way. This could then be used to present to domestic staff for training and this could be used to film for use on Learnpro for refresh or additional training

11. Tap Leakage

Report was received back from Ideal Standard after installation of Marquick in 2A and the pout position and the flow hitting the wrong area and other issues with debris in the spout – this was found to be polishing paste. Inspection of the production run in the factory found multiple

examples in one of their production lines and they have stopped production to resolve the issues – it was noted that Ideal Standard have been proactive in their approach

12. Spigot

Intertek metallurgical report indicates that the failure is due to stress corrosion cracking and that the catalysis for this is due to the addition of the flushing port connector. IP noted that all manufacturer (Ideal Standard) parts were used and we have followed their user manual protocols and it was noted that the verbally notified torque settings were not reported in the user manual but this has been clarified at the meeting. IP was able to demonstrate some of the issues during their site visit and Ideal Standard (IS) noted issues with seal during installation and have introduced a food grade grease which is WRAS approved in to thier newly devised installation SOP.

IP has seen sign of the WRAS certification but concerned that this may cause additional issues.

IP raised the symmetrical flow to drain due to spout position and IS they have now added a locking mechanism for the tap. They are now reviewing all issues we have raised and providing training on installation and commissioning and working on the tap

13. Brass Connection Failure

Intercellular cracking initiated by applied stress (flushing connection frequent application) and chemical impact (not CD) – it was indicated this may have occurred during the taps decontamination process prior to installation using Showerhead Plus which contains a quaternary ammonium compound which is a potential chemical catalyst of the stress corrosion cracking but this needs to be clarified as it will have implication on the process we use, awaiting outcome of Manufacturer (IS) in-house metallurgical report to progress further.

14. Water Meter Condition Manufacturers Report

Delta Flow Tech indicated that the chemical used reacts with paint – RAS approved paint. IP Meters used across the water industry and are changed out every 5 years and during initial sanitisation they should be removed and reinstated after but this does not work for a continual CD dosing of our water and nowhere in the installation guidance states this. Removal of these annual as is stated in the English rules would not be practical but a resolve to this would be to put in different metre types which has not got any contact with the water but IP thought that a national review of this is required as the RAP approval is not providing assurances that this is fit for purpose and we should consider something more appropriate – IP will draft some information up and forward to EMcL. DK noted that RAS approval does not mean that it is fit for purpose

15. Showerhead Update

CP gave an update on the information he has gathered in relation to these products. CP noted advantages and disadvantages of all options. It was noted that the heads were never really an issue but the hoses that held any potential issues and cleaning did not work as well as putting on brand new hose quarterly. CD reviewed the details in his paper for both cleaning and replacement units. It was noted that the black debris found on the outlet of the heads was not harmful and has been checked to verify this. The group then had a discussion on the change over timings with no national guidance being followed by NHS Scotland with some Boards changing 6 monthly and others quarterly. With the QEUH site now fully covered by CD it was agreed that we could move to 3 changes per year from 43 with full risk assessment carried out. It was agreed that after we carry out a full risk assessment and if the costs were neutral then we can programme this going forward but within the high risk areas – which are agreed with ICT these would be every 62 days and remain to have POUF fitted

16. SPIGOT Trial

Trial is ongoing and monitoring weekly using photographs to compare – agreed to run the trial for three months and then change then change checks to monthly and it was agreed that the run with checks until failure

17. Drinking Water Dispensers

18 remain in high risk areas which are being flushed twice weekly – MAK instructed to get a programme in place and have these removed – HAI Scribes are required for each of these and there is some work involved but needs to be removed and agreed to take further at the next meeting

18. AOCB

There was nothing further to discuss and the meeting was closed -

19. Date of Next Meeting

Friday 22nd March 2019 at 1pm in CMB Meeting Room – QEUH – Dial in details will be available if required

Water Review Meeting (Technical)
Friday 8th March 2019 at 1pm
Facilities Meeting Room 5, Ground Floor, Labs Building, QEUH

Present:

Ian Powrie (Chair) (IP)	Deputy General Manager – Estates
Dennis Kelly (DK)	Authorising Engineer
John Hood (JH)	Consultant Microbiologist - GRI
John Mallon (JM)	Technical Services Manager – GRI

Apologies:

Karen Connelly (KC)	General Manager, South Sector
Alan Gallacher (AG)	General Manager – Estates
Teresa Inkster (TI)	Consultant Microbiology
Mary Anne Kane (MAK)	Associate Director of Estates & Facilities (Chair)
Colin Purdon (CP)	Interim Sector Estates Manager, South Sector
Tom Steele (TS)	Director of Estates & Facilities

Conference Call Attendees:

Iain Kennedy (IG)	Consultant in Public Health Medicine
Eddie McLaughlin (EMcL)	Principal Engineer – HFS
Annette Rankin (AR)	Nurse Consultant Infection Control– HPS
Tim Wafer (TW)	Consultant

1. Apologies **Action**

As noted above -

2. Minute of Previous Meeting 22nd February 2019

The minute was agreed as an accurate record.

3. Matters Arising

Agenda item 5 – Ventilation Tender (previous minute)
IP sought clarification of the ventilation works required within Ward 2A if the BMT patients will be segregated for the HAI Scribe document. TI to clarify the position. IP noted of a meeting scheduled for 13 March 2019 to mobilise the works. **TI**

Agenda Item 9 – Test Results Update (previous minute)
IP noted Colin Purdon arranged for the remedial works to address the legionella points, CP to provide an update. TW and DK noted that re-sampling was undertaken on 5 March 2019. IP would prefer to have the remedial work undertaken prior to the re-sampling. IP to discuss with Colin Purdon. JH advised that Teresa Inkster sought clarification if further testing had been undertaken. JH referred to the 'Little used Outlets', DK advised to remove the taps, TW advised to clarify with DMA if the re-sampling was undertaken. IP noted for the remedial works to be undertaken prior to 12 March 2019 or push back. **CP** **IP**

Agenda Item 14 – Water Meter Conditions
IP will notify HFS and seek advice regarding the WRAS approval requirements. DK noted not sure what WRAS actually interprets regarding paint treatment, IP noted the surfaces coated are complex, not 'Fit for Purpose' for health care water quality requirements.. **IP**

IP will forward the reports from Delta Flow tech and Intertek on the condition of the flow meters, paintwork unevenly applied affected by water, damage prior to chlorine dioxide implementation. Paintwork not improved, thickness applied is 500-30 microns, is the WRAS approval for paints & coating adequate. EMcL commented regarding the change of meters every 5 years, Delta Flow Tech are stating should inspect on an annual basis. It was noted **IP**

should we look at a higher standard for water meters, EMcL noted to liaise with WRAS, liaise with colleagues across the UK. IP noted to build into scope of SHTM 04-01 guidance review SLWG. DK noted of any company supplying materials should be aware that they require to allow for disinfect their equipment and requires to be able to withstand the disinfection process. IP noted to be on the national agenda for suitability.

Delay to Programme
IP noted of a delay within the programme, all boosted lines are available and dosing at Point 2, running in the background as fail safe. New water filtration plant is installed and online. Balance issue with tanks A & B. There are 6 hot water systems still to go live, will take place on 13 March 2019, Project Team to sign off. TW advised by 17 March 2019 to balance up. EMcL sought clarification if this is the full installation complete for the entire hospital, IP confirmed is the full installation.

H&S Extract Ventilation
IP noted if there is a leak at the bulk storage tank will trigger LEV. The bulk area order has been processed and materials are being fabricated.

Ventilation System 2A/2B Tender Update
IP noted the tender has been awarded to WGM Consultants. A pre-start meeting has been scheduled for 12 March 2019 to discuss the feasibility works. The full design and feasibility will take approximately 4 months, construction works to be phased over a 6 month period.

Slop Hopper Update
IP noted the slop hopper is within dirty utilities, not to be utilised for disposable waste, flushing regime is twice per week, looking to remove signage, liaising with Infection Control colleagues, was done by the Project Team was to be inappropriate waste. IP noted the SW01 form to be distributed to be completed for 'Little Used Outlets'. The slop hopper will be covered rather then removed. IP noted will disconnect system for flushing mechanisms, disconnect and cap off, sanitise cover over the hopper to make as part of the work surface, only in areas that are seldom utilised.

4. Chlorine Dioxide Dosing Roll Out Update

Little Used Outlets – SW01
IP noted discussed in previous agenda item, project complete by 17 March 2019, apart from snagging.

Patient Rooms
IP noted that a flushing protocol is being developed. TW noted if there are 'Little Used Outlets' need to disinfect where required. IP noted to refresh water content twice per day, there are 35,000 cubic meters of water turnover per annum and implemented properly will adequately meet the outlet exposure to ClO2 requirements.

DRA tool set to achieve this, awaiting confirmation from Mary Anne Kane, of the go live date for the DRA Tool. **MAK**

Basement – Little Used Outlet Removal
IP noted has been allocated and disconnected from the system. With staff toilets and a bed cleaning bay to be retained in the area. E-coli was located within this area in the Porter's rest room.

Cl02 Sentinel Residual Test Results
IP distributed a recent sweep of results, cold water residuals are high, other areas are above 2.5. Hot water system, 6 stations to go live, hot water readings are high, had temporary dosing system within 2A recycled through the heat station, live for 6 weeks within RHC. Control levels are good for the chlorine dioxide, good results from the Microbiologist tests. TW noted to achieve the levels so far into the installation is an achievement. IP noted once Point 1 residual on hot and cold will do weekly results.

Micro-biological Test Results

IP has distributed February 2019 results, all legionella results were clear. Exception report highlights fungus within some areas mainly anaesthetic kitchen on 2nd floor and rooms 3 and 6 on 2nd floor. Micro filtration unit 3 was installed week commencing 25th February 2019 and the positive is thought to be anomalous due to installation works and as such is being re-tested. TW noted that the general micro results are a good set of results,

TW noted for a protocol over the next few weeks. IP noted to reduce fungus positives. TW advised to allow the system ClO2 to stabilise.

JM noted of the biofilm, IP noted the issues regarding the odour have been checked level, if counts increase could be due to a break of biofilm, TW noted if local no, IP noted on checking complaints regarding odour, all were found to within the threshold 0.5ppm. TW sought clarification if it is Horne taps predominately causing the complaints as may have a higher biofilm hold within the Horne tap?

- Ward 2A Cupriavadus results in rooms TCT 3 & 6, Play room & Hospital at night room.
- TW noted to increase the ClO2 levels slightly, JH has no concern with the increase,
- DK noted the risk of Cupriavadus, could eradicate everything apart from Cupriavadus,
- DK noted that 2A is greater than 100, IP noted that 2A has received more exposure to ClO2 than all other area's but Cupriavadus has only been found in 2A,
- Agreed to increase ClO2 to 2ppm once the system modifications are complete in Hospital at night unit. JM sought clarification if contained within the water, IP noted this was more likely as the taps had been replaced.

5. DRA Update

IP noted that MAK will provide an update, confirming the status for recording purposes. **MAK**

6. Drinking Water Dispensers

IP noted that some water dispensers have been removed, CP to provide an update. **CP**

7. AOCB

Out of Spec Trend
IK noted for micro results to be recorded on a spreadsheet, useful to highlight out of spec trends with location or system. DK has a model that can be adopted.

Ideal Standard Feedback
IP has received feedback from Ideal Standard, received metrological report, conclusion stress, crack, corrosion, chemical interaction, further analysis is required, IP has not shared the report. IP noted of physical stress from spigot, training has been delivered to in-house staff and DMA

8. Date of Next Meeting
Friday 29th March 2019 at 1pm in CMB Meeting Room – QEUH – Dial in details will be available if required

Water Review Meeting (Technical)
Friday 29th March 2019 at 1pm
Facilities Hub Meeting Room, QEUH

Present:

Ian Powrie (Chair) (IP)	Deputy General Manager – Estates
Teresa Inkster (TI)	Consultant Microbiology
John Hood (JH)	Consultant Microbiologist - GRI
Colin Purdon (CP)	Interim Sector Estates Manager, South Sector
Tim Wafer (TW)	Consultant
Mark Riddell (MR)	Sector Estates Manager
Sandra Higgins (SH)	Integrated Service Manager – GRI For John Mallon

Apologies:

Karen Connelly (KC)	General Manager, South Sector
Alan Gallacher (AG)	General Manager – Estates
John Mallon (JM)	Technical Services Manager – GRI
Mary Anne Kane (MAK)	Associate Director of Estates & Facilities (Chair)
Tom Steele (TS)	Director of Estates & Facilities
Dennis Kelly (DK)	Authorising Engineer
Eddie McLaughlin (EMcL)	Principal Engineer – HFS
Annette Rankin (AR)	Nurse Consultant Infection Control– HPS

Conference Call Attendees:

Iain Kennedy (IG)	Consultant in Public Health Medicine

In Attendance :

Allyson Hirst (AH)	Admin – Estates and Facilities for Notes

1. Apologies **Action**

As noted above -

2. Minute of Previous Meeting 8th March 2019

The minute was agreed as an accurate record.

3. Matters Arising

Agenda Item 5 – Segregation of ward – TI noted that she is happy to progress without segregating the ward – SCRIBE to be completed and this will be carried out by James Huddleston and Mark Riddell **JH/MR**

Agenda Item 9 – Test results were good and remedial works including deadleg removal – now complete

March Intertek Micro Results – CP noted that there were two highlighted 1 Legionella AW017 species and this has been updated onto the spreadsheet – appliances and tap have had a full maintenance and clean and then retested the results from this are awaited to determine if maintenance was sufficient to remove

Spreadsheet – A tracker tab has been added colour coded as per IK request and updated to February – IP will update with March results **IP**

Little Used Outlets – testing had located ecoli in the basement – IP noted that the pipework has been stripped out and little used outlet removed. Around 40 metres of piping has been removed and as part of the monthly testing this area will be included and updated once the results are known.

E.coli Results – little used outlet works carried out and it was noted that the results were so low it indicated that the sampling tap was dirty and not necessarily there being E.coli in the water – the room where the sample tap is located was not in the best condition

Micro Sampling – Feb 2019 results: Legionella positives were found in floor 5 and 8 and further testing was to be carried out in March with result clear TI accepted these results. . It was discussed that random positives may occur from ClO2 bio film break through.

TI asked about testing floor 4 – IP noted as this area is covered with POUF testing was not routinely carried out.

IK confirmed from full results report that the 3 Legionella counts from 12th February were on ward 5A, bedroom 15 mixed and cold and bedroom 28 on ward 8A mixed – it was noted that due to the position of this finding that this was coming from the riser and full residual on DHWS was not yet hitting this point of the system.

March results: Acute Assessment – Legionella count of 200 (species) was identified but this was noted as the only sample – this was serviced and sanitised and results from the testing after this will be forwarded. The group discussed the options for further surrounding testing and where this should be included – it was agreed to sample a few rooms either side and check pipework to determine if this is required further afield as the pipework run. Mid sentinel points and end of run to ensure full coverage – DMA will carry this out as part of the resample

Water Meter Condition – IP issued a breakdown of the water meter report to HFS and requested advice and guidance and for an update to the national guidance on the selection of water meters given that WRAS approval does not cover the issues were have seen – noting that coatings and paint coverings are not tested in real situations and this will now be an inherent part of health care water installation. A response is awaited from HFS.

4. Chlorine Dioxide

TW noted the progress via a chart noting
Level 1 – backwash now dosed at 0.5ppm – backwash operates every 20 production minutes of operation to clean the filter and clear debris from the membrane
Level 2 – filtrate tanks dosed at 0.2ppm
Level 3 – four main risers at dosed at 0.1ppm
Level 4 - plant room hot and cold – 0.4ppm overall at outlets

This configuration allows for individual zone control at the plant rooms to increase dosing for specific areas when required to specifically target hot spots. The water micro results reflect that this strategy is working. IP noted that cumulative residual at the outlet of up to 0.4ppm at cold and 0.1ppm at hot, the residual on the DHW remains a challenge due to the K factor of the water meters on the hot stations which is not recording the correct demand therefore dosing is not proportionally, new meters are being procured (5 off).. IP noted that the water meters are treating at 1 pulse per 100 litres noted that the water usage was lower than though so water meters should be reduced to 1 pulse per 10 litres to ensure that the hot water is dosed appropriately.
This is reflected in the dosing information circulated to members. Target is to get 0.1ppm on hot and cold and then microbiological sampling can commence and IP was confident that the sampling could begin around 12th April – assuming levels required were achieved. The members agreed that this was appropriate. Once the meters are changed out the hot water levels can be ramped up and levelled out
Test Results from 12th March of the residuals across the site – results reflected good still noting the hot water levels that need to come up. Intertek's microbiology report for March 2019 have still to be circulated to the members and also added to the tracker. IP noted that his concern was in 2A cuprivadis within the play room, TCT and rooms 6 and 3 and the Hospital at Night room –the seldom used Whb in HaN and water dispensers removed and dosing rate increased to 2ppm DHW & DCW systems to eradicate the issues within the ward and a microbiological sweep will be carried out.

If this is not able to resolve then further works will be required to look at potential engineering issues. It was noted that the sink in HaN room was not able to be removed as this was used by the service and they have asked for it to remain. It was anticipated that these counts will

reduce after the works are carried out.

TCT 3 had returned a positive result – it was cleared and returned – there is a cod tap within the room which also showed issues – so this indicated that this could be the culprit. Room 3 and 6 are within the same corridor but on opposite sides with the playroom across from the nursing station and the HaN out with the department across the corridor in the anaesthetic department but noted that this was the last connection in the run. Even though these results are low and below our usual concern due to the area and the consistency of indicating then this needs to be checked and ascertain what the issue could be?

It was noted that this area has had the highest levels of treatment over the longest period of time. IP noted that manual flushing was carried out up to around 2 weeks ago and now automatic flushing controls for a 2 minute flush every hour had been implemented and it was anticipated that this would help improve these results. TI and IP agreed to review the area after the meeting

5. Drinking Water Dispensers – Dead Leg removal

CP reported 26 identified, 12 removed, 2 next week and 7 in neonatal with plans to remove these and access is required.

IP noted his discussion with JRedfern about the odour and taste of CD – complaints received from staff and independent source. Staff are refusing to drink the water and thereby influencing the patients – a further assessment to be carried out to determine if there is an after taste.

TW advised this may be due to the bio film break down which can cause similar odour taste issues for short 24-48 hrs periods but is a random unpredictable conditions.
But this was not confirmed.

