



25 Upton Grey Close

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## INTRODUCTION

This report relates to a **Review** of the Legionella Risk Assessment that was carried out by Freeston Water Treatment in April 2009; this is the latest Risk Assessment for this building. The Review Survey was carried out at 25 Upton Grey Close, Harestock, Winchester, Hants SO22 6NE. The Review of Recommendations highlighted in the previous Risk Assessment was undertaken in order to comply with the Health and Safety Executive requirements on the control and prevention of Legionellosis. This Review has been carried out as asked for by Hampshire County Council in accordance with ACoP L8 'The control of Legionella bacteria in water systems' (APPROVED CODE OF PRACTICE & GUIDANCE) only:

The Review has been limited to the terms of reference agreed between Hampshire County Council and Freeston Water Treatment Ltd. Observations relating to system conditions and other factors applicable to the requirements of L8 have been recorded during the Survey and specific references are made to compliance with the ACoP in the Observations section of the report.

A recommendations section concludes the report. ACoP L8 places responsibility on employers and others to prepare a scheme for preventing or controlling the risk from Legionellosis. Adoption of a monitoring scheme in conjunction with a regime of preventative maintenance and associated record keeping will meet these requirements.

## BACKGROUND TO LEGIONELLA

Legionella is the bacterium that causes Legionnaires disease. Of this bacterium, Legionella pneumophila is the species most commonly associated with disease outbreaks. Legionnaire's disease is identified as a pneumonia type of infection of the lower respiratory tract. The infection is most commonly acquired by the inhalation of airborne droplets or particles containing viable Legionella. Exposure to Legionella can also cause a short feverish illness without pneumonia, known as Pontiac Fever.

Research and investigations indicate that the occurrence of Legionella contamination is greatest in water cooling towers, evaporative condensers, hot and cold water services, water spray humidifiers, air washers, spa baths and pools where water is agitated and re-circulated. The contamination from a cooling water tower will cover a far larger area than any other likely source.

Sediment, scale, and organic materials present in water systems can provide nutrients and give protection for Legionella. Legionella has been shown to colonise certain types of water fittings, pipe work and materials used in the construction of water systems. The presence of these materials may provide nutrients for Legionella and make eradication difficult. Other organisms in water systems such as bacteria, amoeba and algae can provide a suitable habitat and nutrients in which Legionella can survive and multiply.

The formation of biofilms within water systems is undesirable and may also provide harbourage and favourable conditions for Legionella growth. The presence of Legionella in biofilms and in enclosures within protozoa may protect the organisms from any remedial measure employed to eradicate the bacterium.

Legionella is most likely to proliferate in water systems that have a temperature between 20°C and 50°C. Human blood temperature of approximately 37°C is the most ideal temperature for proliferation. Stagnant water within the above temperature range appears to provide the ideal conditions for proliferation of Legionella.

Legionella will survive at temperatures below 20°C but is considered to be in a dormant state with no growth activity. The bacterium does not survive temperatures maintained consistently at 60°C or above.

## REVIEW COMPLIANCE

The Review was commissioned in order to identify and assess the risk of Legionellosis from the water sources on the premises using the previous Risk Assessment. General and specific observations on the systems made during the course of the Survey are also recorded and the more general requirements of L8 are also commented on where applicable.

The specific observations made in this Review, together with the most recent Risk Assessment should be read in conjunction with the practices and procedures detailed in the recommendations section and also with ACoP L8.

The Assessment should be reviewed regularly (at least every two years) and whenever there is reason to suspect it is no longer valid. An indication of when to review the Assessment and what needs to be reviewed should be recorded.

This may result from example:

Changes to the water system or its use

Changes to the use of the building in which the water system is installed

The availability of new information about risks or control measures

The results of checks indicating that control measures are no longer effective

A case of Legionnaires disease/Legionellosis is associated with the system

## SITE REVIEW

**This Review relates to observations made and information supplied from the existing Risk Assessment together with information supplied by others.**

During this Review Survey it was identified that a new water systems logbook has been issued for 2011 by Hampshire County Council; the logbook was seen to be in a poor state as monitoring was found to be very intermittent. It was seen that virtually all monitoring and checks have not been carried out since May 2011 this is not satisfactory and must be addressed as soon as possible. There have been no audits carried out on the logbook documentation by the site managers to determine if monitoring is being carried out; the single logbook covers all buildings from 23A & B, 25 and 27 Upton Grey Close. The duty holder, responsible persons and operational staff have been nominated in writing within the logbook.

