



Highfield House

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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 Highfield House, 118 Church Road, Bishopstoke, Eastleigh, Hampshire SO50 6DR. 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 temperature monitoring of the domestic hot and cold water systems is being carried out. A new water systems logbook has now been issued for 2011 by Hampshire County Council; all monitoring and checks are being recorded within the logbook and at the time of this Review the monthly monitoring was found to be up to date as of May 2011 and the logbook was in a good order. The duty holder and responsible persons have been nominated in writing but the operational staff have not been identified; I would recommend the operational staff that carry out the monitoring procedures be named in writing.

The procedures which have been implemented by Hampshire County Council regarding the showerheads is being carried out and recorded within the logbook documentation. The showerheads are being cleaned and disinfected on a weekly basis and the showerheads are being descaled on a quarterly basis; again this is being recorded when carried out. There is still an adjustable showerhead but this is fitted to the Arjo bath. The Arjo bath is fitted with inline strainers on the water supplies; I would recommend these are cleaned on a regular basis as these are ideal areas for bacteria proliferation.

The calorifier flow and return temperatures are being recorded monthly in the water systems logbook. The weekly flushing of all tap outlets and also infrequently used outlets is being carried out and recorded in the water systems logbook; TMV temperature monitoring is also being carried out and recorded. The TMV's within Highfield House are being serviced and maintained by contractors Carillion; this was last carried out in April 2011 adjustments made where necessary. The water systems logbook is being audited on a monthly basis and recorded when carried out.

## **COLD WATER STORAGE**

There are no cold water storage tanks at Highfield House; all cold water is supplied directly from the mains water services.

## **HOT WATER STORAGE**

Hot water storage within Highfield House is by one Megaflo high efficiency calorifier with a capacity of 210 litres; the calorifier is located in the first floor laundry cupboard space. The calorifier is supplied directly from the mains water services via a pressure reducer and inline scale reducer. The calorifier is fitted with a return system this has a single circulating / return pump fitted; temperature gauges have been attached to the flow and return pipe work to aid with monthly temperature monitoring. There are no records for calorifier purging so it is assumed this is not carried out. The calorifier has factory fitted insulation located beneath the outer metal casing; distribution and return pipe work was seen to be well insulated.

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.

**The calorifier flow and return temperatures at the time of this Review were:**

<b>Calorifier Flow</b>	<b>63.0°C</b>	<b>This is Satisfactory</b>
<b>Calorifier Return</b>	<b>56.0°C</b>	<b>This is Satisfactory</b>

Megaflow hot water calorifier serving all hot water outlets within Highfield House; good storage and return temperatures at the time of this Review.



Calorifier circulating/ return pump good return temperature at time of Review; pump is checked monthly to ensure correct operation and recorded when carried out.



Local water heater located in the ground floor kitchen serving kitchen area only.



## GENERAL

There are showers within Highfield House; most showers are fitted with non-adjustable showerheads as recommended in the last Risk Assessment; there is one shower attached to the Arjo bath that is still adjustable. The procedures implemented by Hampshire County Council regarding the cleaning and disinfection and descaling are being carried out and are up to date.

All outlets and infrequently used outlets within Highfield House are being flushed on a weekly basis and this is being recorded within the water systems logbook when carried out.

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 Highfield House are being serviced and maintained by contractors Carillion; this is assumed being carried out on a six monthly basis. All maintenance records for the TMV's are being filed in a separate folder from the water systems logbook. The TMV's are adjusted to meet the correct water temperatures by contractors during servicing and maintenance; this was last carried out in April 2011.

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.

There are inline strainers fitted on the water supplies to the Arjo bath; these should be cleaned on a regular basis as they are ideal areas for bacteria proliferation.

### General

Ensure all showers are used and continue with current cleaning and descale regime that has been implemented.



Ensure inline strainers fitted on the water supplies to the Arjo bath are cleaned on a regular basis; as they are ideal areas for bacteria proliferation.



Continue to service, maintain and adjust if required all TMV's on a six monthly basis; record when carried out.



## 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:-

First Floor Laundry Sink		
Hot	62°C to TMV 44.1°C from TMV	Satisfactory Not Satisfactory
Cold	13.5°C	Satisfactory
First Floor Bedroom 5 Wash Basin		
Hot	62.0°C to TMV 39.0°C from TMV	Satisfactory Satisfactory
Cold	14.0°C	Satisfactory
Ground Floor Bedroom 2 Wash Basin		
Hot	61.0°C to TMV 43.3°C from TMV	Satisfactory Not Satisfactory
Cold	13.4°C	Satisfactory
Ground Floor Staff Room Wash Basin		
Hot	63.0°C to TMV 41.4°C from TMV	Satisfactory Not Satisfactory
Cold	15.4°C	Satisfactory

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

## RECOMMENDATIONS & SUMMARY

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

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

This is now being carried out and recorded in the water systems logbook.

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

This is checked monthly and recorded.

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

Temperature gauges have now been fitted to the flow and return pipe work.

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

No record of this being carried out.

**Internally inspect calorifier annually and descale if required.**

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.**

Weekly flushing is being carried out on all outlets and also on infrequently used outlets and recorded when carried out.

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

No record of any water sampling being carried out.

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

Showerheads are being cleaned and disinfected weekly and descaled on a quarterly basis; this is recorded when carried out.

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

This is being carried out assumed on a six monthly basis; last carried out in April 2011 by contractors Carillion.

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

This is being carried out at the time of the service and maintenance schedule.

**Replace all adjustable spray showerheads with non adjustable items as recommended.**

Showerheads all are non adjustable type with the exception of the Arjo bath.

**Ensure washing machines are WRAS approved for health care units.**

The washing machine is WRAS approved.

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

- Continue with all current procedures implemented by Hampshire County Council and continue to record in water systems logbook.
- Continue monthly temperature monitoring of all domestic sentinel hot and cold water and additional outlets and record in water systems logbook.
- Continue monthly temperature monitoring of the hot water calorifier flow and return temperatures and record in water systems logbook.
- Start purging calorifier 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 home has 'at risk' clients.
- Ensure inline strainers fitted to Arjo bath are cleaned on a regular basis.

## SUMMARY

As reported a new water systems logbook has been issued by Hampshire County Council for 2011 for Highfield House and monthly temperature monitoring is being carried out by site staff; at the time of this Review the logbook was seen to be up to date and in a good order. I would recommend that the operational staff carrying out the monitoring be nominated in writing and recorded within the logbook documentation.

I would recommend that the current procedures and checks that have been implemented be continued; and continued to be recorded within the logbook documentation.

I would recommend all staff involved with Legionella control have Legionella awareness refresher training on an annual basis.

*In accordance with ACoP L8 (2001), Paragraph 27 – The Risk Assessment must be reviewed regularly and/or whenever there is reason to believe that the original assessment may no longer be valid.*

*We cannot guarantee that all pipework passing underground or through floors, walls and ceilings has been traced, and it is possible that certain system dead-ends or deadlegs may not have been identified. As a result the schematic diagram(s) contained within this report only detail the visible or assumed pipework.*

*Whilst every effort has been made to ensure the accuracy of the content of this document, Freeston Water Treatment Limited will accept no responsibility for any omissions.*