It was noted that we are well within the WHO recommendations and there should be no odour after taste at these residual levels etc.

IP asked if there was any further that we could do to assure staff that there are no effects of drinking the water. Previous plan to send a communication to staff was blocked by Corporate Comms but it was clear that there is some requirement to reassure staff that this water is drinkable.

TW noted that we could add a carbon filter to under sinks in ward pantries to give a source of drinking water that would not have any potential after taste but it was noted that this does have impact on the other taps that although is perfectly drinkable (drinking water outlets should be labelled) but would possibly give the wrong impression to staff and patients. - There will need to be further thoughts on how best to handle this matter.

TW agreed to speak to his chemistry team to determine if there was a test that can be carried out – this should be <u>added to the agenda for the next meeting.</u> TW/IP

IP noted that ED and children's outpatients have noted that they have no access to suitable drinking water outlets since the removal of the drinking water dispenser's only access to water outlets is in toilets or treatment rooms both of which would be inappropriate for drawing off drinking water. – How do we address this? . <u>Add to agenda of next meeting.</u>

Water Temperature – this has also been raised as the water being too warm and preference for chilled water – also to give consideration to installing cold water taps into pantry's

6. AOCB

Ideal Standard – this report has been forwarded with the papers for the meeting and relates to the tap connection failures in 2A/2B – the conclusion of this report is similar to the Intertek report – a chemical reaction with ammonium compound which caused the reaction and thereby failure. The compound we used has been used many times previously but noted this

failure was reporting as from inside to outside. DMA have been asked to stop using this and offer an alternative. Ideal Standard have agreed to propose a chemical that can be used with their products and improve the quality of the brass used in components. It was thought that we will be held accountable for the damage but this is yet to be disclosed. IP noted that the fittings were exposed to intermittent water flow according to the metallurgical reports – he would be interested to see how they could see this from their testing.
Thermal protocol for thermostatic taps will be adopted as part of the routine for flow regulators, maintenance etc
IK noted the quantity of lead leeched from the brass – what was our thoughts on this. Noting certain combinations of reactions causing any issues without pipework,
IP did not think there was sufficient to cause a breach of the PCV. Would testing levels be worthwhile. It was considered that there was such low levels of lead and the treatment of the water then this would be so minimal that it would be insignificant. Would this be picked up in sample testing? - Unlikely as trace metals are not routinely monitored under the micro-biological test programme...
Should we take indicative samples for increase in lead content?

IP suggested that the newly installed taps had the same sanitisation process and that we could ask Ideal Standards to check the impact of this leaching on longer term water quality under these conditions? IP will take this forward

IP

TI- enquired as to the replacement taps in the remaining parts of the hospital – do we have a plan? – IP noted not yet as we are still having some issues with the new taps including the moveable spout etc we should consider holding off on any tap changes – there are several discussions required prior to any plan being taken forward but needs to be clarified and will be put on the agenda for the 26th April meeting

7 Date of Next Meeting

Post Meeting it was decided that due to the number of apologies and holidays at this time of year it would be prudent to have at least a telephone call to ensure continued discussions and update and the next meeting will take place as a telephone conference call on Thursday 11th April at 13.30 – conference call details will be circulated with a diary invitation to members

To Note

Water Review Meeting (Technical)
Thursday 11th April at 1.30pm
Via Teleconference

Present on call:

Mary Anne Kane (MAK)	Associate Director of Estates & Facilities (Chair)
Ian Powrie (IP)	Deputy General Manager – Estates
Dennis Kelly (DK)	Authorising Engineer
John Hood (JH)	Consultant Microbiologist - GRI
Colin Purdon (CP)	Interim Sector Estates Manager, South Sector
Tim Wafer (TW)	Consultant
John Mallon (JM)	Technical Services Manager – GRI
Alan Gallacher (AG)	General Manager – Estates
Apologies:	
Karen Connelly (KC)	General Manager, South Sector
Iain Kennedy (IG)	Consultant in Public Health Medicine
Teresa Inkster (TI)	Consultant Microbiology
Tom Steele (TS)	Director of Estates & Facilities
Eddie McLaughlin (EMcL)	Principal Engineer – HFS
Annette Rankin (AR)	Nurse Consultant Infection Control– HPS
Mark Riddell (MR)	Sector Estates Manager
In Attendance :	
Allyson Hirst (AH)	Admin – Estates and Facilities for Notes

1.	**Apologies**	**Action**
	As noted above	-
2.	**Minute of Previous Meeting 29th March 2019**	
	The minute was agreed as an accurate record.	
3.	**Chlorine Dioxide Snagging**	
	IP reported that a snagging review was carried out at the end of March with 42 items – some items repeat on each of the stations. 16 items remain outstanding and reporting as 62% complete. Delays to this completion has been caused by the project manager and director being on leave at this time – IP agreed to bring this to the next meeting for update	IP
4.	**Test Results**	
	Out of Spec – An easy to review tracker has been adopted to easily see any anomalies. The update to this tracker was from the last set of tests taken on 12th March (monthly) from Intertek. 16 out of spec fungal results were reported – not clear yet on the fungal count – it was noted that these were not causing any increased concern and it was noted that these would be eradicated over time with the Chlorine Dioxide. AAW Room 17 reported Legionella which reported at over 200 count. This was noted at the last meeting and remedial action included removal and sanitisation of the tap, servicing and reinstallation and a further test taken. Results for this are not yet returned and will be updated at the next meeting IP noted the Hospital at Night kitchen area recently tested positive for E.Cloacae same bacteria sampled from a sample drain point on one of the basement storage tanks. It was noted that these were tested on different days buy different operatives – both have been resanitised and retested – results for these is awaited.	IP

	the Hospital at Night (HaN) office cold routinely tests positive for fungi (SAB) counts along with TCT rooms 3, room 6 routinely positive for C.Pauculis, IP noted that we have carried out all removals possible in the area including removal of two water coolers and associated dead leg removal plus the removal of little used WHB within HaN room, with only the kitchen sick remaining as this is required by the out of hours service. IP noted that high level ClO2 treatment had been applied in ward 2A Haemato-oncology\TCT distribution system for 48 hours (3 – 5th April), with micro biological sampling carried out on Monday 8th April, once ClO2 residual levels returned to normal 0.2-0.3 ppm. These results would be updated at the next meeting. If after this is all carried out there are still returns of positive results we will have to investigate further to determine if there is engineering issue that we are not aware of? Group were satisfied that we were carrying out all reasonable measures and carrying out works where required and there was no obvious suspects on why this was reoccurring. Automatic Flush devices have now been installed in this area, set for 2 minutes every hour to ensure that CD is pulled through.	
	Scottish Water Quality Reports – IP noted that these reports were produced further to the installation of emergency tanker supply connections on the main supply lines to Maternity and Hard Gate road meter point changes, these tests were instructed to ensure that the underground service break-in works did not have any adverse impact to the water quality to the hospital. Further tests will be carried out on maternity as we need to replace a valve and bring above group to bring in line with bylaws – IP indicated that he did not believe that the installation breached bylaws and would question the reported contravention but we would carry out the proposed alteration in order to bring the works to a close and obtain regulator endorsement of bylaw compliance.	
	Drinking Water Dead legs Removal	
	CP reported that 2 were removed from neonatal in the last week but noted that the high risk ward was proving to be difficult to access as the ward is very busy at this time and CP agreed to provide a programme update to the members	CP
	ED/OPD Drinking Water Source – IP noted that as we were asked to remove all drinking water dispensers from areas within the hospital these areas in both adult and children's hospital have now been left with no access to drinking water for patients or staff. It was noted that we were instructed to remove these as a possible source of the water issues within the hospital. MAK advised that the RCN had enquired why we were not providing drinking water for staff but it was explained that the water was perfectly safe for drinking – RCN noted that the staff did not believe the information that the Board were providing. The RCN accepted the Boards response. It was noted that there are no pantries in these areas to source water from and it was agreed that this would be taken to the Board Water Safety Group as it was the Boards decision to remove the water coolers as a preventative measure. HFS has provided an updates SUP05 and we now need to review our own policy to ensure it is in line with this. It was agreed that comments from appropriate people was sourced prior to any implementation. It was noted that some areas would be able to maintain their current water supply but with strict conditions attached – and not within high risk areas which were clarified with ICT and with a strictly maintained and recorded maintenance record which would be held by clinical staff. It was agreed that all the water which would potentially supply these coolers was fully stable prior to them being reconnected. IP noted that with the CD in place and a	

	POUF in place this would alleviate any concerns. If we are satisfied that the water issues are resolved and the WTG can be stood down in the coming weeks we will be able to make that decision but with relevant input and agreement from parties. IP noted that the results from the RHC over the last weeks has been very good aside from the areas previously discussed and it was agreed to hold off on the pipe removal in these areas until a decision was concluded. IP also advised that RHC Staff have been reporting that the water had a funny taste and odour from the taps and were not prepared to drink it – having the water tested it is recording at lower than the World Health Organisation requirements and therefore is potable and safe to drink.	
	Water Meter Status	
	IP noted that the report returned from meter manufacturer (Delta-flow-tech) which was circulated at the last WTG, it appears that the paint coating on this product – although WRAS approved is only tested by WRAS to confirm raw wholesome water is not adversely impacted in taste and odour or colour, the ability of the coating to withstand standard wholesome water treatment chemicals is not tested. IP has formally raised the suitability of the WRAS approval process of coatings with HFS with a view to seek further guidance on adopting of WRAS standards for Health Care properties, this will be added to the agenda for the next WTG meeting.	
	Clo2 proportional control: IP explained that the water meters installed for the CD proportional dosing system are rating 100:1 for every 100 litres pulled through sends a pulse to the treatment system for a proportional ClO2 injection. It has since been established that parts of our system does not have the expected demand therefore the system is under dosing and the chemical levels from these units are not what is required. We now need to look at different dosing meters to give proportional dosing level 10:1 so as not to overdose the system. IP proposed using an ultrasonic meter that would facilitate adjustable dosing control and as these are PTFE line with no metal parts in contact with the water flow would address the meter coating issue discussed in item above. It was noted that this would cost in the region of £2.5K (total £15K inc VAT) each and would require a two hour shut down on each of the supplies (1 off DCWS and 4 off DHWS) to fit out. MAK noted that further work on the water system which required a further shutdown of the water would require discussions and approval at a more senior level and clinical staff. TW noted that we could use a clamp on ultrasonic but it was noted that these are not as accurate as the in line version. It was noted that good results had been seen with the clamp on version and it was something to consider. IP noted that the dosing rates will not be accomplished until we can get this resolved specifically in the cold water the hot water was not such a concern as this can be much higher as it is not used for drinking but can emit and odour. MAK asked that IP write this up and circulate to the members so that this can be further considered including the areas that would require to be shut down and IP noted that we could use the same procedure as previous shut downs and it could be workable.	
	Installation of Return Sensors – these can be installed over the coming weeks – this in conjunction with the metres will allow us to fine tune the dosing levels. IP noted that during the day with normal demand the CD levels are what we would expect within the system but as the demand drops off in the evenings the levels drop significantly and with the return probes installed this will negate the drop and achieve the outcome required. MAK noted that there was no one with this group that was able to give the go ahead on the shut down as well as the additional costs which will require approval of the Director and CEO. It was agreed that TI should be involved in the decisions and recommendations on these works and information should be pulled together to progress for review – it was agreed that	

	this would be added to the agenda for 26th WTG with experts and ICT in attendance	
5.	**AOCB**	
	Weekly sampling – protocol had previously been agreed with ICT and WTG that we would achieve a minim of 0.1ppm in residual prior to moving to weekly. Water sampling on this scale is an expensive progress and IP noted that we do not have 0.1PPM on the hot water system and with expert advice should we consider changing the protocol as we have achieved the goals in the whole and we could move to weekly sampling but noted that residuals in areas not achieving may feedback unwanted results – it was agreed that this should be discussed on 26th April with appropriate people present and documented appropriately. JM was asked again if it was possible to carry out the tests within GRI laboratory – he stated that with other clinical tests ongoing it would not be possible and would have to be carried out by external supplier. It was agreed that this was probably more appropriate. DK noted that with legionella testing it would be unnecessary to carry this out weekly as it is a time consuming test and we should continue with these as monthly testing regimen – again agreed to review fully at 26th April but agreed that this could change. It was agreed that this would reduce the costs, MAK advised that cost was not the driver but ensuring and demonstrating the system was under control was the priority ensuring that we are carrying out appropriate tests within the correct frequency to ensure patient safety.	
	It was agreed that a full agenda will be pulled together for the meeting on 26th April to ensure that the fullest discussions are undertaken and to determine the standing down of the WTG. The group were asked to forward any agenda items to AH	
	Suggested agenda items – Discontinuation of the WTG or lessen the frequency Frequency and level of testing going forward - where these are to be tested Installation of meters – type to be determined Water shut down in line with the installation of sensors Test results	
7	**Date of Next Meeting**	
	Friday 26th April at 1pm in the CMB Facilities Meeting Hub - QEUH	**To Note**

Water Review Meeting (Technical)
Friday 26th April at 1pm
QEUH – CMB – Facilities Meeting Room and via Teleconference

Present and on call:

Ian Powrie (IP)	Deputy General Manager – Estates
John Hood (JH)	Consultant Microbiologist - GRI
Iain Kennedy (IK) (on call)	Consultant in Public Health Medicine
Teresa Inkster (TI)	Consultant Microbiology
Alistair Cameron (AC)	Consultant (Scotmas)
Tim Wafer (TW)	Consultant (Water Solutions Group)
Mark Riddell (MR)	Sector Estates Manager
Tom Makin Snr (TM)	Consultant (Makin & Makin Consultancy)
William Ennis (WE) (on call)	Microbiology

Apologies:

Tom Steele (TS)	Director of Estates & Facilities
Mary Anne Kane (MAK)	Associate Director of Estates & Facilities (Chair)
Dennis Kelly (DK)	Authorising Engineer
John Mallon (JM)	Technical Services Manager – GRI
Alan Gallacher (AG)	General Manager – Estates
Colin Purdon (CP)	Interim Sector Estates Manager, South Sector
Eddie McLaughlin (EMcL)	Principal Engineer - HFS

In Attendance :

Shazia Verrecchia (SV)	Admin – Estates and Facilities for Notes

1. Apologies **Action**

As noted above -

2. Minute of Previous Meeting 11th April 2019 (Draft)

The minute was agreed as an accurate record.

6. Ward 2A Marwick21 TMT Failure Mode (Part)

Lead Leachate – As IK had to attend another engagement, this item was addressed at the start of the meeting.

IK stated that he was unclear around the last correspondence from Jeff Williams (JW) concerning lead leachate levels. IP explained that JWs report related to studies in Australia and the materials used were to a more stringent level. IP noted that 4MS group material specification has not been fully adopted in the UK and suggested a conference call between himself, IK and JW to get clarification on the content of JW's email. IP to action this by the end of next week. **IP**

3. Chlorine Dioxide Snagging – Update

AC reported that snagging is 90% complete and the bulk of the work will be closed off next week. There will be a software upgrade to increase the overall average of hot water control. A hot water circuit will be implemented in 2 weeks. Physical break-ins have been arranged by Melville Macmillan (AP Water). MR to check the programme in place with Mel next week. This will be picked up with Scotmas and Morris & Spotiswood in 3 weeks' time. **MR**
There was a discussion around the TVC protocol residual Chlorine Dioxide target of 0.1ppm not being achieved on the DHWS and therefore weekly sampling cannot commence until this is achieved. SC proposed that the combination of cold residual CLO2

level and improved micro results should be seen as an indicator to proceed to weekly sampling? TM advised that we should work to the pre-agreed targets of the TVC Protocol as taking all control measures into account the target residuals should be deliverable. IP agreed and confirmed that monthly sampling would continue pending the implementation of the DHW return sensor and treatment algorithm installation stabilised the DHW trend.

Further to DeltaFlowtech (water meter manufacturer) reported on the cause of corrosion and leachate on the water meters concluded that although the Dupont protective powder coating material used on the water meters is WRAS approved it is only assessed against impact pf the coating on taste, odour & colour of the water product, it does not take into account compatibility with standard chemicals used in wholesome water.

IP has submitted a request to HFS for support to review the WRAS certificition standards in this respect and whether National NHS standards should be amended to allow acceptance of alternative product validation and certification arrangements for Healthcare premises, i.e. food quality standards? HFS had agreed to update progress at the WTG meeting, unfortunately there was no representation at this meeting, it was agreed to carry this item forward to the next meeting.

4. Test Results

Out of Spec Results March 2019 – results reported. It was agreed that micro results showed significant improvement in-line with expected control levels.

TM reported that fungal infections were mainly restricted to outlets.

Sampling Tracker – As of 18/4, all positive results are fungal. TM asked about the E-Coli result reported, IP advised that this was identified in the Porters rest room in February and that the room hygiene conditions were suspected as being the source. Further work had been carried out in the area to remove 5 little used outlets and reconfiguration of pipe work to remove 50m potential dead leg to these outlets.

IP advised that the Hospital at Night kitchen area has been resampled for e-Cloacae.
Ward 2A examination of pipework configuration to take place next week and the whole ward will be sampled. Followed by a 2ppm/3ppm high level treatment programme 7 days and then resampled. Outlets are automatically flushed for 2 minutes every hour.

Weekly manual ClO2 residual samples reports were reviewed, confirming that Cold residuals were above target generally between 0.2 – 0.3ppm.
While some hot samples remain low at 0.02 - 0.06ppm, suggesting these points are little used outlets and not being flushed as per the ClO2\DMT flushing protocol.

Flushing protocol is for manual flushing of all outlets for 1-minute duration twice per day (once per shift) by the domestic operatives. DMT has been updated to support this, confirmation awaited regarding full implementation. **MAK**

See water meter status (Item 5) replacement paper.

High TVC counts were also recorded in ARU, which are under investigation\remedial review. **CP**

TI Microbiology – test water to identify micro bacteria on Ward 2A. Identify source – maybe drains?

5. Water Meters Status

ClO2 Meter Replacement Paper – There was discussion around the Water Meter Replacement Proposal paper circulated to the Group prior to the meeting. To summarise, 8 new water meters were installed to provide proportional dosing capability for DHW based upon predicted water demand. The selected 100mm meters have a standard K factor of

100:1 (100ltrs flow = 1 pulse output). Since commissioning, it has been established from the DHW demand flow rate the distribution pipework in some areas, and hence the associated meters, have been over-sized for the daily consumption of water. Therefore the proportional dosing rate is insufficient to achieve the target residual ClO2 level. It is not advisable to increase the injection rate to compensate as this could result in increased taste/odour issues for staff and patients.