There are in total four buildings that require monitoring and checks to be carried out; there is no monitoring being carried out on the hot water calorifiers in any of the buildings; the last records seen in the logbook were for February 2011; the flow and return temperatures should be monitored every month and recorded; this must be carried out and started as soon as possible.

Monthly temperature monitoring of the hot and cold water systems within the four buildings has only been carried out in February, April and May 2011; no monitoring has been carried out since May 2011 this is not satisfactory and must be addressed as soon as possible.

Flushing of the four buildings water outlets as well as infrequently used outlets has been carried out and recorded within the logbook documentation; this does not appear to be being carried out weekly. It appears from the records that some flushing is carried out fortnightly and again it appears from records that this was last carried out in May 2011; this is not satisfactory and should be addressed as soon as possible.

Showerhead cleaning and disinfection is being carried out but it is not being carried out on a weekly basis as recommended by Hampshire County Council; again this appears intermittent. Showerhead descaling records appear that not all showerheads are being descaled again the showerhead cleaning and descaling was last carried out in May 2011.

TMV monitoring is not being carried out within the four buildings; records indicate that the last TMV monitoring was carried out in February 2011; this is not satisfactory and should be addressed as soon as possible.

TMV servicing appears to be being carried out on an annual basis by contractors EMCOR this was last carried out in May 2011; certification was seen filed in a separate folder.

It is of paramount importance that all monitoring and checks are carried out and kept up to date; this will be achieved if regimes are put in place and the monthly logbook audit is carried out by the site manager.

I would recommend the site be issued with a good digital thermometer and the appropriate probes to carry out monitoring correctly.



## COLD WATER STORAGE

There is no cold water storage within 25 Upton Grey Close all water services are supplied directly from the mains water service. There is an F&E tank located within the roof void but is not part of this Review.

## HOT WATER STORAGE

Hot water storage within 25 Upton Grey Close is by one Ariston hot water calorifier located within the laundry cupboard space. The calorifier has factory fitted insulation located beneath the outer metal casing; the calorifier is heated by the LTHW boiler and also has two electric elements at the base of the vessel for back up. The calorifier has a return system this is fitted with a single return pump. At the time of the original Risk Assessment it was recommended that temperature gauges be fitted to the flow and return pipe work to aid with monthly temperature monitoring; this has not been carried out. The calorifier is supplied directly from the mains water services via a pressure reducer.

Monthly temperature monitoring of the calorifier flow and return system is not being carried out and recorded in the logbook documentation; I would recommend this is started as soon as possible.

Domestic water services should operate at temperatures that prevent the proliferation of Legionella. L8 specifies that hot water should be stored at no less than 60°C and distributed at no less than 50°C, obtainable at user outlets within one minute of opening.

Building 25 calorifier flow and return temperatures at the time of this Review were:

Calorifier Flow	57.0°C	This is Not Satisfactory
Calorifier Return	52.0°C	This is Satisfactory

Hot water should be stored at 60°C at all times; I would recommend adjustment to achieve this. The hot water return temperature should be maintained at 50°C or more at all times.

25 Upton Grey Close domestic hot water calorifier; below recommended storage temperature of 60.0°C recorded at the time of this Review. Temperature monitoring should be carried out monthly on flow and return system.



Calorifier hot water circulating / return pump; good return temperature recorded at the time of this Review. Temperature monitoring should be carried out monthly on flow and return system.



## GENERAL

It was recommended in the original Risk Assessment that the adjustable showerheads within building 25 be replaced with new non adjustable showerheads this has not been carried out. I was informed that the procedures implemented by Hampshire County Council regarding the cleaning and disinfection and descaling are not being carried as recommended.

All tap outlets and infrequently used outlets within buildings 25 are not being flushed on a weekly basis it appears to be being carried out sporadically and has not been carried out since May 2011.

