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INTRODUCTION

Client Address	Hampshire County Council PBRS Three Minsters House 76 High Street Winchester Hampshire SO23 8UL
Site Name	Oakridge House OPH
Site Address	Jefferson Road Basingstoke Hampshire RG21 5QS
Site contact	Maxine Dyer
Site telephone number	01256 324357
Last risk assessment carried out by	Freeston Water Treatment Limited
Date of risk assessment	June 2011
Date of previous review	N/A
Date of new review	26th April 2012
Review carried out by	Mr Chris Wilson

This Review has been carried out in accordance with ACoP L8 'The control of Legionella bacteria in water systems' (APPROVED CODE OF PRACTICE & GUIDANCE) and BS 8580 (RISK ASSESSMENTS FOR LEGIONELLA CONTROL-CODE OF PRACTICE).

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The Assessment should be reviewed regularly (at least every two years) and whenever there is reason to suspect it is no longer valid.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.

LOG BOOK

Is there a copy of the last Risk Assessment carried out on the domestic water system?	Yes	A copy of the original Risk Assessment was seen filed within the Duty Office.
Is there a domestic water systems logbook in place?	Yes	A water systems log book is in place and was being used at the time of this Review; this was located within the Duty Office.
Are the management structure duty holder, responsible person and deputies nominated in writing?	Yes	The Duty Holder and Responsible person have been nominated in writing but no Deputy Responsible Persons have been nominated.
Are contact details written in writing within the logbook documentation?	Yes	The contact details for the Duty Holder and Responsible person was seen written within the logbook documentation.

MONITORING

Is hot water temperature monitoring being carried out on a monthly basis and results recorded within the logbook documentation?	Yes	Monthly temperature monitoring of the domestic hot water system is being carried out and recorded in the relevant section of the logbook.
Is cold water temperature monitoring being carried out on a monthly basis and results recorded within the logbook documentation?	Yes	Monthly temperature monitoring of the domestic cold water system is being carried out and recorded in the relevant section of the logbook.
Are hot water calorifier flow temperatures being taken and results recorded within the logbook documentation?	Yes	Monthly temperature monitoring of the hot water calorifier flow is being carried out and recorded in the relevant section of the logbook.
Are hot water calorifier return temperatures being taken and results recorded within the logbook documentation?	Yes	Monthly temperature monitoring of the hot water calorifier return is being carried out and recorded in the relevant section of the logbook.
Are monitoring records recorded within the logbook documentation up to date?	Yes	Monitoring was up to date at the time of this Review.
Is weekly flushing of infrequently used outlets being carried out and recorded within the logbook documentation?	Yes	It should be ensured that all infrequently used outlets are flushed through at least on a weekly basis; record in logbook documentation when carried out.

COLD WATER STORAGE

Have cold water storage tanks where fitted been cleaned and disinfected annually?	Yes	The cold water storage tanks are being cleaned and disinfected annually if required.
Have storage tank cleaning and disinfection certification been filed within the logbook documentation?	No	No storage tank cleaning and disinfection certification was seen within the logbook documentation.
Storage tank cleaning and disinfection was last carried out on?		7 th July 2011
Are water storage tanks being inspected on a six monthly basis and temperatures recorded within the logbook documentation when carried out?	No	The cold water storage tanks should be inspected on a six monthly basis and temperatures from the tanks and remote from the ball valves be recorded within the logbook documentation.

SHOWERS

Are showerheads being cleaned and descaled on a quarterly basis or as required?	Yes	All showerheads and hoses are being inspected / cleaned and descaled at least quarterly or as required.
Is it being recorded within the logbook documentation when showerheads are cleaned and descaled?	Yes	Showerheads are being inspected /cleaned and descaled and documented within the logbook documentation when carried out.
Is showerhead cleaning and descaling up to date?	Yes	Showerhead inspection / cleaning and descaling were up to date at the time of this Review.

DRAWINGS

Are schematic drawings up to date with any changes made to the domestic water systems?	Yes	Schematic diagrams are filed within the Risk Assessment. It is thought that no changes have been made to the systems.
Are schematic drawings suitable and show all relevant storage and system details?	Yes	Schematic diagrams were seen to show relevant storage areas and system details. Copies should be filed within the logbook documentation.

TMV's

Are TMV's where fitted being serviced and maintained?	Yes	TMV's should be serviced and maintained as directed by the manufacturers.
Is documentation available to indicate when TMV's were last serviced / maintained?	No	TMV's should be serviced and maintained as directed by the manufacturers; and recorded within the logbook documentation when carried out. I was informed that this was carried out by outside contractors approximately every six months but no records or documentation were seen within the logbook.