There are two options under consideration to address these issues:

1. Replace existing K100 mechanical water meters with a like for like water meter with a fixed K value of 10 – cost £670 each, total £4,020 (inc VAT), and lead time of 7-10 days from receipt of Purchase Order.
2. Replace the existing K100 mechanical water meters with in line ultrasonic meters complete user adjustable electronic K value allowing for accurate commissioning to the site flow conditions – cost £2,385 each, total £14,300 (inc VAT), and lead time of 3-4 weeks from receipt of Purchase Order. (External power supply required, allow £1,000 contingency).

The preferred option of the author of the report is Option 2, due to the added advantage that the ultra-sonic meter has a smooth PTFE lined water way with no metal parts exposed to the chemically treated water and no rough casting finishes or perishable coatings.

AC advised that the addition of return sensors on the DHW return legs combined with a software algorithm currently under development by Scotmas would adequately address the proportional dosing issue during periods of low demand by increasing dosing rates to the circulating system to maintain target residual levels while there was low demand.

It was agreed by the group that this upgrade should be implemented and proven before any further decision\action is taken on the water meter replacement proposal?

Water meter corrosion:

Independent Analysis of the water meter corrosion by Intertek, confirmed that graphitic leachate from the cast iron had weekend the structural integrity with an increased of failure at high operating pressures, the cause for the graphitic leachate was due to failure of the protective Powder paint coating which ranged from 600µm - 40 µm in depth. Where the low coating thickness was an inherent point of failure exposing the wholesome water to cast iron corrosion which provide microbial nutrient source.

DeltaflowTech Manufacturers report also indicated that the DuPont protective power coating is not compatible with chemical water treatment, therefore water meters should be removed prior to commissioning sanitisation then reinstalled. This raises concerns over the WRAS approval process for protective coatings? Which does not assess the product compatibility with standard chemical treatments used in wholesome water systems, but only assesses that the product under test does not impact on wholesome waters odour, taste or colour?

This data was shared with HFS to provide support in the review of the WRAS approval criteria with the authorising body, and consider if alternative options should be considered for NHS approval? **E McL**

This failure mode could be an ongoing source of nutrient in all similar products around the remaining system, pumps, PRV, NRV's etc where Cast Iron bodies are treated with a similar protective coating.

It was agreed that a representative sample of these products would be removed for examination and sampling to assess their condition and potential impact on microbiological water quality. **IP\ MMcM**

6. Drinking Water Dispensers

Dead Leg Removal Programme – CP was not present to update the Group. Follow-up at next meeting. **CP**

ED/OPD Sources of Drinking Water – IP reported that ED and OPD departments in RHC had no access to drinking water since the removal of dispensers. Options to deal with this issue include the distribution of bottle water, redeploying water dispensers, or giving access to taps in other nearby areas.

TI noted that "at risk" patients shouldn't use water dispensers and all stand alone dispensers in these areas have been removed.

IP noted that mains dispensers can be fitted on site. These will have an in-built filter and can be contracted or purchased at a cost of £299 each. The dispensers would require flushing out every 3 days.

IP informed the Group that this is being discussed at the Board's Water Group, but the preferred way forward would be hot and cold taps in kitchen areas. **MAK**

TW will forward drinking water machine risk assessment to IP. **TW**

7 Future TMT Replacement Plan

Consideration was now required for the mobilisation of the TMT replacement plan for all high risk area's and taking into account the issues experienced with the Markwik 21 in ward 2 A the group should re-consider the TMT selection

TMT Selection Review – The Group discussed the Review Paper circulated prior to the meeting.

Three Clinical TMT outlets were reviewed:

1. Dart Valley: AquariTherm
2. Armitage Shanks: Markwick21
3. Delabie: SecuriTherm Bioclip

The Markwick21 was noted as the preferred option as it is fitted with a copper lined open orifice bio-guard anti microbial flow straightener and is available on Procure 22 framework contract.

The decision on this selection was postponed till the next meeting for input from all technical members.

Define High Risk Areas – The Group discussed the paper circulated prior to the meeting. The main area of concern is Maternity (NICU), which is a Priority 5. There is an issue with the drains, which are bottle trap, and the connection through into IPS. There are multi-bedded rooms in glass traps, with the valve on the downstream side of the tap.

It was suggested that the IPS panels be replaced drain connection moved away from the sink outlet position (minimise retrograde growth\Splashing) and Isolation valves fitted after the trap to allow for weekly sanitisation of the full drain assembly) with new Markwik 21 taps to replace the Horne Optitherm. **IP\MMcM**

TM noted that weekly dosing is not enough and suggested ClO2 be poured into drains for 10 minutes twice a week. **MMcM**

AC will forward strength & Contact time (CT) values to IP. **AC**

IP requested confirmation of the wards defined as high risk. TI advised that the existing list was valid with the addition of ward 6A (temporary Haemato-oncology).

8. Ward 2A Marwick21 TMT Failure Mode

Das/Intertek Report Conclusions – The Group discussed contents of the reports circulated

prior to the meeting. The reports both conclude that the cause of failure of the brass connectors was Stress Corrosion Cracking (CSS) resulting from a combination of exposure to a quaternary ammonium chemical and applied stress from the frequent fitting and removal of the proprietary flushing probes. The metallurgical analysis recorded lead leachate which was discussed as an action point with IK at the beginning of the meeting.

Actions so far:

- Removal of Showerhead plus as the immersion decontamination chemical prior to component installation. **IP (complete)**
- Arrange for lead Leachate conference call with Ideal standard team, IK & HFS to assess impact on PCV limits from brass components. **IP**

9. AOCB

Endoscopy at GGH – TI noted that the unit has tested positive for AFB. It was dosed with ClO2 and retests were clear. However, another ERU has now tested positive. TI noted that six samples of wash hand basins have been sent for analysis.

MR noted that he is waiting for O&M manuals from Andy Hamilton to review drawings of tank services in the area.

Ideal Standards Working Group – IP noted that there is an article in the Ideal Standard "Looking Deeper" Issue 4 relating to working towards Infection Control within the NHS. IP will circulate the article to the Group. **IP**

Frequency of Meetings – TW queried the frequency of meetings and whether technical advisers need to attend all meetings. After a brief discussion, IP noted that meetings be held monthly and technical advisers attend quarterly. IP suggested this be reviewed after a six month period.

IP will confirm the date of the next meeting and issue a schedule of further meeting dates. **IP**

10. Date of Next Meeting

21st June 2019 at 1pm – Facilities Hub CMB =- QEUH **IP**

Water Review Meeting (Technical)
Friday 21st June 2019 at 1pm
QEUH – CMB – Facilities Meeting Room and via Teleconference

Present and on call:	
Ian Powrie (IP)	Deputy General Manager – Estates
John Hood (JH)	Consultant Microbiologist - GRI
Iain Kennedy (IK)	Consultant in Public Health Medicine
Colin Purdon (CP)	Interim Sector Estates Manager, South Sector
Eddie McLaughlin (EMcL)	Principal Engineer – HFS (telephone)
Tim Wafer (TW)	Consultant (Water Solutions Group) (Telephone)
Mark Riddell (MR)	Sector Estates Manager
John Mallon (JM)	Technical Services Manager – GRI
Alan Gallacher (AG)	General Manager – Estates
Dennis Kelly (DK)	Authorising Engineer
Apologies:	
Tom Steele (TS)	Director of Estates & Facilities
Mary Anne Kane (MAK)	Associate Director of Estates & Facilities (Chair)
Teresa Inkster (TI)	Consultant Microbiology
In Attendance :	
Allyson Hirst (AH)	Admin to Estates and Facilities

1.	**Apologies**	**Action**
	As noted above	-
2.	**Minute of Previous Meeting 26th April 2019 (Draft)**	
	The notes of the meeting were recorded as an accurate record of the meeting with some minor amendments to spellings	**AH**
3.	**CD Snagging List**	
	This has been concluded	
4.	**Test Results**	
	Stenotrophomonas is being reported as well as Mycobacterium. Additional checking with infection control over the last few days to pick up on further water sampling to identify if this is embedded within the system with further tests on the outlets on three sentinel and three specified rooms this time with filters and place and also without to ensure that the filters efficacy. Both hot, and mixed will be sampled as required. It was agreed that this would be extended to areas that the patients may have used including theatres, play areas. Additional samples will be taken from the bulk storage tanks to check for organisms within the stored water and depending on the results it may be necessary to check further back in the water supply chain.	
	Samples have been taken from the incoming water supply and results are awaited but noted that these did not check for steno or myco as this was not asked for at the time of test and not standard organisms – this will determine the status of incoming water.	
	IP noted that he had spoken to TM and suggested this is an infection in patients having this treatment prep rooms for the patients drugs and to include any machinery i.e. heart bypass machines as this is a common bacteria found in these. By carrying out these checks it will ensure that all areas that the patients could have come in contact with will be checked. IK reported that this has never been reported from the heater coolers on these machines previous recorded this bacteria in the chimaeras incident. It was noted that the patients	

	who have presented with the bacterium have also been treated at other hospitals and noted that the hospital might not be the source and it would be advisable to look at other possible sources of this. TM suggested that the Infection Control Journal would be a good source of information on the organism and the interaction with CD and what is required to eliminate this. Due to the texture of the bacteria we now need to look at how to remove this. It was suggested that an increase in the bulk storage containers with CD but will require to be at high levels which will require the water to be tagged as non drinking water until the dose takes effect and then cleared. This should only be considered if this is the root cause and all other aspects should be looked at prior to this being taken forward. It was agreed that the CD should be pushed to 0.5 but being mindful that we may get complaints about the water quality. IP agreed to check the requirements to clear this from the system. TW noted that the CD could be consumed in the highly affected areas and will need time to reduce this and cause a drop in levels within other areas. IP suggested that high dosing would be beneficially carried out in the heat treatment as this will reduce the impact to the drinking water. It was clear that there was a lag in the system and that it was clear from the beginning that there would be a requirement to allow the CD to breakdown the bio film prior to any considered increase if found to be ineffective. The group were reminded that there were limits to the levels that the pipework can accommodate as well as the users of the hospital. It was agreed that a strategic risk assessment would be carried out prior to this being progressed and communication plan to inform users and staff	
	DK noted that the CD is killing off the bacteria it was installed to remove and therefore could potentially be giving the other more resistant bacteria an opportunity to grow by removing the bio film. It was not clear but it was agreed that the test we are carrying out are not the routine testing criteria usually carried out in hospitals. It was noted that we are finding these bacteria as we are hyper focused on the water supply but that it could very feasibly be coming from external supply or source but that due to our patient demographic we are finding more than usual.	
	TW noted that the CD system is relatively new to the site and it has been known for other sites to have 3-4 years of similar treatment prior to any clear results and he noted that the CD will be disturbing the organisms in the pipework and it will take time to clear – it was agreed that once the results are reported back this would become clearer in the way to progress.	
5.	**Water Meters/Photographs**	
	IP had previously reported that to install the CD system the water meters had to be removed and reinstalled and it was found at this time to have growths. These were described as “calcium looking” growths. Due to these findings a report was requested on the water meters and it was found that the coating on the meters was found to be at various thicknesses and the lower thickness was allowing the growth and leaching of graphite. IP noted that the other components in the system with the same paint treatments have been reviewed and escalated to HFS to take up with WRAS under approval scheme. No detrimental impact to the water but not taken into account with interaction with chemicals used to treat water. It was noted that there was nothing in the guidance to stipulate. Manufacturer’s recommendation is to remove water meters, sanitise and then replace. The damage caused to the meters was noted and reported prior to the CD installation and could only come from the previous sanitisation during commissioning and therefore impact could potentially be seen in all healthcare areas. WRAS have been asked to offer comment to this. IK suggested that a water meter from recently implemented system is reviewed to ascertain what is within this	
	IP reviewed the images taken. It was noted that the worst affected area appeared to be plant room 51. The images shown indicated that there was a restricted water flow with a possible build up of rust and debris within the pipe. The white nodules around and thought to be biological organisms and have been sent for review. Results are awaited. All 8 of the distribution systems were checked both painted and non painted. It was noted that brass standing up well but cast iron is deteriorating	
	Expansion Vessels – these were shown as the previous vessels prior to changed to flow through type and not original to the project. Once these were stripped out the bladder indicates that this has shown signs of bio film. These have all been replaced in the last four	

	weeks and this was thought to have shown that the CD is making an attempt to overcome the bio film. DK noted that the CD would not have a sufficient quantity to overcome as there was no real flow of water in these vessels. The group agreed that we need to look at an alternative method of providing expansion. It was noted that the guidance does not have any information relating to this but does state requires flushing at specific times and a flushing programme is required. CP was asked to progress this on a weekly basis. It was noted that the bladders were made from EPDM and this was not a usually seen product in water products/ It was noted that the steel boss within the diaphragm which is used to hold in place had indications of rusting. Again this is a WRAS approved product and not providing the assurances that we require. This has bio film coating which would be provided nutrients from the rust to allow the bacteria to continue to grow.	
	Hot water pump in plant room 33 has evidence of corrosion and build of material – noted that the material was noted to be sitting on top of the paint on this equipment to the naked eye but could potential be within the paint at a microscopic level.	
	It was noted that there was concerns as to where this is coming from as the water is passed through micro filtration and surmised that it is coming from the cast metal or the paint treatment. IP noted that now we have identified this we need to remove these and have the removed pieces analysed and evaluated. The next determination is what these are to be replaced with and HFS are asked to offer their advice on the components in which replacements can be sought from.	
	Water pH in the area – the water is chemically treated to bring up the pH level by Scottish Water	
	Basement Booster Pump – deteriorated paint on the cast and bio film found in the modules within the body of the pump. TW noted that the dark areas are hard and the white nodules are soft and noted the darker particles appear to dissolve when removed but the white nodules have a sponge like texture with resemblance to bio film. Booster set 2 is made from stainless steel and looks to be in good condition. It was noted that part of the internal pump was noted to be deteriorating and is currently under high water pressure which could be aiding reseeding of the system	
	PRV – this also shows a build up similar to above in texture	
	The group noted their surprise at the condition of these as these pieces of equipment are considered fit and forget at least for an initial period of around 10 years.	
	IP noted that it was imperative to source replacements to these components, plan their removal and impact to service and get a programme in place with a component that can accommodate the chemical dosing. Water meter with PTFE lining and there is no physical contact with the water flow and noted that the equivalent for PRVS and no return valves are not yet known. Stainless steel is considered the better option and possibly moving to food standards for their input. EMcL noted that he did not consider a response from WRAS would be forthcoming quickly and we should look at alternatives. IP asked if we should adopt food standard guidance until further standards can be agreed. EMcL noted that this appeared to be appropriate but it would be necessary to bring relevant people together to ensure that this has full agreement. TW noted that it might be considered appropriate to look at other hospitals that have recently opened to determine if they have been seeing similar. All of the images taken had swabs taken and the results will not be clear for around 3-4 weeks to determine exactly what these are. It was agreed that the more evidence we have the better the case to make the necessary changes in standards and it was noted that there will be a significant investment in time and manpower to conclude. TW noted that he is not seeing similar in his NHS England client base but we should consider that this was either a Scottish Water issue or only a QEUH issue but this could not be known at this time.	
	Brass Meter on the Hydrotherapy pool which is made of brass shows no indications of the same corrosion or growth	
	Shunt Pump – brass body no evidence of growths of deterioration	
	Return Valve – showing issues again on the painted areas	
	IP asked for thoughts on what products we should e considering replacing with. DK suggested moving to food standards products – but noted are they so different as they also refer to WRAS approval. IP noted that water carrying pipework and associated fittings are generally stainless steel but there is an over expectation and there is a need to look beyond this for our water. DK noted that within the expansion vessel the bladder is made	

	of EPDM which is WRAS approve but this product is not allowed in flexible piping as it can cause bio film growth	
	IP asked if all the relevant parts are available in stainless steel and we will need to review what the market has to offer. IP asked if it would be pertinent to bring on board a consultant who has experience in both areas? EMcL noted that by replacing we need to be aware that we are not creating further different issues. DK noted that within pharmaceutical plants use glass and or stainless steel. TW agreed to speak to a colleague who is an expert in food specialist/engineering and he will discuss within him. This would likely take place in early July and TW will feedback to MR who will take over from IP	
	MR will work with Mel to identify a list of components and quantify the number of these. AG suggested that we start in one specific area and begin to work through this. Zutec will be used for the asset list. It was agreed that this will be raised via IRI and IP will take this forward.	
	HFS engagement with WRAS – EMcL noted that they are planning to further progress this in the coming weeks	
	Positive coliforms in testing – testing proved negative – IK noted that this would not be unexpected – sampling process was likely the cause for this. Psudomonas protocol only used if indicators are showing any growths. Further test results were not returned yet and TW will chase this up	
	Water Tank Fungi Issues – An action plan has been created after finding continual fungi results. This was considered ambient fungal counts within the sample bottles and atmosphere – a review of the collection process but noted that the decontamination only take place at the connection end and this was now modified the process to dip sanitise to further eliminate any cross contamination issues. It was noted that within the sprinkler tank room next door there is a smell of mustiness and so noted potential issue with this room. The tank room was somewhat used as a storage room and this was agreed to be cleared and HPV sanitised. It was agreed to have all the rooms cleared of unnecessary items and have them cleaned and any leaks fixed. The manufacturer of the tanks has been contacted to resolve the leak issued found as the water is pooling and it was suggested that leaks are fixed, dehumidifiers are used to dry out the area and the tanks are sealed to the floor and the manufacturer has agreed that this was acceptable. Air counts have been carried out and confirmed that fungi is in the air and it was suggested that prior to the work we carry out a continual microbiological count for set time which would give around 3-4 changes then sanitise and retest. It was noted that a machine would require being hired/purchased to carry this out. The group were asked for their opinion on whether this would be sufficient. It was noted that the basement would be accessible to the outside air which is known to have millions of fungi. AG noted his concerns that we do not start to implement clinical standards within plant room areas so this was not fully agreed – all the repairs and seal but not the HPV aspect. It was agreed that we need to draw lines and deal with the issues that are clinically important and agreed that we can achieve clean tank rooms with no visible evidence of leak, algae or growths	
5.	**Domestic Hot Water Probes**	
	It was noted that the water meters are oversized and so not getting proportional dosing and return probes have been installed to monitor the levels and inline pump to supplement the proportional dosing. 2 remain to be installed of the 8 and this should see residuals rising to 0.5 for the first week and will be increased with weekly sampling alongside TVC protocol. 4 consecutive clear weeks and then monthly for 3 consecutively clear. DK asked if the percentage of allowances – agreed that national guidance will be followed. As the hospital is broken down into zones each will be monitored and testing adjusted to account for the failures as each zone clears and the testing process then moves onto the next stage	
6.	**Automatic Shower Flushing – 2A**	
	MR this has been stopped and the room 2-16 are being investigated as removal of the IPS panels has shown mould growth. This was thought to be caused by 2 factors – welded joints defective and or the design of the room flooring and wall joint. A meeting is set for Monday with Hazel McIntyre and Aecom to review and look at a solution. It was noted that this has only occurred since the automatic flushing was commenced but has highlighted the	

