



**Meadowcroft**

## CONTENTS

INTRODUCTION	Page 3
BACKGROUND TO LEGIONELLA	Page 4-5
REVIEW COMPLIANCE	Page 6
SITE REVIEW & PHOTOGRAPHS	Page 7-14
HOT & COLD WATER TEMPERATURES	Page 15-16
RECOMMENDATIONS & SUMMARY	Page 17-21

## INTRODUCTION

This report relates to a **Second Review** of the Legionella Risk Assessment that was carried out by Freeston Water Treatment in February 2008; this is the latest Risk Assessment for this building. The Review Survey was carried out at Meadowcroft, Whitchurch Close, Aldershot Hampshire GU11 3RU. The Review of Recommendations highlighted in the previous Risk Assessment Review 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; monitoring and checks are being recorded within the logbook but most were found to have been carried out sporadically; for instance there is no temperature monitoring records for March and April 2011. The showerhead and hose cleaning and disinfections have no records of being carried out from March 14<sup>th</sup> to May 16<sup>th</sup> and TMV temperature monitoring again has no records for March and April 2011. It must be ensured that all monitoring and checks are kept up to date; this will be achieved if the monthly logbook audit is carried out by the site manager; at the time of this Review no audits appear to have been carried out on the logbook documentation.

The calorifier flow and return temperatures are being monitored monthly and recorded; it was found during this Review that the calorifier flow and return temperatures were very high; this could be down to water sampling being carried out and positive results being obtained. At the time of this Review no water sampling results were seen and the site staff had no knowledge of the last water sampling results.

The old cold water storage tanks located within the roof void are no longer in use and have been disconnected from the water services. The duty holder, responsible persons and operational staff have been identified and nominated in writing within the logbook.

I was informed that the TMV's within Meadowcroft are being serviced on a six monthly basis by contractors KIER; this was last carried out in March 2011 certification was seen filed within the water systems logbook.

Weekly flushing is being carried out on all outlets within the building and signed for when carried out; this was found to be up to date as of June 2011.



## COLD WATER STORAGE

There is no cold water storage within Meadowcroft; the old water storage tanks located within the roof void have been drained and disconnected from the water services. The building is now supplied directly from the mains water service that rises within the boiler room.

## HOT WATER STORAGE

Hot water storage within Meadowcroft is by one Smart CV hot water calorifier located within the boiler room; it has a capacity of 263 litres and has a return system fitted with a single pump. At the time of the Risk Assessment Review it was recommended that the return pump be manually checked for the correct operation; there are no records to indicate this is being carried out. There are temperature gauges fitted to the flow and return pipe work to aid with monthly temperature monitoring; as already mentioned temperatures appear to be high but this could be down to the fact that previous water sampling results were possibly found to be positive.

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:**

Calorifier Flow	69.5°C	This is Satisfactory
Calorifier Return	66.0°C	This is Satisfactory

Hot water calorifier located within the boiler room; good storage temperature at the time of this Review.



Calorifier hot water circulating / return pump; good return temperature recorded at the time of this Review.



## GENERAL

There are several showers within Meadowcroft; it was recommended in the last Risk Assessment Review that the adjustable showerheads be replaced with new non adjustable showerheads, this has not been carried out. The procedures implemented by Hampshire County Council regarding the cleaning and disinfection and descaling are being carried out sporadically; it should be ensured this is carried out as recommended or at least on a quarterly basis.

All tap outlets and infrequently used outlets within Meadowcroft 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 Meadowcroft are being serviced and maintained by contractors KIER; this is being carried out on a six monthly basis. The TMV's within Meadowcroft are adjusted to meet the correct water temperatures by contractors during servicing and maintenance; this was last carried out in March 2011.

Water sampling was last carried out in March and April 2011 samples were taken from the kitchenette, bathroom and kitchen areas. It was not known by site staff what type of water sampling was carried out as no test results have been seen; I would recommend that all water sampling results be filed within the water systems logbook. No records were seen for water sampling at the time of this Review.

It was recommended in the last Review that the inline filters on the mains water service within the boiler room be changed on a regular basis; I was informed that these filters have recently been changed. The by-pass around these filters is shut off creating deadleg pipe work; I would recommend the by-pass is opened at least on a weekly basis to flush through the deadleg pipe work.