SAMPLING

<p>Has any Legionella or bacteriological water sampling been carried out on the domestic water systems?</p>	<p>Yes</p>	<p>Legionella water sampling should be carried out on the domestic water systems if the relevant water temperatures as recommended in the ACoP L8 and BS8580 are not constantly maintained.</p>
<p>Have Legionella or bacteriological water sampling test results if taken been filed within the logbook documentation?</p>	<p>No</p>	<p>Documentation within the logbook stated that Hampshire Scientific Service had taken water samples on the 7th February 2012 but no results could be found within the logbook. Ensure all water sampling test results if taken are filed within the relevant section of the water systems logbook.</p>

REMEDIAL WORKS

<p>Has any remedial works identified within previous Risk Assessments / Reviews been carried out?</p>	<p>Yes</p>	<p>Remedial works highlighted within the Risk Assessment have been carried out in some areas.</p>
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ANCILLARY EQUIPMENT

Is there any ancillary equipment on site?	Yes	Main Kitchen - water softener for the dishwasher.
Is ancillary equipment being serviced and maintained to the manufacturer's recommendations?	No	Main Kitchen - water softener for the dishwasher. This may require servicing and disinfecting; this has not been carried out. I would recommend that the manufacturer is contacted for maintenance recommendations.

HOT WATER STORAGE

Hot water storage at Oakridge House - OPH is by two calorifiers located within the Boiler Room. The units were manufactured by AO Smith Water Products Company and are supplied by the domestic cold water storage tanks within the roof space of the long wing.

The calorifiers have insulation under the factory fitted metal outer casings, are of a steel construction and are indirectly heated by internal coils from the heating boilers.

There is a return system fitted to the calorifiers which has one circulation pump on the common return header. At the time of the survey the pump appeared to be working correctly. I would recommend that the calorifiers be purged to drain to check the water quality on at least an annual basis and this be recorded within a water systems logbook when carried out. I was informed that this is not being carried out.

ACoP L8 recommends that calorifiers are checked internally for scale and sludge on an annual basis. This was carried out by Freeston Water Treatment Ltd on the 5th April 2012.

There is a temperature gauge on each unit to show the storage temperature and a temperature gauge at height on the return pipework.

ACoP L8 recommends hot water storage to be a minimum of **60°C** and the return to be maintained at a minimum of **50°C** at all times. **I would recommend adjustment of calorifier no. 1 as soon as is practicable to achieve this.**

The temperature of the water at the time of the Survey was:-

Calorifier No 1	Storage	56.0°C	Not Satisfactory
Calorifier No 1	Return	56.0°C	Satisfactory
Calorifier No 2	Storage	62.0°C	Satisfactory
Calorifier No 2	Return	56.0°C	Satisfactory

COLD WATER STORAGE

Domestic cold water storage at Oakridge House - OPH consists of two domestic cold water storage tanks located within the roof space of the long wing. It is thought that the two tanks supply the calorifiers via a two pump booster set only. The booster pumps switch automatically ensuring that neither pump becomes a dead leg.

Tank no. 1 is the tank located furthest from the Boiler Room end of the building and is of a GRP sectional construction. There is a screened vent on the lid and a screen on the overflow pipe. There is no overflow warning pipe fitted and this is required as the vessel is over 1000 litres in capacity. I would recommend that one is fitted along with a WRAS (Water Regulations Advisory Scheme) approved insect screen. This vessel has integral insulation to the body, lid and access hatch. There is a good cross flow of water through the tank as the outlet and inlet pipes are at opposing ends of the vessel. The pipe on the drain is too long and creating a dead leg, this should be shortened as far as possible or put on a weekly flushing regime (without creating an aerosol).

The inside of the tank showed a light deposit of sediment on the base and a slight amount of biofilm on the sides. Sediment and biofilm act as nutrients and an ideal environment for the proliferation of bacteria including legionella.

This vessel was last cleaned and disinfected on the 7th July 2011 and I would recommend that this be carried out again within the near future.

The cold water storage temperature of Tank no. 1 was:-

12.7°C Satisfactory

Tank no. 2 is the tank located nearest to the Boiler Room end of the building and is of a GRP sectional construction. There is a screened vent on the lid and a screen on the overflow pipe. There is no overflow warning pipe fitted and this is required as the vessel is over 1000 litres in capacity. I would recommend that one is fitted along with a WRAS (Water Regulations Advisory Scheme) approved insect screen. This vessel has integral insulation to the body, lid and access hatch. There is a good cross flow of water through the tank as the outlet and inlet pipes are almost at opposing ends of the vessel. The pipe on the drain is too long and creating a dead leg, this should be shortened as far as possible or put on a weekly flushing regime (without creating an aerosol).