	failure of the floor joints.	
7.	**Helipad Sprinkler System Water Treatment**	
	Foam cannons are located on the roof for fire control on the helipad which are tested weekly with water. IP noted that we should be putting CD into this as this disperses and is within the sprinkler tanks. It was noted that there has been historic issues in others hospitals of issues coming from the helipad storage tanks as they are not usually treated. The budget to implement this is 15K – AG agreed that IP could progress this. IP noted that CD should not be used with aluminium which is what the helipad is made of and Scotmass have been asked to confirm concentrations as these need to be less than 0.8 PPM so not sufficient to pull through enough of the CD to be affective and will require at least a half tank dump per test but noted that the tank takes time to empty so this should not be fully emptied – it was agreed that this process should be written up and progress. IK noted that there should be other involved in this to ensure that this is sufficient – share with the fire offices to ensure that we are not progress inappropriately. IP will forward to CP to progress.	**CP**
	Sprinklers – dosing initially higher and settle at 0.5. The pipework that is on this is mild steel. Would CD have impact on the joints? Booster pumps are tested every Wednesday – it was agreed that there were some oxidising biocides that could be used and this will need further review before making any decisions on this	
8.	**Deadleg Removal**	
	Still progressing but concluding	
	Removal of Water Dispensers	
	All high risk areas are have these removed and guidance sought from TI on those within the Beatson	**TI**
9.	**Pegler Report**	
	IP noted that the express compressed joint was returned as the gap in the joint was sufficient to gather bio film. Others sampled and contained bio burden – we need to determine who is responsible for the issue as this could be through the entire system and it was agreed to flag this as an IRIC as a concern	
10.	TMT	
	Lead Leachate – Information provided by the manufacturer was reassuring, as it showed that though the lead levels are initially high, after commissioning process/run-in period they are below PCV. IK noted that it was highly likely that our fittings would behave similarly in normal use, however we had unusually high leachate levels in the samples previously discussed. It was felt by the group that this was product of the stress corrosion and new fittings added and the previous shower cleaner with the causative catalyst was no longer being used, so it was doubtful that this would recur as the issues were quite specific and shower sanitising was incorrectly carried out. These changes, and the data from the manufacturer, provide reassurance on lead levels, though the only way to confirm that conclusion would be to test the end water. It now necessary that we resanatise these but awaiting confirmation of a chemical we can use as the suggest isopropyl alcohol which cannot be used as it requires a license. It was agreed that we are comfortable that this does not present as risk	-
	Tap Replacement – High Risk Ward Areas – high risk areas have been identified and MR will take this forward. IP noted that the programme should be completed in 12 months but can progress over two financial years. AG noted that quantifying costs were required and NPR including the tap, servicing, accessibility etc so cost will be fully known and understood and also the way forward.	**MR**
11.	**AOCB**	
	There is a huge level of water samples taken across the Board on a regular basis – if we are asked to take on additional sample taking by clinicians then are we expected to take on	

	costs and manpower to carry these out. IP noted that if this is requested by IC then we are required to follow through. It was agreed that at this time there is a higher than usual request level but as areas are clear the levels will drop to more usual levels of regular testing but agreed that increased testing can happen at any time if required	
	SHORT Term Health Risk Action Value – Water Quality – it was decided that this document would be important to review	
	Guidance on Testing – This is part of the managed service contract for Scotmass and IP will request a copy to ensure that Scotmass are following the new parameters	
12.	**Date of Next Meeting**	
	19th July 2019 at 1pm – Facilities Hub CMB – QEUH – this will be a quarterly meeting	**AG**

Water Review Meeting (Technical)
Friday 19th July 2019 at 1pm
QEUH – CMB – Facilities Meeting Room and via Teleconference

Present and on call:

Mary Anne Kane (MAK)	Associate Director of Estates & Facilities
John Hood (JH)	Consultant Microbiologist – GRI
Iain Kennedy (IK)	Consultant in Public Health Medicine (Telephone)
Colin Purdon (CP)	Interim Sector Estates Manager, South Sector
Tom Makin (TM)	Consultant
Tim Wafer (TW)	Consultant (Water Solutions Group)
Mark Riddell (MR)	Sector Estates Manager
John Mallon (JM)	Technical Services Manager – GRI
Alan Gallacher (AG)	General Manager – Estates (Chair)
Dennis Kelly (DK)	Authorising Engineer
Pamela Joannidis (PJ)	Acting Associate Nurse Director IPC
Melvin McMillan (MM)	Estates Duty Manager

Apologies:

Tom Steele (TS)	Director of Estates & Facilities
Allister Cameron (AC)	Scotmass
Teresa Inkster (TI)	Consultant Microbiologist

In Attendance :

Allyson Hirst (AH)	Admin to Estates and Facilities

1.	**Apologies**	**Action**
	As noted above	-
2.	**Minute of Previous Meeting 26th April 2019 (Draft)**	
	The notes of the meeting were recorded as an accurate record of the meeting with some minor amendments to spellings these will be updated and redistributed	**AH**
3.	**Matters Arising from the Minutes**	
	Sprinkler System Water Treatment – It was agreed to pull together an SOP to ensure sufficient turn over. Agreed that CD was not appropriate to use with aluminium decking as per manufacturers information. General firefighting water tank – clarification on what CD was required. Addition of CD was not considered to have any impact on the foam production if at 0.8PPM. It was noted that we have seen deterioration within powder coated casings/valves etc therefore concern noted that this may have come from previous disinfection of the products. Agreed to pull together an SOP based on the information. CP will complete this with discussions with fire officer. It was noted that costs to add a CD system to this water source would cost in the region of £15K. It was noted that the tank in the basement is not plinthed and there was a concern about leakage and this would require to be resolved. CP will take this forward and it was noted that the tank was scheduled for repair.	**CP**
	Dead leg Removal – this was previously agreed for high risk areas and are to be removed. The SUP05 was not clear on whether we should be removing these but outbreaks experienced within the Board have seen staff using the water coolers in their staff areas and giving this to patients so by removing the source we remove the risk. It was agreed that there would be further discussion on this at the Board Water Safety Group scheduled for next week. SUP05 to be interpreted and implemented as per the Boards requirements.	**MR-**
	Replacement of taps out with 2A – this will take around 2 months to complete but it was	**-**

	noted that high risk areas can be difficult to access and may take longer than anticipated. TW noted that the position of the tap for the water flow to hit the area appropriate was imperative to the fitting. There are 12 areas of high risk noted.	
4.	**Test Results**	
	Intertek Results – Detailed information received from the reports and possibly supporting the action of replacement of components in the system. DMA have been commissioned to carry out a survey of work involved but not to carry forward any replacement at this time. It was to be noted they would only be able to survey the easily accessible component parts and from this a plan will be pulled together to review if there are alternative products made from a more suitable material. It was agreed that there was further work required to conclude this. Procurement and product replacement will be brought back to this meeting and any testing regimen that would be required to ensure suitability and also to discuss the components that may require to be replaced that are not easily accessible and what impact the replacement programme will have on clinical activity. Test results need to be clarified if these are post or pre filter and what the results actually mean – this to be clarified	**CP/MR**
	Management of Patients – immune compromised patients in USA hospitals are given information to clarify that the water supplied to their ward areas are filtered and for their information that if they drink water from other areas that these may not be fully filtered and to drink and use water within their areas which are clearly marked to indicate if filtered and drinkable. After some discussion on how this would work in our hospitals it was not fully agreed by all but there could be some issues on how this is received	**-**
	Water Tank Room – work carried out to rectify the previous issues and it was noted that on a visit yesterday the status of the room was not positive – standing water noted and hoses being left on the floor – this room would be checked again with the message being relayed down through the users of the room to ensure that when the room has been worked on it should be cleaned and left in a tidy state.	**CP**
	Filtration of water incoming to the hospital – TW and TM both noted that you do not see this type of filtration in NHS England but noted that guidance states that we have these filters at our water intake point and by making any changes to this could potentially go against our guidance.	**-**
	Positive Coliforms – There were no further test results to come back. This was tested but not found what type – TW agreed to check on these and report back	**TW**
	Ward 6 Stenotrophomonas – There had been a few reported cases in April/May and this created a sweep of tests carried out on outlets but the returns from these were negative	**-**
	Water Tank Fungi Issues – it was agreed that this area would not be HPV'd as considered too far in resolving the possible issues in the area	**-**
	Sprinkler Tanks – smell was noted in the area and it was agreed to test. Fungi was found but unless we believe the air is causing a fungal problem within the tank rooms and it was agreed that this can be removed from the discussions	**-**
5.	**Domestic Hot Water Return Probe Status**	
	All now returned and demonstrating exceeding 0.1PPM and we should now be carrying out weekly sampling as per decision made at this groups meetings previously – it was agreed that weekly testing will commence in the 1st week of August. Results pre CD are known and will be compared. If these remain clear then we can then discuss where the clears are and potentially the removal of POUF but agreed that these will remain in place until this is determined.	**AG**
	QE Hot Water Residuals – this has been completed	**-**
6.	**Automatic Shower Flushing**	
	IPS panel removed and mould discovered – this was thought to have been exacerbated by the automatic shower flushing and so has been stopped and an investigation carried out by Aecom with other areas of the hospital being checked to determine if this is located only in 2A or hospital wide issue – feedback to this incident back to the group	**MR**
7.	**Water Meter Update**	

	All pulsing resolved and can be removed from the agenda	**-**
8.	**Peglar Stainless Steel XPRESS Joints Update**	
	IRIC was submitted by IP and we await their feedback	**-**
9.	**AOCB**	
	The Group discussed the frequency of these meetings as we are now moving into a different testing schedule but after some discussion it was agreed to continue with the pattern of meeting in August and again in September and that the agreed criteria for reducing frequency based on risk management be applied going forward (Frequency & Criteria previously agreed at WTG)	**All**
10.	**Date of Next Meeting**	
	16th August at 1pm in Facilities Meeting Room – CMB QEUH	**All**

Water Review Meeting (Technical)
Friday 16th August 2019 at 1pm
QEUH – CMB – Facilities Meeting Room and via Teleconference

Present and on call:

Mary Anne Kane (MAK)	Associate Director of Estates & Facilities
John Hood (JH)	Consultant Microbiologist – GRI
Iain Kennedy (IK)	Consultant in Public Health Medicine (Telephone)
Colin Purdon (CP)	Interim Sector Estates Manager, South Sector
Tom Makin (TM)	Consultant
Tim Wafer (TW)	Consultant (Water Solutions Group)
Mark Riddell (MR)	Sector Estates Manager
John Mallon (JM)	Technical Services Manager – GRI
Alan Gallacher (AG)	General Manager – Estates (Chair)
Dennis Kelly (DK)	Authorising Engineer
Sandra McNamee (SMcN)	
Teresa Inkster (TI)	Consultant Microbiologist
Melvin McMillan (MM)	Estates Duty Manager

Apologies:	

1.	**Apologies**	**Action**
	As noted above	-
2.	**Minute of Previous Meeting 19th July 2019 (Draft)**	
	The notes of the meeting were recorded as an accurate record of the meeting	
3.	**QEUH SOP Sprinkler System**	
	SOPs for the sprinkler and helipad fire fighting water tanks have been produced and are in draft form until further information is forwarded by the pump manufacturer. They have verbally stated that the equipment can withstand 0.7ppm of Chlorine dioxide but we are still awaiting written confirmation. Once this is received the SOPs can be finalised and the process of dosing implemented. It was felt that the installation of Chlorine Dioxide dosing apparatus for these tanks was unnecessary due to the cost and ongoing maintenance requirements, therefore it was suggested that the process of dosing these tanks would be carried out manually on a weekly basis.	**CP**
4.	**Update on Tap Replacement Programme**	
	Survey carried out by Morris & Spottiswood was completed Thursday the 15th August. Full report to be issued within the next week with scope of works as well as approximate costings.	
5.	**DMA Report**	**AG**
	TO BE COMPLETED BY AG	

6.	**Water Tank Room**	
	Water tank room remedial actions to clean up the area and maintain in good order is complete. There is an ongoing issue with a leaking flange on the new chlorine dioxide dosing apparatus which was causing additional challenges around keeping the floor of the tank room dry. This leak is being managed on an ongoing basis until the principle contractor has remedied the defect.	
7.	**Positive Coliform Update**	
	There were positive samples for pseudomonas and coliforms obtained from the latest suite taken from the main water tank room. Filtered tank 1B was resampled as a result. Two samples were taken from Filtered Tank 1A, two from Filtered Tank 1B and also the first outlet downstream of the tank at a location in children's OPD ground floor. These were submitted on Friday 16th PM to GRI water lab. TW noted the water sampling is identifying a consistent activity for Mould & Yeast which have been sent for "typing" in order that the results can be discussed at the next meeting. IK noted that in domestic household sampling, individual coliform failures, especially with low counts are often due to dirty taps or sampling errors. It would be important to know the coliform counts, and result-s of nearby outlets upstream and downstream, and results following disinfection and resampling. The on-going issues within the basement plant room in terms of yeast and mould need to be further investigated including broadening the scope to include air sampling	
8.	**Domestic How Water Return Probe Status**	**AG**
	Complete and can now be removed from the agenda	
9.	**Automatic Shower Flush Feedback**	
	Survey carried out by AECOM is now complete which suggests that there is no site wide issue with mould. Works to rectify mould issues within Ward 2A are to be added to the Ventilation upgrade project. Options on how to reinstate are currently being pulled together for discussion. Once agreed this will be added to the tender package due to go out on the 9th September.	
10.	**Chlorine Dioxide Dosing**	
	The group discussed whether we should increase the dosing further to 0.7. It was noted that there was Mycobacterium Chelonae in the water with some outlets at >100 cfu. This had been linked to a recent IMT and a patient case with whole genome sequencing establishing relatedness of the patient isolate to a water isolate (13 snps apart) –It was noted the work of Falkenham at Virginia Tech relating to atypical mycobacteria in pipework and TI express concern that low does chlorine dioxide might be encouraging proliferation of atypical mycobacteria within the system. IK noted that the literature he hadahd reviewed suggested the small increase from 0.5 to 0.7 ppm was unlikely to have a major effect, and a much higher doseage, around 1.2 ppm may have to be considered. That was felt to be not feasible be Estates colleagues given the engineering challeanges and potential impact on services.	
11.	**Review of Previously Agreed Frequency and Criteria**	**All**
	-	
12.	**AOCB**	
	TI noted her concerns re governance. TI noted that decisions were being made between local teams and experts out with the IMT and Water Technical Group Meetings and TI was concerned about the lack of documentation and flow of information control.	

13.	**Date of Next Meeting**	
	13th September at 1pm in Facilities Meeting Room – CMB QEUH	**All**

Water Review Meeting (Technical)
Friday 13th September 2019 at 1.30pm
QEUH – CMB – Facilities Meeting Room and via Teleconference

Present:	
Colin Purdon (CP)	Interim Sector Estates Manager, South Sector
Tom Makin (TM)	Consultant
Tim Wafer (TW)	Consultant (Water Solutions Group)
Mark Riddell (MR)	Sector Estates Manager
Melvin McMillan (MM)	Estates Duty Manager

Apologies:	
Iain Kennedy (IK)	Consultant in Public Health Medicine (Telephone)
Mary Anne Kane (MAK)	Associate Director of Estates & Facilities
Alan Gallacher (AG)	General Manager – Estates (Chair)
Dennis Kelly (DK)	Authorising Engineer
Sandra Devine (SD)	

1.	**Apologies**	**Action**
	As noted above	-
2.	**Minute of Previous Meeting 16th August 2019 (Draft)**	
	The notes of the meeting were recorded as an accurate record of the meeting but required some additional information to complete these	**AG/MAK**
3.	**QEUH SOP Sprinkler System**	
	It was agreed by the manufacturer that the tanks can be safely dosed at 0.7PPM DMA will work on best way forward either in tablet form or via dolphin device. Basement tank – this tank was found to be leaking – the levels in the tank require to be dropped and the tank rebolted and this was considered to resolve this. This will be dosed as the helipad tank noted above. MMcM agreed that this work was all set to progress. It was agreed that only one tank at a time will be drained down to ensure that there is sufficient in case of need.	
	Those present discussed the rooms being very humid and how this is being resolved - the area is being kept as clean as possible and TM noted that the ventilation with this room was thought to be inefficient and it may be a way forward to resolve the humidity issue	
	TM asked now that the fire tanks are being treated with CD how will the levels be maintained – MMcM explained that DMA currently drain down around 1/3 of the tanks twice a week to ensure that this water is flushed – this also ensures that this is not considered a little used outlet or deadleg	
	TW noted that he had a paper which noted that insurance requirements to treat the fire water with CD and will forward this for the groups information	
	Those present discussed the possibility of air quality testing within the tank rooms and in the area outside as this would indicated if there was any indication of mould spores or a larger volume within the humid air – this was thought to be a way of documenting but after some discussion it was decided that this instruction would have to come from an IC representative and this decision would be taken outwith the meeting	
	Actions from this discussion • Tank repairs are imminent • SOP is completed but not yet circulated – MMcM • Decide on air testing within the tank rooms	

4.	**Sample Results**	
	TW noted the results (attached to the papers for the meeting) which reflects failures that have been recorded but it was noted that looking at the reports it was noted that there was an increase initially but then a steady decrease over the following weeks. These results are only showing yeast and moulds – initially results had shown coliforms and ecoli etc but never any legionella and psudomonas have been found. The group discussed the possible environmental impact the period of time where the results had been higher were during a period wet weather and if checked back it was thought that we would see increases during wet periods of weather and lesser numbers or none during warm weather. Plates are being processed to determine the type of moulds	
5.	**Tap Replacement Programme**	
	MR reported that a survey has been carried out within the high risk wards and reports back indicate that this will be at a cost of around £3M – this includes replacement of sinks, reduce the return pipework and replacement of taps and IPS panels including any additional works that may be required. It was noted that this was only in the areas of high risk. The decision to progress this work has not yet been authorised and is most likely to be a phased implementation. Taps will be replaced with Marwick and although we have had issues with these taps in other areas it removes the Optitherm taps which have given us cause for concern in other areas – this was completed and closed	
6.	**Tank Room**	
	Open sump pits – temporary covers are now in place with a plan to have permanent covers are being investigated and this will be concluded by MM/CP	
7.	**Domestic How Water Return Probe Status**	
	Complete and can now be removed from the agenda.	
8.	**Automatic Shower Flush Feedback**	
	This was stopped in 2A after the mould was found. It was reported that funding has been provided to remove and resolve the mould issue within this ward. Different options to resolve this and this will be put to the market to determine what options there are and which would be the better solution to our issues. Testing carried out in rooms indicated that there was a high percentage of humidity in several rooms noting that 12% was acceptable but we have rooms at 15%. Flushing is still being carried out but manually now. It may be possible to update on this at the next meeting as works will commence as quickly as possible	
9.	**ACOB**	
	JM asked for clarity on what testing is required at this time. Air sampling in the tank rooms was earlier discussed but this was put on hold until ICT representation could clarify if this was acceptable. Water Sampling – it was agreed to wait until these were returned before determining if any further work is required Water Sampling in 2A/2B – clarity required if this can be halted at this time as there are no patients within the area or for the coming period of time- flushing will continue. It was noted that no one can give any good reason to continue the level of water testing at this time and the group made a decision that this could be ceased at this time and will recommence once work has been completed and the planning of returning patients to this area. CD Level – IMT have determined that CD will remain at 0.5PPM outlet levels are checked and sitting around 0.3/0.4PPM TMakin at the next meeting – agreed that TM should attend the next meeting of the WTG as the water results will have been returned and the next stage to be determined.	