Scale build up on tap outlets can act as a nutrient for bacteria proliferation; I would recommend that tap outlets be cleaned and descaled on a regular basis.

The TMV's within building 25 are being serviced and maintained by contractors EMCOR; this was last carried out in May 2011; it is assumed this is carried out annually.

It is unknown when Legionella or bacteriological samples were last taken; it was recommended in the original Risk Assessment that this is carried out on an annual basis or more frequently in areas with 'at risk patients', for example those who are Immuno-Compromised; no records were seen for water sampling at the time of this Review.

The deadleg pipe work that was highlighted in the original Risk Assessment has not been removed.

### General

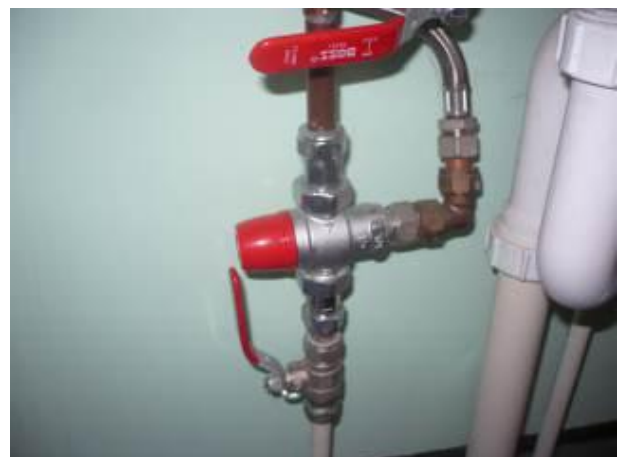
Ensure all showers are used regularly and start cleaning and disinfection regime as implemented by Hampshire County Council as soon as possible.



Showerheads have not been changed to the non adjustable type as recommended in the original Risk Assessment.



Continue to service, maintain and adjust if required all TMV's; record when carried out.



Deadleg pipe work highlighted in the original Risk Assessment in the roof void is still in place; recommend removal.



Deadleg pipe work highlighted in the original Risk Assessment in the roof void is still in place; recommend removal.



Deadleg pipe work highlighted in the original Risk Assessment in the roof void is still in place; recommend removal.



## HOT & COLD WATER TEMPERATURES

Domestic water services should operate at temperatures that prevent the proliferation of Legionella. L8 specifies that hot water should be stored at no less than 60°C and distributed at no less than 50°C, obtainable at user outlets within one minute of opening. Cold water should be stored and distributed at no more than 20°C.

The following water temperatures were taken at random as follows:-

Ground Floor Toilet Wash Basin		
Hot	54.0°C to TMV	Satisfactory
	40.2°C from TMV	Satisfactory
Cold	18.5°C	Satisfactory
Ground Floor Laundry Sink		
Hot	53.0°C to TMV	Satisfactory
	39.2°C from TMV	Satisfactory
Cold	17.9°C	Satisfactory
First Floor Toilet Wash Basin		
Hot	56.5°C to TMV	Satisfactory
	42.6°C from TMV	Not Satisfactory
Cold	Tap Not Working	Not Satisfactory
First Floor Room 1 Wash Basin		
Hot	57.0°C to TMV	Satisfactory
	41.7°C from TMV	Not Satisfactory
Cold	18.7°C	Satisfactory

TMV temperature reference from NHS Estates Guidance (1988) and Thermostatic Mixing Valve Manufacturers Association (TMVA).

## RECOMMENDATIONS & SUMMARY

### During the Risk Assessment several items were recommended:-

**Commence temperature monitoring of the domestic hot and cold water system and record in the logbook.**

This has not been carried out correctly on a monthly basis and has not been carried out since May 2011. I would recommend this is addressed as soon as possible

**Manually check circulating pump monthly to ensure effective operation.**

No record of this being carried out.

**Fit temperature gauge to flow and return pipe work on calorifier.**

This has not been carried out; flow and return temperatures should be recorded on a monthly basis.

**Ensure calorifier is adjusted to achieve a storage temperature of 60°C and return temperature of 50°C.**

This has not been carried out; storage temperature below 60.0°C at the time of this Review.

**Purge calorifier to drain at least six monthly and record when carried out and condition of water.**

No record of this being carried out.