The inside of the tank showed a slight deposit of sediment on the base and a slight amount of biofilm on the sides. Sediment and biofilm act as nutrients and an ideal environment for the proliferation of bacteria including Legionella.

This vessel was last cleaned and disinfected on the 7th July 2011 and I would recommend that this be carried out again within the near future.

The cold water storage temperature of Tank no. 2 was:-

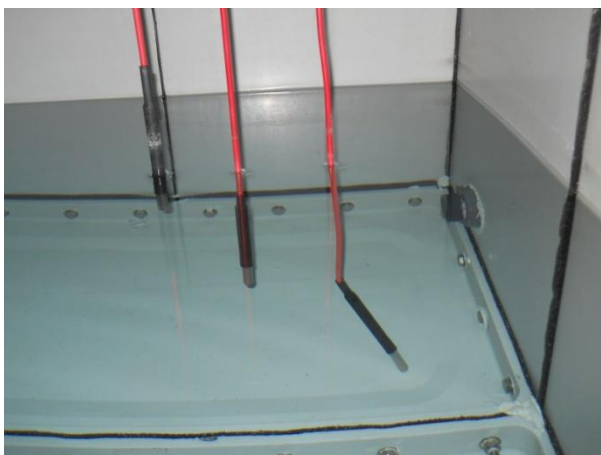
15.6°C Satisfactory

COLD WATER STORAGE TANK PHOTOGRAPHS

An internal view of domestic cold water storage tank no. 1.



An internal view of domestic cold water storage tank no. 2.



ADDITIONAL PHOTOGRAPHS

Roof Space (in the long wing)

The pipe of the drain on tank no. 1 is too long and is creating a dead leg.



Roof Space (in the long wing)

The pipe of the drain on tank no. 2 is too long and is creating a dead leg.



Roof Space (in the long wing)

There is a dead leg pipe on the outlet pipe of tank no. 1.



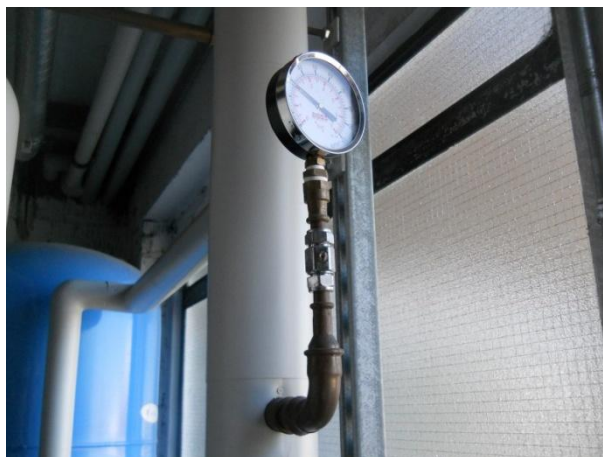
Roof Space (in the long wing)

There is a dead leg pipe on the outlet pipe of tank no. 2.



Boiler Room

The pipe to the pressure gauge on the outlet pipe of the booster pump set is too long and creating a dead leg.



Boiler Room

There is a dead leg on the lower level of the cold water rising main.



Boiler Room

There is a dead leg on the mid level of the cold water rising main.



Boiler Room

There is a dead leg on the mains cold water pipe at height.



Boiler Room

There is a dead leg on the hot return pipe just as it enters calorifier no. 2. Although this has been shortened since the Risk Assessment, ideally it should be removed completely.



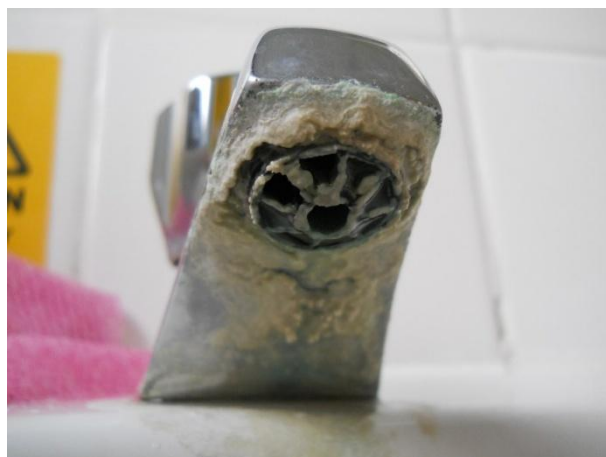
Laundry

There is a dead leg behind the washing machine near the wash basin.