10.	**Date of Next Meeting**	
	11th October at 1pm in Facilities Meeting Room – CMB QEUH	**All**

Water Review Meeting (Technical)
Friday 25th October 2019 at 1.30pm
QEUH – CMB – Facilities Meeting Room and via Teleconference

Present:	
Iain Kennedy (IK)	Consultant in Public Health Medicine
Mary Anne Kane (MAK)	Assistant Director of Facilities (Clyde) – Chair
Gerry Cox (GC)	Assistant Director Estates and Property
Dennis Kelly (DK)	Authorising Engineer
Sandra Devine (SD)	Associate Nurse Director – Infection Control
Pamela Joannidis (PJ)	Acting Associate Nurse Director – Infection Control
Colin Purdon (CP)	Interim Sector Estates Manager, South Sector
Tom Makin (TM)	Consultant
Tim Wafer (TW)	Consultant (Water Solutions Group)
Mark Riddell (MR)	Sector Estates Manager
Melvin McMillan (MM)	Estates Duty Manager

Apologies:	
Alan Gallacher (AG)	General Manager – Estates (Chair)

1.	**Apologies**	**Action**
	As noted above	-
2.	**Minute of Previous Meeting 13th September 2019 (Draft)**	
	The notes of the meeting were recorded as an accurate record of the meeting with some amendments	**AH**
3.	**Matters Arising**	
	Awaiting Scottmass input on how this disinfection but agreed this will be carried out by either dosing or tablets – TW will chase up to conclude	**TW**
	Water Tank – Instruction on air sampling and whether appropriate	
	Shower Flush – this was within 2A/2B – during the initial install of the CD the automatic shower flushing had been installed to ensure that water was being pushed through regularly as the ward was not in use. It was found that this had shown cracks in the flooring seals that had allowed moisture to enter into the walls – the shower flush was immediately stopped and further work was instructed to be carried out to resolve the cracking of the seals. The mould found behind the walls was not typed to determine if the same as was in the water system but checks in other areas were carried out to determine moisture levels and although we could not gain access into the walls in active wards without removing patients we are as confident as we can be that moisture level checks have indicated that there is no issues. The only area found to have the issue was in 2A/2B after the use of the Aqua Free self-flushing taps. Ward 6A is checked weekly and daily facilities/Estates/Infection Control and the sCN for the area in detail and we are as comfortable as we can be that this is not repeating in this ward.	
	Flow straighteners – CP noted sampling previously carried out on the flow straighteners – straight out of the bag, a week after install and then again after a month to determine if there was bio film or anything found to be growing and reported that the longer in service the higher rates of bacteria. CP noted that the last 3 month samples were taken and initial results show no pseudomonas, no bio film and almost as new – exposed to CD treated water and no other special treatment just following protocol. It may now show that the CD is keeping these clean but this needs to be clarified and agreed at a different meeting by experts and it was agreed by those present that the periodic testing to continue and should be programmed as agreed. This will allow any changes to be noted quickly and acted upon and allow a trend of data to be held which can facilitate any changes that may be required	

	in the future. It was agreed to rerun the test and run the 4,5,6 months and then reverting to month 9 with results being brought back to this group or other equivalent group for review	
4.	**Water Sampling SOP**	
	This was tabled at a previous meeting – DMA had provided an SOP for sample taking and due to the different sampling requirements this needed to be ratified by the group to determine if this was appropriate. TW noted the difference for pseudomonas and a comparison of strict HTM protocol for pseudomonas against DMA method but the results do not alter with other method so no reason why this method needs to change and TW suggested we adopt this. ICD need to instruct that this is OK to implement. TW noted that the last input from TI was that it was preferable not to change the sample taking protocol. TM noted that there was no mention of glove wearing during sample taking and this needs to be clarified. TW noted that they use gel and it was noted that the use of spray Dettol was not fast activing although alcohol is. Dettol would need to be left on for a period of time. Armitage Shanks were happy with the use of alcohol on their products. Pseudomonas sampling is first water as sample from a tap not in use for at least 2 hours prior to sample being taken and it was agreed that this SOP requires to have these changes. TW agreed to take this forward and will be resubmitted to members for ratification – two separate samples taken and 1 litre samples	**TW**
	Gerry Cox (GC) joined the meeting and MAK brought him up to speed with what had been discussed	
	SD/IK/PJ joined the meeting	
5.	**Sampling Results and Further Works**	
	DMA Report – purpose of this as they have carried out routine samples and others as we have asked them to carry out .The Intertek sampling was instructed to ensure that the efficacy of the chlorine dioxide could be monitored based on the dosing rates of the chlorine dioxide .GRI Labs had been unable to analyse the volume of samples needed to ensure that the chlorine dioxide was being effective as well as the routine water sampling being carried out by DMA – this gives duplication but measure different things in the water	
	Basement Tanks post filter – showing Delta in the tank room and within the tank – all others remain clear, 1 pseudomonas in the drain points, TVC showing in raw water tank in line 23 and 25. Conclusion is that the basement tank rooms required action – it is possible that this comes from the overflow and suggested that a water based trap be added and noted that this would potentially seal the tank but noted that there are air vents at the top of the tanks – the group discussed the possibilities of where this comes from and noted that only extract vents within the area escaping into the corridor and agreed that there is a high level of humidity and musty smell within the room. Pits have been covered and during the summer months it was noted that there was a stronger smell but not reduced since the weather has changed. It was suggested that air sampling was carried out and in the corridor out with. This would determine any spore count and justify a dehumidifier to be installed and check with the base data and then be able to determine if there was any different. It was agreed that DS would take this forward to determine if fungal infections in patients – if no then this is not a concern	**SD**
	What should a basement tank room have – dry, well ventilated environment - it was noted that a ventilation report is scheduled to be released next week and it was noted that the basement was unlikely to be included in this	
	Intertek Report – 142 samples taken – adults 5th floor ward C room 84 only one showing any bacteria – over the last couple of months these are showing clearer and clearers and the most updated results are with DMA and will be added onto the tracker and circulated to the members once received	
6.	**What do IMT need from WTG**	
	HPS action plan issues to the board relating to IMT with specific items requested-mainly clinical in nature	
	Visibility of any current positive water samples is required for the IMT– report format to review the outlets and map these to patient pathways – nothing noted as yet Teresa Inkster previously accessed all positive reports and acted as the link to the IMT	

	from the WTG.	
	Positive water samples reporting routinely will be used as reassurance that there is no link from samples to patients – exceptions to be sent to SD – TW states that he can set the system to email directly any out of spec to IK/AL/SD – AH to forward the email addresses	**AH**
	Intertek only reported a minor TVC activity and one coliform within	
	IK noted a conversation he had with a colleague in Scottish Water around the coliform failures in August and September. Their view is that pattern of results with zero TVCs, and with multiple repeat negative samples, it is could be tap hygiene, or lab issues but most likely a sampling issue. They also discussed sampling protocols and noted that Scottish Water protocols use hypochlorous solution for disinfection prior to sampling. A flushing time of 30 seconds likely to be inadequate – with a system as large as a hospital, they might consider flushing for 2 minutes prior to sample, but that will depend on the nature of system and purpose of sample. It was noted that this was just for potable water testing and TW noted that the methodology we are using is not to the industry standard. This was agreed early in the process and was agreed and signed off by Estates and Microbiologist	
	IK noted that mixer taps can be difficult to interpret sample results but as we have these they required to have samples taken – Scottish Water colleague offered to review our SOPs and if required carry out observation of practice for water sampling and this was agreed as a good way forward – IK will take this forward with Estates team	**IK**
	It was noted that positive results found in DSR and dirty utilities was not entirely unexpected and were addressed immediately	
	Adult first floor critical treatment room recorded a repeat coliform failure and high TVC – what could be affecting this – dead leg, cleaning, access issues – agreed that this needed to be reviewed more closely – replace tap and review dead leg and test again	**CP**
	IMT require a statement on the water quality and potability – and also a statement on the status of flow straighteners which has been sent. Water is safe to drink by patients and visitors and used by services at QEUH and RHC – we take the water from Scottish Water, filter it, treat it and then comes out the tap – agreement that the water is under control and safe to drink	
7.	**Agreement on**	
	• Next meeting in January will close down current discussion and take up new IMT reporting requirements	
	• Exceptions were to be followed up with patient pathway	
	• Local water groups are to discuss any issues – IC and Estates are to be present at these meetings	
	• Agreed any failures are reported to IC and patient pathways followed to identify any issues	
	• A written statement detailing process to be followed when there are positive results. There is currently policy for legionella and pseudomonas but no other organisms	
	• Agreed that we carry out more than usual sampling on QEUH – TW asked about yeast and mould samples – this was appropriate noting that we have not had any clinical cases with yeast or mould but to continue with industry standards	
8.	**Future Meetings**	
	The purpose of this group was to resolve the water and drain issues which ran for approximately 9 months and now with that matter concluding and other matters coming to the fore and changes in staff and governance process it was now necessary to look at the linkage with the IMT and report up to this. It was agreed that this meeting format should continue with a review of the membership and remit altered to reflect the changes. The meeting will be held quarterly and therefore the next meeting will take place in January 2020. Membership of this group also have membership of the IMT (although not all) and could report back to the IMT on any issues but agreed that if any exceptional out of spec results are found the meeting will be reconvened earlier than the schedule	
9.	**AOCB**	

Commented [K1]: Within what

Commented [HA2]:

	Replacement components in tank rooms – costs for powder coated metre replacements – Costs submitted from DMA are with AG and requires to be followed up and closed off and reported back to this group for information	**AG**
10.	**Date of Next Meeting**	
	10th January 2020 at 1pm in Facilities Meeting Room – CMB QEUH Post Meeting Note – dates have been circulated to the new membership	**All** **AH**

Water Review Meeting (Technical)
Thursday 12th December 2019 at 1.30pm
QEUH – CMB – Facilities Meeting Room and via Teleconference

Present:	
Iain Kennedy (IK)	Consultant in Public Health Medicine
Gerry Cox (GC)	Assistant Director Estates and Property
David McNeil (DMcN)	Health Facilities Scotland
Pamela Joannidis (PJ)	Acting Associate Nurse Director – Infection Control
Colin Purdon (CP)	Interim Sector Estates Manager, South Sector
Tim Wafer (TW)	Consultant (Water Solutions Group)
Mark Riddell (MR)	Sector Estates Manager
Melvin McMillan (MM)	Estates Duty Manager
Sandra Higgins (SH)	Microbiologist
Annette Rankin (AR)	Health Protection Scotland
Al Leanord (AL)	Consultant Microbiologist
Ian Storrar (IS)	Health Facilities Scotland

Apologies:	
Alan Gallacher (AG)	General Manager – Estates
Mary Anne Kane (MAK)	Assistant Director of Facilities (Clyde)
Sandra Devine (SD)	Acting Infection Control Manager
Dennis Kelly (DK)	Authorising Engineer

1.	**Apologies**	**Action**
	As noted above	-
2.	**Minute of Previous Meeting 25th October 2019 (Draft)**	
	The notes of the meeting were recorded as an accurate record of the meeting with some amendments	**AH**
3.	**Actions from Previous Minutes**	
	Sprinkler Tanks – SOP produced by DMA along with RAMs. DMA require confirmation from Scott Mass on how this is to be carried out. Risk is low but does require to be concluded – agreed that this will be concluded by the end of this week	
	Water Sampling – SOP completed and forwarded to MMcM	
	Basement Tanks – SD action to determine if fungal infections are related back to the findings in the tanks. Mould was noted but this was thought to be a lack of ventilation and a lack of fresh air – work is ongoing to ensure that this area is dry. Moulds were found in July/August but numbers dropped in the months after. Air sampling was discussed. GC asked if this was requested – it was thought that JHood had carried out air sampling but no one has seen the outcome of these samples. Further discussion noted HPV may help but agreed that this was short lived and better ventilation would provide long term benefits. Discussion on the routes of possible ventilation were reviewed. It was noted that JHood was not available in December and his outcome results would be reviewed in January and this will determine if further work is to be carried out. CP noted that a water sample was taken from the water coming into the raw water tanks and this was clear this indicated that water coming into the site was good, water in the tanks was good but concern noted on the basement water tanks that could potentially have impact on the water but noted that this appears to be seasonal and agreed to check the historical data. Agreed that ventilation to the tank rooms to be reviewed to determine if there was an option to provide better ventilation in this area. It was agreed to bring the most recent samples from drains to the January meeting and review these along with previous samples to review what is being found. It was agreed to resample the tank room (environmental air sampling) and this will determine if there is the potential for any moulds to be drawn from the room into the tanks.	**CP/MMcM**
	AL asked if the vents of the tanks have been tested – he suggested that we swab the vents and then this will allow us to prove if anything is getting into the water from this route.	

	Agreed that if this was the case that due to the size we would not be able to trap the vents in the usual manner due to the size. But agreed that this would show if the vents were capturing anything but not necessarily getting into the water from this route this will allow a clear picture. TW agreed to instruct DMA to carry out the checks and the information will be sent to AL when returned. AL asked for the protocol for this to be forwarded to him to ensure we are clear on how this is sampled. Thereafter this will be discussed at the groups next meeting	
	It was asked if we were satisfied that the ventilation to the tank rooms was sufficient – no there is an action plan to get this reviewed – GC agreed to take an off line action with estates staff to review this and determine if there is anything that can be done. Suggestions about using the CD gas Local Exhaust Ventilation system but GC noted that this should be left alone to carry out its purpose and another solution sought	
	Mixer Tap – observation of sampling – IK confirmed that Scottish Water are happy to carry out a review of how this is carried out and IK will liaise with relevant people to carry this out	**IK**
	First Floor Mixer Tap – work carried out but results to be checked. CP to circulate the detail via AH. A broader investigation around the tap including dead legs etc. carried out to rule out any other factors.	
	Non Compliance – detailed survey was to be carried out – it was thought to be completed by next meeting – this included water meters and other components. Plant Room 21 meter was previously checked and full report provided for this. MMcM noted that a recently replaced valve/metre was already showing derogation	
4.	**Recent Swab Results**	
	Snapshot of a limited number of outlets on 6A – drain, WHB and surface of POUF. Technique used was an environmental sponge swab with a larger sponge used for larger surface area. What was returned led to a conclusion of contamination – this information was shared with relevant people within the Board. The purpose of the testing was to open the discussion with regards to the proximity of the POUF to the basin drain outlet. TW suggested that cleaning protocols for whb's should be reviewed in light of the retro fitted POU's. Currently cleaning is as per the National Cleaning Specification. TW noted that one of the rooms tested had just been cleaned prior to occupation by a patient. GC noted that there appeared to be no evidence of a formal instruction being issued to Water Solutions Group to undertake the sampling. Following receipt of the WSG samples the area was resampled by PCIT staff. AL noted that there was an unintended consequence of this work as previously shown that this area was safe and water was safe and this was a spurious result. It was not clear to us that this result was expected and we are asked to interpret this information for the Board as it showed different to what was previously reported. This has now led to an ongoing discussion with SGovernment. The testing process that we use and had been used for many years, where we understand where and how the results are interpreted. AL noted that we require to be careful that we continue to use the same sampling methods to ensure that we have a baseline and by changing the process we could therefore change and cause the results to be out of spec when previously not. Determining the clinical significant of the differing results but to determine when this would be a useful piece of information and determine a different clinical outcome. We would need to have clarity on what we determine is a safe levels and what we do to determine an unsafe level. It was clear that we are working out with the guidelines in the testing levels that we are carrying out and out with normal or common practice but we need to ensure that the levels that we work are actually working within safe and appropriate as this could have impact across all Health Boards. AL noted that we are working with HPS towards standards across the board but not clear when this will be ready.	
	AL noted that there had been reactive reaction to all issues – no closing off actions, reporting conclusions and understanding or knowing why we are doing what we are doing. We need to be shutting down and concluding the outcome of the samples. AL noted that the use of some technology so that we can review, action and understand the results received. National guidance is needed but I the interim whilst we wait for this we will use flop swabs and determine how we optimise our sampling technique so that we can get our results in such a manner that we can review any patterns, ensure outcomes are closed off. This will allow the reassurances to the public and Board to give comfort that results are	