**Twice weekly flushing of all low use infrequently outlets - showers, toilets, hand basins, sinks, hose reels etc and record when carried out.**

All tap outlets and infrequently used outlets are not being flushed weekly and has not been carried out since May 2011.

**Bacteriological and Legionella water samples to be taken annually or more frequently if temperatures fall outside limits or the home has 'at risk' clients.**

No record of any water sampling being carried out.

**Thermostatic mixing valves should be serviced and maintained as per the manufacturer's recommendations.**

This appears to be carried out annually by contractors EMCOR; this was last carried out in May 2011.

**Thermostatic mixing valves are to be adjusted to achieve the correct outlet temperatures.**

This appears to be carried out annually by contractors EMCOR; this was last carried out in May 2011.

**Clean and disinfect showerheads quarterly. Record when carried out.**

Showerheads are not being cleaned and disinfected weekly and descaled on a quarterly basis as implemented by Hampshire County Council; it has been carried out intermittently and was last carried out and recorded in May 2011.

**Replace adjustable spray showerheads with non adjustable item as recommended in HTM 04-01.**

This has been carried out.

**Ensure washing machines are appropriate WRAS approved healthcare units.**

It is assumed the washing machines are appropriate for these care units.

**Remove dead legs.**

This has not been carried out; deadleg pipe work seen in roof void.

**It is recommended that the following are carried out:-**

- Start with all current procedures implemented by Hampshire County Council and record in water systems logbook as soon as possible.
- Start monthly temperature monitoring of all domestic sentinel hot and cold water and additional outlets in all buildings and record in water systems logbook as soon as possible.
- Start monthly temperature monitoring of the hot water calorifier flow and return temperatures in all buildings and record in water systems logbook as soon as possible.
- Start weekly and twice weekly flushing of all tap outlets and infrequently used outlets in all buildings as soon as possible.
- Start purging all calorifiers to drain on at least a six monthly basis and record in the water systems logbook when carried out.
- Bacteriological and Legionella water samples to be taken annually or more frequently if temperatures fall outside limits or the buildings have 'at risk' clients.
- Continue servicing and maintaining TMV's in all buildings carry out adjustment to achieve correct water temperatures where required.
- Ensure all staff have up to date Legionella Awareness training as soon as possible.

## SUMMARY

As reported a new water systems logbook has been issued by Hampshire County Council for 2011 for buildings 23A & B, 25 and 27; one logbook is being used for all buildings and was found to be in a poor state due to the fact the procedures implemented by Hampshire County Council are not being carried out. The ACoP L8 recommends that monitoring of all domestic water systems be monitored and recorded in a water systems logbook; this should be addressed as soon as possible.

It should be ensured that all monthly hot and cold water systems in all buildings are monitored and recorded in the logbook documentation; this must be started as soon as possible. The calorifier flow and return monthly temperature monitoring in all buildings must be started as soon as possible and recorded in the water systems logbook; the circulating return pump should be checked for the correct operation on a monthly basis; this should be carried out in all buildings.

As recommended by Hampshire County Council weekly and twice weekly flushing of all tap outlets and infrequently used outlets in all buildings should be started as soon as possible and recorded when carried out.

I would recommend that the site staff be supplied with a digital thermometer with the appropriate immersion and surface probes to carry out monitoring of the calorifiers correctly. Both probes can be used to carry out temperature monitoring of the tap outlets and also for the monitoring of the TMV's which at present is not being carried out. Sentinel TMV's should be monitored on a monthly basis and recorded in the water systems logbook when carried out.

It should be ensured that the water systems logbook be audited on a monthly basis by the site manager and the relevant section in the logbook be signed when carried out; this will ensure all the checks and procedures that are in place are being carried out and are maintained up to date.

It was recommended in the last Risk Assessment that all adjustable showerheads be replaced with the non adjustable type; this has not been implemented.

I would recommend that the procedures and checks that have been implemented be started; and recorded within the logbook documentation. I would also recommend that all staff have up to date Legionella awareness training.

It must be ensured that all hot water calorifiers in all buildings are adjusted to store hot water at 60.0°C and the return to maintain 50.0°C or more at all times.