Main Kitchen Toilet

Scaled outlet seen in many areas of site.



SELECTED HOT & COLD WATER TEMPERATURES TAKEN AT REVIEW

Domestic water services should operate at temperatures that prevent the proliferation of Legionella. ACoP 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, obtainable at user outlets within two minutes of opening.

The temperature of mixed/ blended water from thermostatic mixing valves should be no more than 43°C to prevent scalding and ideally no less than 39 °C.

The following hot and cold water temperatures were taken at selected outlets as follows:-

Location	Hot °C	Cold °C	Mixed °C	Comments
Poppy Wing Staff Kitchen Sink	53.7	12.1	41.6	Satisfactory
Lilac Wing Toilet Hand Basin	54.7	11.3	40.8	Satisfactory
Reception Area Main Kitchen Staff Toilet Hand Basin	52.7	12.1	42.3	Satisfactory
Reception Area Laundry Sink	52.9	11.5	44.1	Not Satisfactory
Orchid Wing Toilet Hand Basin	53.1	12.0	42.7	Satisfactory

RECOMMENDATIONS

- Dead leg pipework are ideal areas for the proliferation of bacteria and should be removed or put on a weekly flushing regime (without creating an aerosol) and recorded. Dead legs were found in the following areas:-
 - Roof space – the pipe of the drain on tank no. 1 is too long and is creating a dead leg.
 - Roof space – the pipe of the drain on tank no. 2 is too long and is creating a dead leg.
 - Roof space – there is a dead leg pipe on the outlet pipe of tank no. 1.
 - Roof space–there is a dead leg pipe on the outlet pipe of tank no. 2.
 - Boiler room - the pipe to the pressure gauge on the outlet pipe of the booster pump set is too long and creating a dead leg.
 - Boiler room - there is a dead leg on the lower level of the cold water rising main.
 - Boiler room - there is a dead leg on the mid level of the cold water rising main.
 - Boiler room - there is a dead leg on the mains cold water pipe at height.
 - Boiler room - there is a dead leg on the hot return pipe just as it enters calorifier no. 2.
 - Laundry – there is a dead leg behind the washing machine near the wash basin.
- Purge the calorifiers to drain on at least an annual basis and record when carried out.
- Commence monthly temperature monitoring of inlet pipe to the TMV's (not just the blended water outlet) and record in the water systems logbook.
- Commence six monthly temperature monitoring of the cold water storage tanks and record results within the logbook.
- I would recommend Bacteriological and Legionella water samples be taken if the temperatures fall out of the recommended limits.
- Ensure Deputy Responsible Persons are appointed and are competent and adequately trained.

- Ensure the new maintenance operative on site is competent and adequately trained in Legionella management.
- Clean and disinfect domestic cold water storage tank no. 1 and no. 2 within the near future and repeat annually if required.
- Descale tap outlets as often as needed.
- Fit overflow warning pipes to both tanks along with WRAS approved insect screens.
- Adjust calorifier no. 2 to achieve a minimum storage temperature of 60°C at all times and a minimum of 50°C on the return at all times.

SUMMARY

Since the Risk Assessment was carried out a new water systems logbook has been put in place for 2012.

A new maintenance operative has been appointed since the Risk Assessment and I would recommend that he be adequately trained in Legionella management as soon as is practicable.

Some remedial works have been carried out by Freeston Water Treatment Limited since the last Risk Assessment and this is an ongoing planned maintenance agreement between Freeston and Hampshire County Council.

Completed remedial work carried at Oakridge House OPH includes descaling of the calorifiers and cleaning and disinfection of the two domestic cold water storage tanks. I would recommend that the two domestic cold water storage tanks be cleaned and disinfected again within the near future.

Legionella management including temperature monitoring of outlets and calorifiers; flushing of infrequently used outlets and showerhead and hose descaling is being carried out and recorded.

The hot outlet temperatures are only being taken from the outlets and not on the inlet pipework to the TMV's (with the exception of the sentinel outlets). I was informed that this will be carried out and recorded within the logbook in future.

Annual purging of the calorifiers is not being carried out.

Calorifier no. 1 should be adjusted as soon as is practicable to achieve a minimum storage temperature of 60°C at all times and a minimum of 50°C on the return at all times.