	accurate and where there is an issue it is reviewed, actioned and closed down. DM noted that some housekeeping on the way we clean our drains and the use of POUF and retraining of Domesics as well as the creation of a SOP. AL noted that he was planning on speaking to TI later today so that he understood better the issues with the drains and the current cleaning protocols. AL noted that we are very reactive to drain swabs – we know that there will be negative result due to the nature of their purpose and the way we treat them with chemicals aggressively and suggested some testing to determine if the drain bugs are the same as those in patients' needs to be carried out systematically to understand if we are making this worse of increasing the possibility of introducing additional issues. It was determined that a few people have carried out some in-depth work on drains were contacted. Do we have benchmarking figures for what is acceptable down the drains and is our cleaning regimen correct including contact time. PJ noted that work is carried out between domestics and ICNs	
	Is it the patient or the environment – AL discussed the differences of the types of bacteria that can affect patients well-being and those that are in the environment but have little or no effect on patients. Can we have these categories – species are named but not type – this was noted that only two cases had the same species and type as found in the water	
	Disinfectant – dwell time, is it the correct chemical and is the frequency correct. How long does it stay clean for, is it liquid or foam – can we have this checked and the differences and what the test results are. It was agreed that a further discussion is required on testing regimens, reports, cleaning and sample results to bring back confidence	
	Board Water Safety Group to be asked to discuss this and how we take this forward practically	
	Agreed – Use of Flop swabs Systematic procedure Agreed SOP – to ensure all areas tested in the same way using the same technique Cognisant of any changes to baselines and impact to ICT results Other opportunities to prevent infections – patient information, nursing methods	
	What can we do with the information that we produce from these new changes in allowing the clinical teams to remove the POUF as these can be more harmful long term than they will prevent once the water is under control and the bacterial previously found	
	Better analysis of data – test for bugs – determine if harmful to patient, test to look for failures in the system (ie tanks) testing to reassure of system safety. Agreed that a statistician to look at the data going forward – determine if the results are showing trends and allow focus on recurring incidents and allow appropriate reactions	
5.	**Tap Replacement Programme**	
	High risk area replacement costs and programme requested along with IPS panels this was around £3M and taken no further	
6.	**DMA Report**	
	Tracker reviewed showing issues – results were to be emailed direct to SD and IK – this had been previously requested but had not taken affect – carried out whilst meeting in progress	
7.	**Water Tank Room**	
	It was agreed that no physical filter can be used. A review of possible solutions by estates but agreed to sample initially to determine if there is an issue and take forward from this.	
8.	**Sentinel Points Results**	
	Initially shared agreed that this is maintained and a full audit of the CD system will be carried out in mid-January 2020 and will be reviewed at the meeting after January. DN asked about the distance from the plant – does this show any less efficiency – CP noted that there are booster plants to negate this	
9.	**AOCB**	
	Raising from CD levels from 0.7 – this was determined to be unnecessary and was not to	

	be taken forward	
	Scottish Water Chlorine – CP noted that there had been a call from Scottish Water about local disinfections as local waste water was showing a higher rate of chlorine. CP noted that there was a smell of chlorine from the tank incoming into Hardgate Road and Govan Road. An enquiry to Scottish Water to ask if they were increased the CD to the water – they were not. GC asked if there was any harm from increased levels – WHO states that 0.7 is acceptable but reducing this number next year	
	Is there a risk from dosing with Hysan – 1 litre of Hysan being used per sink to clean – compare high dosing ad when reports of high levels in waste. CP agreed to check with domestic supervisor on the numbers being dosed – as well as the Acticlor being dumped down the sinks due to it also being Norovirus season – CP noted that there have been no additional reports of this nature. It was noted that we don't check the chlorine in the raw water tanks as a rule but noted in recent checks of the tanks but IK noted that he had not seen anything in the monthly reports of higher instances of this being reported from consumers and would not be concerned about the levels in the incoming water to sites	
10.	**Date of Next Meeting**	
	10th January 2020 at 1pm in Facilities Meeting Room – CMB QEUH Post Meeting Note – dates have been circulated to the new membership	**All** **AH**

Water Review Meeting (Technical)
Friday 10th January 2020 at 1.30pm
QEUH – CMB – Facilities Meeting Room and via Teleconference

Present:	
Iain Kennedy (IK)	Consultant in Public Health Medicine
Gerry Cox (GC)	Assistant Director Estates and Property
Colin Purdon (CP)	Interim Sector Estates Manager, South Sector
Tim Wafer (TW)	Consultant (Water Solutions Group)
Mark Riddell (MR)	Sector Estates Manager
Melvin McMillan (MM)	Estates Duty Manager
Al Leanord (AL)	Consultant Microbiologist
Susie Dodd (SDo)	Health Protection Scotland
Sandra Devine (SD)	Acting Infection Control Manager
John Mallon (JM)	
Alan Gallacher (AG)	General Manager – Estates

Apologies:	
Mary Anne Kane (MAK)	Assistant Director of Facilities (Clyde)
Dennis Kelly (DK)	Authorising Engineer
Ian Storrar (IS)	Health Facilities Scotland
Annette Rankin (AR)	Health Protection Scotland
Pamela Joannidis (PJ)	Acting Associate Nurse Director – Infection Control

1.	**Apologies**	**Action**
	As noted above	-
2.	**Minute of Previous Meeting 12th December 2019 (Draft)**	
	The notes of the meeting were recorded as an accurate record of the meeting with some amendments	**AH**
3.	**Actions from Previous Minutes**	
	Basement Tank Rooms – sample results shown but unfortunately not clear on the areas referred to. It was noted that aspergillus was the only one of note whilst the other were not thought not have any clinical impact. Vent/Baffles were recording high counts but what do we do with these results. Infections are not being seen in patients but AL noted there was a potential risk however low and how best to handle this proportionally and effectively. TW noted that we could dehumidify the area and retest to determine if this helps. GC asked why it would be difficult to install additional ventilation/extract. Due to the location, basement, and the CD installation it would not be possible to make any significant changes to the ventilation. It was noted that there was no detriment to the water from these results. High results in the air vent but AL noted that this is what is in the air and thereby not preventable. It was noted that this is likely to be similar in other basement areas and thought due to a lack of turnaround of air – stagnant air and no supply of air into the areas other than from the vents. It was agreed that we could not use the extract used for CD as this would not be appropriate. There was some concern that these results will escalate in the summer months. SHTMs note that basement plant rooms require to be ventilated but there were no specifics. AG noted that this is unknown territory and it was noted that in a basement tank room we are always likely to find contamination but need to ensure that this does not link to clinical areas. AL noted that the bacteria is not being seen aside from the Aspergillus and not linking directly to our patients. **It was agreed that in order to deal with this the basement tank rooms were to screen the vents and have dehumidifiers placed in these areas and retested to determine if this makes any difference this will be carried out on a three monthly cycle.**	**Estates**
	IK – screening of the vent and dehumidifying – should we speak to HFS to ask for their input to how and what should be done in the future and for future builds to prevent of	**AG**

	negate this issue. AG noted that this could be part of the Centre of Excellence Review over the coming years and noted as an area of concern and work to eliminate	
	Scottish Water Witness – this related to the sampling of mixer taps – not completed as yet and IK clarified that MM would be the best person to speak to make these arrangements and for sampling in general	**IK/MM**
4.	**Results**	
	Sample Tracker by Exception – noted that this was a reasonable set of results and reflects trends and nothing of concern noted but agreed that Microbiology and Public Health would like time to review in detail	
	It was previously agreed that the results needs to be shown in a user friendly format allowing interactive use. Agreed this was appropriate and we are initially using 6A results to find the best set up and the other will follow this pattern	**AL/DMA**
	Flow Restrictors – CD Impact. A three monthly change programme was in place to change these but found that the CD was having an impact on these and it was determined that it was now appropriate to review these again to ensure that the CD was still proving effective. Assuming this was still effective AG asked if this programme can now be stopped as it is very time consuming and has a financial impact as well. It was agreed that the testing is carried out and results brought back to the group who would then determine if this could be stopped although it was agreed that if any positive results returned then it would be repeated but subject to being clear then this can be stopped and regular maintenance would be put in place	**QEUH Estates/Group**
5.	**Replacement of Stainless Steel**	
	This referred to water meters and other fillings. It was noted that information has not been forwarded in totality from DMA but it was agreed that there will be areas of no access to the affected areas. Para deleted from here	**DMA**
6.	**PALL Filters 31 days vs 62 days**	
	MR noted that there was an incident recently with a POUF being reported as out of date. After discussing with DMA it was noted that there are different filter dates across the hospital. MR suggested that by moving to 62 day filters the likelihood of filters being missed would be reduced. MR asked if there was any clinical reason to not allow this change. TW noted that reasons for this and noted that cleaning of these along with maintenance is kept regimented there should be no issue. For tracking purpose we could use a code reader to allow tracking of these. SDe noted that we had started with 62 but there was a filter failure at day 40 and we therefore changed to 31 to give assurance. It was noted that there was consideration that the filter had not been fitted appropriately or had been tampered with. There have never been any recorded filter failures from the QEUH this was all fully recorded and these records maintained. AL and TW have discussed prior to the meeting the possibility of removing these POUR entirely but agreed that as part of assurances to the public that these will remain in some areas but noted that in 6A over the las 6 months there are no failures. **AL noted that he had no issues with the change to 62 day filters.** It was agreed for the areas that could have these removed from will require a coherent safe plans and should commence in the lowest risk areas. **Agreed to look at a sample point ie within the en suite as a sample point the WHB as the highest risk to the POUF filter efficacy then move to the shower as then next removal and then to the clinical sink but agreed that this needs to be worked through gradually and an agreed method and plan which is fully agreed with the group and with clinical teams and agreed that this needs to be taken to the Board for final approval.**	**Estates**
	Further discussion on PALL filters included – removal of filters in rooms that are no longer required to have them – where they have been installed to accommodate a patient for a period of a few days who was then moved. Noted that the clinical coordinator has a list of the room that have filters and can determine where the appropriate patients are located and for those that do not require them we can remove. **A process for removing these required. Agreed to review the process of requesting a PALL filter to be installed.** JM noted that the we need to be certain that the bacterium that the CD would not have	**QEUH Estates**

	an effect on has been eradicated and asked that we have the confidence in the water but noted that we do not test for Micro bacterium and agreed that the samples for next week will be unfiltered and this will allow a clear picture of the water status and to ensure clear of this particular bacterium. **If this comes back as clear this will be the second clear result and therefore decision can be made on the removal of POUF. Agreed – filters to be put on for immediate clinical needs, any broader risk areas, Schiehallion pathway suggested that these are reviewed in that order and if there is nothing pre filter (if any immediately stop removal process) but all in agreement that this will need to be carried out. Also agreed no further additional post water filter testing in 6A. Agreed that 31 day POUF remained in 6A due to patient group**	
7.	**Sampling in 6A and PICU**	
	6A – extra water samples post filter and no failures since August and it was **agreed that this can stop but continue with environmental samples.**	**Estates**
	PICU – same set up and continue with enhanced environmental samples and **agreed to revisit in a few months**	**Estates**
8.	**AOCB**	
	IK asked about the anaesthetic room tap MDU012 which had previously given continual positives. It was noted that this gave continual positive with no known reason despite numerous pieces of work carried out around and within this areas. CP noted that this tap had not shown any positive results in the last testing process. Trend to be forwarded to IK	**CP**
	Tap Replacement Programme – Horne taps within high risk areas – are we suggesting that we do not do this. Neonatal and SCBU are progressing, PICU and INS are listed within the high risk areas. Noted that none of these are within the new hospital and the only area within the new build is in 2A and a few areas where filters cannot be fitted ie within pantries and DSR. AG confirmed that there is no plan to move into the high risk areas to replace the taps. IK noted that in a previous discussion in 2018 this was the course of action that was agreed. Group to agree is this course of action is still required post the CD installation	**AG/Group**
	Service contract with DMA – AG reported that there had been a one year contract taken out and all areas have been tested and the contract is coming to an end we are now within year 2 so are now running as non-compliant and needs to be investigated MMcM noted that he had met with DMA and they will provide a cost for major service on a single tap which will then be multiplied up for our taps. It was agreed that this needs to be discussed on how best to maintain our taps going forward. GC noted that we should be trying to keep some of this work in house and not be so reliant on contractors and agreed that it may be necessary to have a joint working	**MMcM/AG**
9.	**Date of Next Meeting**	
	It was agreed to continue the meeting in its current format until at least July and dates are already circulated to the members • 17th April • 3rd July • 18th September • 11th December All meetings commence at 1.30 in the Facilities Hub Meeting Room – CMB and also telephone conferencing facilities with dial in details noted on the agenda for each meeting	**All**

Water Review Meeting (Technical)
Friday 17th April 2020 at 1.30pm
Meeting Held via Microsoft Teams

Present:	
Gerry Cox (GC) (Chair)	Assistant Director Estates and Property
Colin Purdon (CP)	Interim Sector Estates Manager, South Sector
Tim Wafer (TW)	Consultant (Water Solutions Group)
Mark Riddell (MR)	Sector Estates Manager
Melvin McMillan (MM)	Estates Duty Manager
Tom Makin (TM)	Consultant
Pamela Joannidis (PJ)	Acting Associate Nurse Director – Infection Control
Alan Gallacher (AG)	General Manager – Estates

Apologies:	
Mary Anne Kane (MAK)	Assistant Director of Facilities (Clyde)
Dennis Kelly (DK)	Authorising Engineer
Ian Storrar (IS)	Health Facilities Scotland
Annette Rankin (AR)	Health Protection Scotland
Sandra Devine (SD)	Acting Infection Control Manager
John Mallon (JM)	
Susie Dodd (SDo)	Health Protection Scotland
Al Leanord (AL)	Consultant Microbiologist
Iain Kennedy (IK)	Consultant in Public Health Medicine

1.	**Apologies**	**Action**
	As noted above	-
2.	**Minute of Previous Meeting 17th January 2020 (Draft)**	
	The notes of the meeting were recorded as an accurate record of the meeting	**-**
3.	**Tank Rooms**	
	It was noted at the last meeting that humidifiers were to be placed in the tank rooms and sensors were fitted. On the 8th April these were turned off and a record that humidity dropped – this verified that the humidity within the rooms is within good limits. TW noted that he considered that this was due to seasonal changes and possible leaks within the rooms themselves – it was noted that these have been rectified. It was noted that there had been reported standing water in the tank rooms and this would take some time for the concrete to dry out. Agreed that further testing is carried out at this time and TW agreed to take this forward with DMA. It was agreed that design of tank rooms information would be helpful to share with HFS and GC will share this information with IS	**TW** **GC**
4.	**Scottish Water**	
	MM reported that Scottish Water Bylaw Officers attending the QEUH site for around 2.3-3 weeks but he has not yet received their report but has taken forward any works that they verbally relayed to him included the water mains on the old part of the site which did not have double check valves. GC and MM will discuss out with the meeting any other matters	**GC/MM**
5.	**Results Tracker**	
	GC asked for any concerns to be raised by exception. Agreed that results are holding well and no comments made. AL had previously indicated that the results should be presented in a user friendly version and statisticians had been brought on board to carry this work out but unfortunately nothing further was known about the status of this. GC agreed to raise with AL	**GC/AL**

6.	**Flow Restrictors**	
	Following the programme of replacing these on a determined programme has found that the CD appears to be doing is job and these are found to be clean. CP had asked that these were tested at 10 days, 1 month and 3 months and the restrictors were sent to TW lab for analysis. TW did not have any information of these being sent and this will be followed up – results should be available for at least a selection of these at the next meeting	
7.	**Replacement of Components**	
	This was a programme of replacement of the components that had been found to be sub-standard or affected by corrosion and break down of the material but this had been halted as there was a lack of access to certain aspects due to the building design. GC noted that this was part of the legal activity with Multiplex. It was noted that consideration had been given to the derogation of components being a possible effect of the CD installation had been dismissed as the levels of CD were not sufficient to cause the damage being found. TW noted that the food manufacturing industries use similar products with much higher levels of CD being run through the pipework with no detrimental effects. It was noted that during the CD installation three different types of stainless steel were found all within 314 and 316 and noted that some Italian sizing of pipes had been found but according to the building information all the stainless steel was reported to be Yorkshire.	
8.	**Change of Filter Replacement Programme**	
	MR noted that we have now changed to 62 day changeover programme across the site and this had proved to be positive in the maintenance of this process. TW asked about the removal of some of these are now able to be removed from specific areas but GC noted that we need to have a mitigation place in place prior to this happening. The view was taken that this will be in in conjunction with discussions with Technical Board (Scottish Government) and Clinical colleagues. TM noted that in some cases the filters can exacerbate issues and we will need a protocol for removing these to ensure the tap and specific distance of pipework behind this is thorough sanitised to ensure that there is no bio film build up. GC noted that there is a noted risk with these in place but we need to ensure that the appropriate risk assessment is taken forward. It was agreed that the CD would remove the majority of bio film but there are always some bugs sitting noting that the CD kills the planktonic version but may not necessarily remove the actual film itself and to be aware that the CD is at its lowest level as it leaves the tap. Would it be difficult to increase the levels of CD in specific areas. The system is set up and installed that it has 29 booster pumps and agreed that a programme of works could be done over a period of time. Agreed to discuss this in more detail at the next meeting	**GC for agenda**
	TM noted that with the Covid-19 pandemic now within the UK he had forwarded a paper that indicated that further filters might be required as it was now difficult to access Covid-19 designated wards to check the water through usual water sampling. GC noted that with the expansion of our current ITU beds to double and potentially to increase the capacity to quadruple standard numbers we have not been asked to change the designation to augmented care and some of the wards being used for Covid patients are general wards	
9.	**Sampling**	
	Recent sampling results had shown cuprivadis retrograde contamination shown on filters and this was checked and cleaning regimen has been upped. The bacteria was found in the kitchen and within a few rooms. Following upped cleaning in accordance with cuprivadis protocols the areas were resampled and have returned as clear. Cuprivadis found in the showerheads of patients room was not thought to have come back from the drains but had been missed within the cleaning of the room as there was no specific route that could be found. KC noted that filters were changed as well has the shower heads and cleaning regimens reviewed – PALL reviewed the cleaning of these and updated the SOP	