As reported in the last Review the first floor area has many rooms where the water supply pipe work has been capped off; it was reported in the last Review that all this pipe work has been removed from the water services and is not deadleg pipe work. It should be ensured this is the case as any pipe work that is still connected to the live domestic water system will be deadleg pipe work and provide ideal areas for bacteria proliferation. Any pipe work that is still attached to the live water services should be removed or at least flushed on a weekly basis.

### General

Ensure all showers are used and continue with current cleaning and descale regime that has been implemented. Ensure this is carried out and maintained up to date.



Ensure all showerheads are changed to the non adjustable type as recommended in the original Assessment and last Review.



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



Inline filters in boiler room have recently been changed. Ensure by-pass around filters is opened and flushed on a weekly basis as it is deadleg pipe work; ideal areas for bacteria proliferation.



## 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 Staff Bathroom Wash Basin		
Hot	61.0°C to TMV 42.0°C from TMV	Satisfactory Not Satisfactory
Cold	16.4°C	Satisfactory
Main Kitchen Sink		
Hot	65.0°C to TMV 44.2°C from TMV	Satisfactory Not Satisfactory
Cold	16.2°C	Satisfactory
Bathroom & Shower Room Wash Basin		
Hot	60.0°C to TMV 42.0°C from TMV	Satisfactory Not Satisfactory
Cold	17.0°C	Satisfactory
Office Toilet Wash Basin		
Hot	65.0°C to TMV 39.2°C from TMV	Satisfactory Satisfactory
Cold	16.7°C	Satisfactory

<b>Laundry Area Toilet Wash Basin</b>		
Hot	68.3°C	Satisfactory
Cold	16.5°C	Satisfactory
<b>Bungalow Kitchen Sink</b>		
Hot	66.0°C	Satisfactory
Cold	17.3°C	Satisfactory

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



## RECOMMENDATIONS & SUMMARY

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

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

This is being carried out but should be ensured it is maintained up to date.

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

No record of this being carried out.

**Ensure all hot water calorifiers are adjusted to achieve 60.0°C storage temperature & 50.0°C or more on the return temperature.**

Calorifier is set to a high temperature above 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.

**Internally inspect hot water 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.**

All tap outlets are being flushed weekly and recorded 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.**

Water sampling was last carried out in March and April 2011; no record of results and type of water sampling carried out.

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

Showerheads are being cleaned and disinfected but is being carried out sporadically; it should be ensured it is carried out as recommended by Hampshire County Council or at least on a quarterly basis or as required; record when carried out.

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

This is being carried out on a six monthly basis by contractors KIER; this was last carried out in March 2011.

**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.

**Remove all dead legs or put on a twice weekly flushing regime and record in the logbook when carried out.**

Still capped off pipe work seen in many rooms on the first floor; it should be ensured that this pipe work is disconnected from the water services. Deadleg pipe work in bungalow kitchen has been removed.

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

This has not been carried out.

**Clean/replace filters in line with manufacturers' recommendation and record in the logbook when carried out.**

Inline filters in boiler room on the mains water service have recently been changed.

**File updated schematic drawings within the logbook.**

No schematics within logbook.

**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; ensure this is maintained up to date.
- Continue monthly temperature monitoring of the hot water calorifier flow and return temperatures and record in water systems logbook; ensure maintained up to date.
- Continue with current procedures for showerhead cleaning and descaling or at least on a quarterly basis; ensure this is maintained up to date.
- Continue monthly TMV temperature monitoring at sentinel outlets water flow to TMV and record in water systems logbook; ensure this is maintained up to date.
- Continue with weekly flushing of all outlets including infrequently used and record in logbook; ensure this is maintained up to date.
- Start auditing water systems logbook on a monthly basis to ensure all monitoring and checks are being carried out and maintained up to date.
- Start purging 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 home has 'at risk' clients.

## SUMMARY

As reported a new water systems logbook has been issued by Hampshire County Council for 2011 for Meadowcroft and monthly temperature monitoring is being carried out by site staff. It should be ensured that all temperature monitoring is maintained up to date and the showerhead cleaning regime be carried out as recommended by Hampshire County Council and maintained up to date at present the monitoring was seen to be being carried out sporadically as there are months where no monitoring has been recorded.

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 original Risk Assessment and last Review that all adjustable showerheads be replaced with the non adjustable type; this has not been implemented.

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

As already mentioned it should be ensured that all the capped off pipe work in the rooms on the first floor have been removed from the live domestic water systems to ensure there is no deadleg pipe work in place. If pipe work is found to be still connected to a live water system it should be removed and drained.