	Anaesthetic Room – previously showed as continual positive sample results (MDU012) but noted that testing carried out on 16/01, 13/02 and 17/03 have now all returned as clear and recorded as completed for this structure of testing but continue to sample this and will report back if this becomes an issues	
10.	**Tap Replacement Programme**	
	This referred to the replacement of Horne taps. It had been previously thought that this could be halted with the CD now running through the water system. But it was agreed that this group required to take a view on this going forward. It was agreed that this could be discussed at the BWSG rather than the WTG and was a bigger question across the Board for a decision to be made. It was noted that we are aware of the issues with Horne taps with the flow reducer having several layers which allowed the bio-film to build up but with the introduction of CD this was now a reduced risk	**GC – BWSG**
11.	**Service Contract with DMA**	
	Renewal of this contract – GC suggested that we should take as much of this work back in house as would be possible but recognised that at this particular time this was not possible. AG agreed to check the length of time we remain in contract and revert back to GC	**AG**
12.	**AOCB**	
	MR asked about the possibility of removing POUF filters from those areas that had been installed whilst being used for specific high risk patient groups. It was recognised that the Schiehallion pathways have altered and changed and where POUFs are no longer required could these be removed. It was noted that Gael Roals was compiling a list of relevant rooms and thereafter speak to IC and Microbiologist to determine which of these can be removed as not required any further within the Schiehallion pathway and it was agreed that we will have to prepare a programme of sanitation as each of these is removed	**-**
	Flushing – it was noted that as wards are closed and prepared for Covid and others emptied to be made ready for Covid patients we need to be mindful that flushing still requires to be carried out noting that wet traps need to be kept wet and toilets and sinks that require to have regular flushing. GC noted that recent document from HFS highlighted the potential for viral load to be within the waste disposal pipework had given good evidence for the Estates plumbing staff to be given higher spec PPE than previously considered and the Estates teams are still receiving feedback from wards that flushing is taking place but are aware that wards being closed still require to have the same levels of flushing carried out and a this is being done by Estates staff and DMA as they carry out their testing programme	**-**
	KC noted that lower levels of water being used within the site with the number of wards closed and less operations taking place and has taken the action of reducing the tank levels to ensure that these are flushed through more frequently.	**-**
13.	**Date of Next Meeting**	
	It was agreed to continue the meeting in its current format until at least July and dates are already circulated to the members • 3rd July • 18th September • 11th December All meetings commence at 1.30pm in a format to be determined nearer the time and dependent on the pandemic restrictions	**All**

Water Review Meeting (Technical)
Friday 3rd July 2020 at 1.30pm
Meeting Held via Microsoft Teams

Present:

Gerry Cox (GC) (Chair)	Assistant Director Estates and Property
Tim Wafer (TW)	Consultant (Water Solutions Group)
Mark Riddell (MR)	Sector Estates Manager
Melvin McMillan (MM)	Estates Duty Manager
Al Leanord (AL)	Consultant Microbiologist
Iain Kennedy (IK)	Consultant in Public Health Medicine
Sandra Devine (SD)	Acting Infection Control Manager
Alan Gallacher (AG)	General Manager – Estates
Dennis Kelly (DK)	Authorising Engineer
Ian Storrar (IS)	Health Facilities Scotland
Annette Rankin (AR)	Health Protection Scotland

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1. Apologies — **Action**

none — -

2. Minute of Previous Meeting 17th April 2020

The notes of the meeting were recorded as an accurate record of the meeting — **-**

3. Items from Previous Notes

Basement Plant Rooms -This item referred to testing in the tank room. TW had circulated a spreadsheet which included the reports from May and 16th June. Some odd organisms were picked up from around air vents on the makeup side of the tanks. Not usual organisms looked for previously. Is there anything of significant – this will require clinical input to determine if this linked to anything being found within clinical setting? Air plates are noted as low recordings – is this a route of entry into the tanks is the counts are so low? There is nothing in the guidance to offer any assistance on this. TW noted that if you look for it you will find it but suggested this this matter can be closed off. GC asked for AL's view on this matter before agreeing to this. DK noted that the clinicians are not clinically fighting any of these but agreed with TW that this could be closed off suggested that we review in the winter months to determine if there is any change but doubtful this is required. AR noted that clinical opinion on this is required and nothing been seen clinically then agreed it could be closed off. This is not being seen in the water results within the building water results and no reason to continue to do this unless there is a clinical issue to suggest this is needed. AGREED that we need an opinion from clinical and would accept AL input — **AL**

Tank Room Issues – ventilation within the room was discussed but not about a solution as difficult to ventilation but solutions looked at as not practical to have an extract system – this was a learning issue for future designs IS and GC will catch up after to look at the detail for the supply ad extract ducting. TW noted that there is an open sump in the plant room which is covered with polythene and that a permanent solution should be sought. This can induce moisture and organisms into the environment. The purpose of the sump is for draining the tank if required. MM arranged for a contractor to look at this next week to provide a solution. GC enquired if the sump was drained via a gulley but was advised that the sump was drained by a lift pump.

AG noted that the issues noted should be shared with the National Water Services Group for potential tank room design going forward. MR agreed to check when the cover was removed but noted a correlation between the increased humidity levels and the prevailing weather conditions.

AL asked for a visit to the area to get some perspective on the area and a sense of the smells being discussed. SD will join the walk round.

Scottish Water Audit of Site – Scottish Water had visited site to carry out an audit and had stated they would prepare a report – this had not been completed yet. It was thought this should be at the Board Water Safety Group and will be moved to this agenda for the next meeting of the BWSG — Move to Agenda for BWSG

Presentation of Water Results – This was raised at the BWSG and will be taken as a discussion items at the BWSG instead of the WTG group. — Move to Agenda for BWSG

Results Tracker – this captures all the results of water samples taken and SD had asked if Estates were auctioning these as they come in – KC noted that estates teams' action on any issues as they arise from the trackers and incident reports area created with actions taken. IC and Microbiology have a sampling protocol and regimen to show the frequency and areas sampled by DMA. AGREED that this is a subject matter better discussed and reviewed at Local Water Groups rather than this group or BWSG with only exceptions being taken to BWSG format to be agreed. Exceptions when initially found to be reported to appropriate staff within Infection Control and Microbiology. This governance should be within the written scheme for the local water groups and part of the Risk Assessments and Mitigations — Updates to the reporting and written schemes for local water groups to be taken forward by senior estates managers

SD noted that ICN did not see an overview of the results showing out of spec the action and decontamination and it was agreed that if you don't know where to look it can be difficult to find and AG agreed to discuss with KC on the best way forward on how this ca be notified to ICN on how these are progressed. SD suggested that this is submitted to ICBEG as a report. KC noted that he is sharing with ICN the results but need to have the mitigation and put this into one report. TW noted that Intertek can produce an Out of Spec spreadsheet if required just ask for it — AG/KC

Change of Filters to 31 day – there has been a change from 62 day to the 31 day filters over the last month and no issues reported

Tap Replacement – no proposal to replace the taps at QEUH or should there be a replacement of the taps. Now that the CD is introduced through the system it was through that this was no longer necessary as this has given better quality of water and taps not seen as required to change and therefore not much to be gained by changing the taps. And this was AGREED

Water Management work back in house – with the modernisation of estates and property ongoing it was thought that a further year of TMV contract was required to ensure full compliance to ensure that we had some space to determine how this will be covered

4. Agenda Items

Coliform – Agreed that this remains on the agenda discuss if appropriate

KC asked at what point items should be escalated – and what issues ie TVC – mitigations – additional flushing – report to IC and microbiology or IC SD noted that a clear report should be submitted so that IC should be submitted so that IC can be assured that this has been seen, mitigated and resolved. DK noted that if persistent issues – this requires to have additional review with input from microbiology input to offer advice. Agreed that liaison with IC and estates gives good updates to link with anything that is happing with their patients and also provides an audit trail and ensures good record keeping

Flow restrictors – since the last meeting a further set of results from the testing of these has been received. In general there is very little showing biofilm bar one likewise there has been an odd outlet showing a slightly higher TVC possibly due to lack of cleaning or something else which has suggested that the CD is working well. The flow restrictors are being changed at this time quarterly. The original flow restrictors showed significant biofilm impact therefore this shows that the CD is having a significant impact on this. Can we now extent this further out between changes. With periodic sampling to a point that we no longer have to change them – TW suggested that we move to 6 month change programme. DK suggested that we use low risk areas similar to the POUF programme. GC asked for input from AL and HPS – AL noted that this would be acceptable but asked for an opportunity to review the information and may come back with some questions. AGREED to allow AL time to review the information – align with the POUF low risk areas and if agreed then move forward with a 6 month change programme

Water Components – GC asked the members to confirm the situation with regards to the potential impact of CL02 on the water system infrastructure. It was agreed that due to the low dosing rates that no issues were expected. AG noted that he had a memory

of a discussion but it was of a component and valve issue and this relates to a manufacturing issue. It was noted this was noted prior to the installation of the CLO2 dosing system. It was noted that other hospitals have been dosing much longer than QEUH and no degradation noted. TW mentioned the food industry which doses at much higher levels and that no detrimental effects were being reported.

GC noted that there is an emerging issue with a high rate of failure on the chilled water system over the last 8-10 weeks (circa 80 failures). IS noted that IPowrie had previously discovered that the stainless steel used in this was different from what was described in the O&M manual by the builder and that this might be widespread across the site. DK asked if the system contained corrosion inhibitor. Levels to be checked. GC questioned if the water used to top up the system, which contains CL02, might be exacerbating the corrosion. This was considered unlikely by the group due to the relatively small quantities of make-up water required in the CHWS.

Flushing Reports – this is more appropriate to be kept to the BWSG and will be removed from discussions at this meeting — **Move to BWSG agenda**

5. AOCB

Reopening areas closed during Covid – a checklist of items to be considered prior to any openings. Confirmed we are instigating a sampling regimen over a number of weeks and share with microbiology and infection control. HSCP have these been included in these – MR he considered that these had but would double check they had been sent the little used outlets information. DK will share the check list to ensure we are covering all points

Point of Use Filters – removal of these out with the Schiehallion pathway had completed and now moving onto stage 2 and this will commence next week. SD and AL asked if there were any concerns to note – nothing

Analytics for water results – this was parked during the pandemic but will be resurrected in the coming weeks

6. Date of Next Meeting

It was agreed to continue the meeting in its current format dates are already circulated to the members — **All**

- 18th September
- 11th December

All meetings commence at 1.30pm in a format to be determined nearer the time and dependent on the pandemic restrictions

Water Review Meeting (Technical)
Friday 18th September at 1.30pm
Meeting Held via Microsoft Teams

Present:

Gerry Cox (GC) (Chair)	Assistant Director Estates and Property
Tim Wafer (TW)	Consultant (Water Solutions Group)
Mark Riddell (MR)	Sector Estates Manager
Melvin McMillan (MM)	Estates Duty Manager
Al Leanord (AL)	Consultant Microbiologist
Tom Makin (TM)	Consultant
Sandra Devine (SD)	Acting Infection Control Manager
Dennis Kelly (DK)	Authorising Engineer

1.	**Apologies**	**Action**
	Iain Kennedy (IK), Alan Gallacher (AG), Ian Storrar (IS), Annette Rankin (AR)	
2.	**Minute of Previous Meeting 3rd July 2020**	
	The notes of the meeting were recorded as an accurate record of the meeting with a change to the statement on 31 day filters to clarify change from 62 day to 31 day	**-**
3.	**Items from Previous Notes**	
	Basement Plant Area Humidity – improvement was recorded after humidifiers were switch off. KC noted that humidity was at 60% and had improved but likely to be affect by weather and other matters. It was noted that no further testing has been carried out. The last set of test results showed mould and yeast within the raw water intake areas. Further checks down the water line showed no positive results so therefore no identified as carrying through. It was noted that no regular testing would be carried out in this are unless a specific issue arose. AL noted that significant work had been carried out in the plant room and had an informative walk around the area. The most recent testing of from the 9 sampling points was awaited from DMA but early signs showed that there was more contamination than was hoped for. Sump areas – are far from ideal – taking all the backwash water and there is the potential for aerosols from this area. A plastic fabricator was to create a top for this with the potential to have CD satchels. Suggested a 6 week trial testing systematically would give a clear picture of any route of contamination. The proposal was to increase the CD for this area to 2ppm which would be within the backwash only and works on a 57 minute cycle and therefore allow better contact with the filters. TW noted that initially Veolia were keen that we did not go about 0.5ppm but further works within GJNH and manufacturers have stated that the membranes have the ability to withstand the increase in levels of CD. Would this reduce the contamination – yes. And no increase the levels within the remainder of the system. TW suggested that a statement from Veolia to this affect would be beneficial as this goes against their previous statement. KC noted that his recent meeting with them was minuted that that effect. Air sampling – this was not carried out. The area is not mechanically ventilated or has engineered air intake so it is clear that there is likely to be positive results. Sampling within the tanks when they were emptied for cleaning was taken and positive results found but the tanks themselves were clear. Pall have been tasked with a filter proposal the tank rooms. Sealing the pit but with still access and ability for the water to move within – two quotes requested and received and being reviewed by Scotmass as to which is the best option with both having a black plastic floor covering and matting and a container for the CD. TW noted that he was not comfortable with this as it was possible to activate the gas monitors – it was noted that Scotmass have considered this and a Risk Assessment will be reviewed. After some discussion it was noted that we probably could remove the tablet element but all agreed that the seal is required and if there is an increase to the back wash levels then unlikely to require the additional tablets. It was noted with the sump	**KC**

	there is a lift pump and this resolved the need to have ability to allow air in and out and allows the pump to do its job. It was asked if this can progress – yes and once completed concludes this issue.	
	Out of Specification Results Notification – SOP has been forwarded to Microbiology colleagues and will be reviewed and shared across Estates for the entire Board. AL noted that he was happy with the layout of this and it was good progress and noted his thanks to KC for his work on this. IPC are in the process of building an environmental team. The new format will allow the actions of the out of specs and a full history of the results, actions and mitigations put in place to be known, documented and shared. It was noted that the policy document states 3 clear samples and complete but it was noted that DMA take 4 samples these results are shared with IC and Microbiology and we are now including DMA in the communications and therefore all can see what is being reported and actioned. This is also being shared with Soft FM colleagues when the issue requires an upscale in cleaning ie 6A out of specs from filters on taps had led to the issue being checked and samples taken and now domestic staff training has been carried out on cleaning process. DS noted that information received was very good and asked if this report was tabled somewhere – KC noted that he would add SD to the distribution list for information.	**KC**
	Flow Restrictors – Request to reduce the frequency programme of change. It was noted the quality of the flow straighteners remains good. TW suggested a 6 month change of these was appropriate since we have had good results recently then this can now move from quarterly to 6 monthly and possibly if remains clear response at 6 months and this can then revert to a year programme. Taps are not planned to be replaced. Those previously agreed to be changed but not a wide scale tap replacement since they are now not reporting the previously noted levels of contamination at the CD appears to be work as it should. IC and Microbiology will take the advice of the group members on what should be done. No issues are being reported clinically relating to this and agreed with the flow restrictor replacement programme as noted above	
4.	**Results**	
	It was agreed that reports for the results should be exception items only for future agenda	AGENDA
	Filtration Unit – it was noted that the sample points are not medical grade sample points and therefore might be being contaminated or as a dead leg. It was noted that the hole was so small it was difficult to disinfect. Agreed that removal and disinfect these would not be beneficial as would quickly be contaminated again. If this is the case and they are not able to be cleaned then agreed that no result from these points can be trusted. DMA are preparing a report and will forward to the Board once completed. Agreed that once backwash additional CD is running a sample should be taken two weeks later to determine if this makes any difference	
	Results Tracker – Statisticians were to be brought on board prior to Covid lockdown to prepare the information to be detailed on an easier to interpret platform. This was discussed at the recent ICBEG meeting and it was agreed there that should be progressed as early as possible. Pure data sets are available to feed into the platform with governance of this ready to go. GC will discuss with William Edwards	**GC**
5.	**Water Components Degradation**	
	This was an issue noted in the last few months with the chilled water system. This has been reported formally back to Scottish Government. The same issues not noted in the hot and cold domestic water system but there is an issue noted with the valves with the coating on the inside failing. Survey of the valves involved were proving difficult to access as well as the numbers of SCRIBEs involved in getting access. Within the chilled water system it was decided that an expert witness will review these in a visit to the site. It was noted that there are very small amounts of CD fed into the system during top of. Treatment philosophy for the system? – noted not checked regularly was last maintained in 2019 and serviced by Suttons International with a full clean and dosing prior to opening with records held that show servicing every year since then. Nothing within the records shows any issues noted during this time. Suttons have not seen anything within the system that would cause these	**GC feedback from expert visit**

	issues and have unfortunately refused to continue with servicing. A list of inhibitors is known and noted that if nitrate based system there could be severe microbiological issues and the expert may request the information. It was asked if a check on the IPC would be useful – and a review of the treatment records. It was noted that Glasgow water is hard on carbon steel but he MTHW is made of the same material and the same issues are not being noted within this. It was agreed that we should await the outcome from the expert and if necessary progress this with ICP and review the chemistry of the system. GC noted that this information is sensitive and should not be shared outwith this group. It was also noted that Suttons had declined to continue with the maintenance of the system due to similar failures in Belfast and Liverpool	
6.	**Point of Use Filters**	
	Issues were noted recently in two areas where contamination was found – 6A and PICU. Sudden high TVCs and Gram Negatives – 11 filters from various sinks and showers were removed for integrity testing. If it was found that these were not affected then another source of contamination was the cause. The filters were swapped out and further testing results in good results coming back. It was noted that these filters are impregnated with silver but if not properly cleaned can cause an insulation affect and the silver does not do its work. SOP was completed and agreed that alcohol and the process of cleaning agreed. Moving from the filter to the tap and not the other way round. The top of the filter can also be a source of contamination and should also be cleaned. Flushing regimens should be adhered to and the flow of water through the POUF as a possible contributory factor. IC had checked the area and the filters and noted that it looked as though something other than water had been put down the drains and could have been back sprayed up to contaminate the tap. It was noted that similar contamination was found in a shower head which obviously not back wash from drains but it was noted that this could have come from the people using the shower and then it not being cleaned properly which then prevents them from doing their job of self cleaning – this along with ensuring flushing regimen was full implemented appropriately for the stated time and flow of water. It was also noted that shampoo and body wash has been found in filters in other hospitals which in themselves are known to be good surfaces for bacteria to multiply. It was noted that although the showers did not reach the drain area some wards had requested longer hoses in order for them to reach their patients appropriately and it was agreed that if they can reach the shower basin or drain it negates the POUF. A previously noted issue with cross contamination in cleaning was highlighted nationally. It was noted that this was not an issue found anywhere else in the hospital and dirty filters is not necessarily the issues but to do with the clean but is was noted that coffee and soap has been seen on POUF previously and contamination of a filter does not mean there is an issue with the water but when seeing biofilm then it is a water issue	**KC further issues**
	Filter Removal – programme is ongoing with awareness that there is a potential risk for contamination behind the filters – the majority of the checks on this have come back clear – the process involved 3 samples prior to the removal of the POUF if any retrograde found then it is rechecked and if clear removed. The programme of removal of the filters that were located within the Schiehallion pathway that is no longer in use was in 5 stages – 1-3 now completed and DMA had requested that this is paused for a month to allow the labs to catch up with the large demand on them at this time. It was noted that 45 filters have been removed so far. It was noted that Legionella was found for the first time in 18 months and it was later discovered that the tap was not being flushed and used frequently once flushing was carried out appropriately and retested it was found to be clear and all other indications are that the water is good. Noted that Legionella is usually prevalent at this time of year.	**MR recommence removal programme and update**
	Service Contract DMA – this was in regard to TMV maintenance and agreed to remove from the agenda and discuss at BWSG	**BWSG agenda**
7.	**AOCB**	
	SD asked if the Beatson is being fully tested and not just the floors of the most vulnerable patients – MR confirmed that the Beatson is checked quarterly within the high risk areas but discussions on covering the whole building and agreed to update SD on this	**MR**
	CD at RAH – this was discussed in detail at the ICBEG – CP reported that a small group of relevant staff were being brought together to discuss the possible risk factors. All of the	**CP update on any progress**

	installation is completed but not yet switched on due to the possible issues within the NICU and SCBU areas that this covered. Other Boards in Scotland have been asked if they use CD within their maternity units and TW was asked to check with counterparts in NHS England. TW confirmed that they do use in their maternity including birthing pools etc but with carbon units used to filter where appropriate. TM noted that no water that babies will drink has CD including the special feeds units but anywhere else in the unit would be perfectly safe to do so. He suggested that a carbon filter is fitted for the milk kitchen just to be safe that there was no risk to that area whatsoever.	
	TM asked about protocols in place for reinstating closed wards or wards under utilised due to Covid closure. KC reported that in the South the testing has been carried out if there was a lack of occupation and agreement that auto flushers would be fitted to ensure flushing was continued. This worked well in the adult's hospital the frequency of the flushing was twice weekly. Results have been returned and there were no issues of note. It was noted that despite some wards being out of use for a period of time there were not issues of note to report across the Board.	-
8.	**Date of Next Meeting**	
	11th December at 2020 at 1.30am via MS Teams if necessary	

Water Review Meeting (Technical)
Friday 11thе December 2020 at 1.30pm
Meeting Held via Microsoft Teams

Present:

Gerry Cox (GC) (Chair)	Assistant Director Estates and Property
Tim Wafer (TW)	Consultant (Water Solutions Group)
Mark Riddell (MR)	Sector Estates Manager
Melvin McMillan (MM)	Estates Duty Manager
Al Leanord (AL)	Consultant Microbiologist
Sandra Devine (SD)	Acting Infection Control Manager
Dennis Kelly (DK)	Authorising Engineer
Alan Gallacher (AG)	General Manager Estates
Colin Purdon (CP)	Sector Estates Manager
Kerr Clarkston (KC)	Estates Manager
Alex Marek (AM)	Consultant Microbiologist

1.	**Apologies**	**Action**
	Iain Kennedy (IK), Ian Storrar (IS), Annette Rankin (AR)	
2.	**Minute of Previous Meeting 18th September 2020**	
	The notes of the meeting were recorded as an accurate record of the meeting	**-**
3.	**Items from Previous Notes**	
	Statistician Input – This was proposed to reduce the results feedback and allow the ability to pull out reports on specifics. eHealth are involved but not clear on the outcome or status of this. SD noted specific technology that is required to ensure appropriate context can be pulled out and will be beneficial to see patterns and pathways AL confirmed that the company originally identified are no longer able to assist Post Meeting Note – William Edwards was not aware of any e-health involvement	**To be progressed**
	Chilled Water issues. Following discussion with our legal advisors, a subject matter expert has been appointed. Unfortunately, this expert had to step away due to conflict of interest but another expert has been employed to take this forward. Some discussions undertaken but no formal feedback at this time	**Update next meeting**
	POUF – still on 62 day filters and agreed with AL during August and September when there was several out of specs in PICU and 6A. Filters had been changed at each out of spec. during October the out of specs disappeared completely - discussed with AL and further samples taken with nothing found but considered environmental factors and facilities reviewed flushing and cleaning regimes at the same time which could have impacted the results.	
	Beatson Sampling – Additional sampling has been requested at the Beatson. It was agreed that the request be raised at the BWSG. AG noted that we should be careful in not over sampling but should stick to the agreed sampling regimens across the Board.	
	CD Installation at RAH – CP reported progressing with this and all interested parties are happy with the progress. Scotmass had been on site to install the final monitors but found to them damaged and this delayed the installation until next week. The system will be switch on in the New Year and this will be discussed at BWSG	
4.	**Results**	
	Out of Specification Results – KC showed a graph and explained that the samples taken over the week prior with green reflecting within spec, Orange for out of specs. Out of specs were reported within the tank rooms including drains, filtered water tanks and whb drains within wards and common areas. Out of Spec from pall filters. Retrograde contamination found in August/September with high results.	

	Further discussions centred on the possibility of retrograde bacteria and noted that there is a drop in October – ambient temperature? Showing a lower figure in November as far as is known. TW noted that this follows trends normally seen across the country. AM asked what were the out of specs and where were they sampled from. AL reported that some work was carried out in the tank rooms and stenotrophomos was sampled for aggressively. This was found to be high during the summer months and lower in the winter suggesting that the contamination might be related to the temperature of the incoming supply? MM had previously noted that the two water mains coming into the hospital have two different temperatures. One from Clyde tunnel and one across the Clyde. The tunnel route water is always slightly warner. TW noted that we could consider different POU filter designs, which allowed for increased spacing between filter outlet and the basin surface. DK noted that there are other filter suppliers that we could review alternatives from, some are offset from the drain including TSafe. The newer design TSafe POUF are copper coated which is proven to reduce pseudomonas growth. AG noted that we had already reviewed the different filters available at the beginning of the issues with water. Given the amount of work it took to get to the agreed filter he questioned whether we should revisit the decision at this time. TW noted that some of the issues found initially have been resolved and the new filters are of better design. In areas of repeated failure, we could consider the use of a new design filter to determine if this was an issue. AM noted that we should consider the sink position and see them in action prior to any agreement from the IC team.	
	Statistician Input – AL was asked to provide any further information on where we are with this and asked to update AM on the purpose of this. AL noted that the progress of this has been halted due to restrictions of Covid 19 second wave	
	Basement Tank Rooms – covers to the drains now fitted. KC noted that from the increase in sampling of the filtration units out of specs found that the sampling points may be contaminated. An exercise to increase the CD in the backwash was carried out. DMA asked to replicate the sampling regimens and already a noted improvement was seen. A full set of data will be reviewed prior to coming to any conclusions. TW suggested to bring a paper to the next meeting or before – agreed to identify what is involved and pass to GC. KC showed a drawing of the filtration units which laid out the backwash area being increased and agreed that a longer contact time would be required to ensure that there was sufficient contact to kill of any additional colonisations. AM asked if the filters can be changed – they have a lifespan of 10 years but changed every 6 months and checked and a further backwash carried out.	**TW**
5.	**AOCB**	
	Questions raised by HPS and HFS – why do we still have these microorganisms after adding CD. Noted that we test for all organisms and although we are finding these most normal hospital water checks would not find them as part of routine checking but we are checking for everything and anything that is possible there. It is unrealistic to say we should have no organisms at all. From 2019 every water sample is checked for any gram negative but not specifics. National guidance is being written and aware that the list of organisms is getting longer. We should be testing but guided by clinical outcomes. TW noted that the more we look the more we will find but is it all harmful and the possible impact of these and at what level do we need to take actions on these as some are not harmful although noted that some can be to some patient groups specially immunocompromised. AL was not convinced that every water sample we have taken has impacted a patient noting that they are in contact with water out with the hospital setting ie at home. AL noted that the adaptive stenos have impacted patients and noted some found in the tan rooms have not infected any patients and that just because it is there does not mean it is going to impact patients or have the ability to even get to the patients. This would be to control what was in the water system and control what we do find or have.	
6.	**Date of Next Meeting**	
	TBC	

Water Review Meeting (Technical)
Thursday 22nd April 2021 at 1.30pm
Meeting Held via Microsoft Teams

Present:

Gerry Cox (GC) (Chair)	Assistant Director Estates and Property
Tim Wafer (TW)	Consultant (Water Solutions Group)
Mark Riddell (MR)	Sector Estates Manager
Sandra Devine (SD)	Acting Infection Control Manager
Dennis Kelly (DK)	Authorising Engineer
Alan Gallacher (AG)	General Manager Estates
Colin Purdon (CP)	Sector Estates Manager
Kerr Clarkston (KC)	Estates Manager
Alex Marek (AM)	Consultant Microbiologist

1.	**Apologies**	**Action**
	Iain Kennedy (IK), Ian Storrar (IS), Annette Rankin (AR), Melvin McMillan (MM), Al Leanord (AL)	
2.	**Minute of Previous Meeting 11th December 2020**	
	The notes of the meeting were recorded as an accurate record of the meeting	-
3.	**Items from Previous Notes**	
	Basement Tank Rooms – paper included will cover this issue	
	Statics input – agreed that this has been delayed for the moment	
	Chilled Water QEUH – review or repair with expert witness carried out earlier today – report will be forthcoming and outcome will be noted	
4.	**Out of Spec Results**	
	KC reported and shared information on screen of the out of spec results but noted this had not been updated for 2021 at this time as the Interteck results were awaited. TW noted that he would provide ability to view the results directly from Interteck. Usually need to wait for DMA to update the spreadsheet	TW
	KC noted that there were peaks and troughs through the year with an increase report in the summer months. It was not clear if this was due to seasonal change or something else. It was agreed that this will be monitored through this year to determine if this was the case. Definition of out of spec included moulds, TVC. KC shared the chart showing both adult and children's hospital. GC questioned if these were to show the CL02 impact – yes but it also flags any issues within the system. It was noted there was an increase in August and September on PALL filters. If this was patient or visitor related then it would be seen in a pattern and not the gradual increase seen over the summer months. Failures of POUF – review of drains was carried out as a possible reason for the readings and cleaning carried out. It was reported that the readings were in the normal bracket again around in October. Noted that once the filter was replaced the results reported as normal again. Previous testing showed a little retrograde contamination within the outlet spout and the under surface of the filter – was it possible to clean and disinfect the surface to prevent discarding the POUF. DMA requests that filters are replaced instead of cleaning. It was suggested that we try cleaning the filter if out of specs are found again in a low risk areas that we carry out a clean of the areas as noted then test again to determine if the issue is with water or external issues. What is the downside for this – AM noted that there is too much uncertainty and a method statement should be drawn up and reviewed with agreement reached prior to commencing any such programme. It was noted it would be an interesting experiment to try. It was clear that liquids are still being put down the drains despite a campaign of information to both patients, visitors and staff that this should not be done in patient sinks.	

	TW suggested that they now have POUF testing rigs that they could try this – recognised that as part of the cleaning regimen the POUF should be cleaned.	
	KC shared a further filter spreadsheets showing March and April showing feedback. Steno was reported but KC noted that once the filter was changed then the results come back clear. Is this systemic contamination following touch and other matters or is there anything coming through the water. All samples are post filter with other samples being taken from non-filtered taps. KC reaffirmed that once the filter is changed the results are then shown to be free from contamination. Agreed that this is retrograde contamination and not an issue with the water. Would this also be found in the drain and would this be user error or inadvertent touching causing this contamination. DK noted that general water samples are showing good compared to pre CL02. It appears to be doing its job – water is disinfected then put through a filter and therefore appears to be retrograde. GC asked if the same bacteria was found in the drains checks. This was previously checked and discussed taking out the failed outlet and identify the organisms within the drain environment to determine if this is seen but it is known that bottle traps are a source of issues. AM asked if there is an approve drain sampling methodology – there are differing methods but found that sponge swabs give better results rather than the sticks as previously used - agreed to speak to AL to determine the best way forward. If we are confident that the water has no issues and the POUF is causing out of spec results do we then consider removing the filters if we are confident in the water quality but need to be assured that there are no issues with the drains. KC noted that in 90% of the samples there was nothing detected this covered 6000 checks. 2% of the out of specs came from taps with POUF. GC noted that if we remove the filters and still have the contamination do we not then run the risk of contamination entering the spout. Yes – the filter is a safety net to prevent anything going back up the spout of the tap. AM noted that with the filter being much closer to the drain hole than the spout would be therefore there could be some splash back and contamination. It was agreed that the POUF were installed prior to CL02 being fully installed but now that the installation is complete and is providing quality water then it is now time to consider how we remove these over a period of time and agreed this would be difficult to do even though nothing is being found within the water. KC noted that the majority of out of specs being found are from DRS units and prep rooms with only very occasional from wards and patient rooms – Those found are random with no apparent pattern to these and go as quickly as they appear. AM noted that the majority of hospitals will find post flush results out of spec and after flush are clear. SD noted that she could not recall any recent patient infection that corresponded with any out of spec results. TW noted that the PALL filter does bring the spout closer to the drain and may be time to look at other types of filters – this was not the point of the discussion but to determine if the filters were giving the out of spec or was there issue with the water – it was determined that this was likely the filter causing the out of spec but we would need to be careful and show this fully checked prior to planning any removal with full approval from the IC and ICN staff and agreed that this could commence in lower risk areas initially and agreed that there is always a risk of retrograde contamination. Agreed that testing would be carried out on non-filtered taps to see if there was anything being found – KC agreed that this could be done. AG noted that the purpose of the CL02 installation was to ensure that the water was free from organisms and this has been shown and agreed that we should be testing the water with no filtration to ensure that the quality is what is required	**AM**
5.	**Removal of Filters**	
	MR shared a copy of spreadsheet circulated. Removal programme on the non Schiehallion pathway which commenced mid /end 2020 with around 50% of the filters being removed. At this point labs were overwhelmed and it was determined that this programme was to be halted. From 1st May this will recommenced within the non Schiehallion pathway which includes 31 filters to be removed. Discussions are required on removing filters from other areas of the hospital. TW asked if would be possible that the filters that are removed and placed in sterile bag and sent for investigation to determine what is in these if anything. This would include a check of the surface and interior. Agreed this will be carried out in conjunction with Intertek and DMA. AM asked that a small review of an area prior to the POUF removed and then check weekly after this to determine if there are any issues being found post filter removal. Agreed that there is a set process for the removal of these and	**MR**

	agreement needs to be reached with ICD prior to this. Agreed to develop a programme of removal of the filters but it was noted that there are thousands of filters in the hospital but agreed to carry out a sample are to test first and agreed there is no margin for error in this. It was noted that given the numbers of these and the additional cost to the Board it was important to commence a programme of removal if we are satisfied that the water quality is acceptable. Agreed to progress with a small area initially with an agreed schedule of checks before progressing further. An action plan of the locations noting whether high, medium or low risk areas and circulate this to members of the group for their input to come up with a strategy and way forward. It is noted that we need to be aware of additional work for the labs team and their ability to cope with whatever plan is agreed on. A review of sampling levels, patient group and flushing regimens and with CL02 in place should testing be reduced – monthly testing in these areas would be normal in general areas. It was noted that with the removal of the POUF the CL02 will be able to run through the system at appropriate pace. It was noted that other sites in Glasgow have CL02 in place for many years with no issues noted which don't have POUF in place	
6.	**Basement Plant Room**	
	Issues were noted last year with mould growth. It was agreed at that time to install checks and this is shown in the graph shared with the group. It was noted that there are peaks and troughs through the year. It is not clear what effect on bacteria found within this area. KC shared further information collated showing the effect of tank results seeing less within the backwash but moulds still appearing – a change to the protocol for cleaning prior to sampling as it was thought that the cleaning material used was not sufficient to provide appropriate clean prior to sampling. From this it would be easier to determine if retrograde. Nothing is being found within the tanks or anything in the water supply that reflects this so considered the sampling points were the issue. Discussed the point of continuing to check this area if we are aware of them but having no impact on the water coming from the taps. It was agreed that it is not usual to carry out checks on this particular area of any hospital water system – what is it we are looking for what does it achieve. TW noted that QEUH has a very robust CL02 system and the results tell us that we have one of the best water qualities in the healthcare environment. Agreed that basement area has in intrinsic issue that is not impacting the water quality from the taps agree that an RA should be written up on why this testing has been stopped with appropriate review stating current position is not showing a requirement to continue. Filtrate tanks were checked on 23rd March within parameters or nothing detected showing very clean tanks post filtration	**AG/GC**
	Pre filtration chlorination – the last meeting noted that some microbiological issues were found on the filtration plants. At the time of original design Veiola would not allow levels wanted on the filters. They have now changed this and we can now carry out higher dosing in the raw water tanks – the option to put additional dosing pumps on the tanks and would be simple to complete and but is this necessary? – GC noted previously positive response to this – agreed to obtain quotes and submit a project request. TW agreed to pull together a specification and circulate to providers for pricing – members agreed. AG did ask for some time to review the paper prior to any work going forward and GC will revert to TW on the outcome of this review prior to taking this forward.	**GC/TW**
7.	**AOCB**	
	Name of the group – covering other matters but remaining to discuss the water issues so has the same objective as original set up – Terms of Reference to be created, circulated and agreed	**GC**
8.	**Date of Next Meeting**	
	Agreed that work agreed to be completed in the interim should progress – POUF removal as agreed and possible additional pre filtration chlorination and the next full meeting of the group will take place in July 2021	**All**

SCOTTISH HOSPITALS INQUIRY

Bundle of documents for Oral hearings commencing from 19 August 2024 in relation to the Queen Elizabeth University Hospital and the Royal Hospital for Children, Glasgow

Bundle 10 - Water Technical Group / Water Review Group Minutes

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