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INTRODUCTION

Client Address	**Hampshire County Council** **PBRS** **Three Minsters House** **76 High Street** **Winchester** **Hampshire** **SO23 8UL**
Site Name	**Hawthorne Court NCU**
Site Address	**Coldeast way** **Sarisbury Green** **Southampton** **Hampshire** **SO31 7LX**
Site contact	**Felicity Dennis**
Site telephone number	**01489 556720**
Last risk assessment carried out by	**Freeston Water Treatment Limited**
Date of risk assessment	**April 2011**
Date of previous review	**N/A**
Date of new review	**30th March 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The Assessment should be reviewed regularly (at least every two years) and whenever there is reason to suspect it is no longer valid.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 Managers Office.
Is there a domestic water systems logbook in place?	Yes	A water systems log book is in place and this was located within the senior nurse 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 but only on the outlets and not on the inlet pipe to the TMV's.
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 but the hot water storage vessel flow temperatures are not.
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 are being carried out and recorded in the relevant section of the logbook. Technically there is no return to the hot water storage vessel and therefore this does not need to be temperature monitored.
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?		20th May 2012
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	I was informed that 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	I was informed that showerheads are being inspected /cleaned and descaled but this is not being recorded within the logbook.
Is showerhead cleaning and descaling up to date?	Yes	I was informed that showerhead inspection / cleaning and descaling was 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?	Yes	TMV's should be serviced and maintained as directed by the manufacturers; and recorded within the logbook documentation when carried out. There were no records within the logbook but I was informed that servicing of the TMV's was last carried out in February 2012.

SAMPLING

Has any Legionella or bacteriological water sampling been carried out on the domestic water systems?	No	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. No records of sampling being carried out were seen within the logbook.
Have Legionella or bacteriological water sampling test results if taken been filed within the logbook documentation?	No	No records of sampling being carried out were seen within the logbook.

REMEDIAL WORKS

Has any remedial works identified within previous Risk Assessments / Reviews been carried out?	Yes	Remedial works highlighted within the Risk Assessment have been carried out in many areas.

ANCILLARY EQUIPMENT

Is there any ancillary equipment on site?	Yes	Main kitchen - water softener for the dishwasher. Boiler room - inline scale reducer on the down services cold water pipe to the booster pumps. Sensory room - bubble tube.
Is ancillary equipment being serviced and maintained to the manufacturer's recommendations?	No	Main kitchen-water softener This may require servicing and disinfecting; this has not been carried out. I would recommend that the manufacturer is contacted for maintenance recommendations. Boiler room - inline scale reducer. It is unknown if this has been cleaned / replaced. I would recommend that the manufacturer is contacted for maintenance recommendations. Sensory room - bubble tube It is unknown if this has been cleaned / disinfected and is dosed with a biocide. I would recommend that the manufacturer is contacted for maintenance recommendations.

HOT WATER STORAGE

Hot water storage at Hawthorne Court - NCU is by one calorifier and one hot water storage vessel located within the Boiler Room. The calorifier was manufactured by Lochinvar and is supplied by the domestic cold water storage tanks within the first floor Tank Room via a pressure reducer, a scale inhibitor and a booster pump set. The calorifier has insulation under the factory fitted metal outer casings, is of a steel construction and is directly heated by gas. The hot water storage vessel has insulation under the factory fitted metal outer casings, is of a stainless steel construction and was manufactured by Andrews Water Heaters.

The calorifier supplies the storage vessel that in turn supplies all the hot water on site. There is an anti stratification pump that takes some of the hot water from the storage vessel and returns it to the calorifier to be reheated. At the time of the survey the anti stratification pump appeared to be working correctly.

ACoP L8 recommends that de-stratification / shunt pumps are operated automatically by a time clock and run for one hour every day before first use.

I would recommend that this be carried out as it will become a dead leg if not used within a week. The return pipework from the building returns to the calorifier via a circulation pump which at the time of the survey also appeared to be working correctly.

The booster pump set has two pumps that appeared to switch automatically.

I would recommend that the calorifier and storage vessel be purged to drain to check the water quality on an annual basis and recorded within a water systems logbook when carried out. I was informed that this is not being carried out.

ACoP L8 recommends that calorifiers and storage vessel are checked internally for scale and sludge on an annual basis. A sticker on the calorifier states that it was a new install on the 17th November 2011 and so will not need inspecting yet. It is unknown if an internal inspection has been carried out on the hot water storage vessel.

There are temperature gauges on the calorifier to show the storage and return temperature from the building. There are no temperature gauges on the hot water storage vessel. I would recommend that a gauge be fitted to show the storage temperature.

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 the calorifier to achieve these temperatures as soon as is practicable.

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

Calorifier	Storage	56.0°C	Not Satisfactory
Calorifier	Return	48.0°C	Not Satisfactory
Hot Water Storage Vessel	Storage	55.2°C	Not Satisfactory
Hot Water Storage Vessel	Return	No return fitted	

COLD WATER STORAGE

Domestic cold water storage at Hawthorne Court - NCU consists of two domestic cold water storage tanks located within the first floor tank room. There is also a water storage tank for the fire sprinkler system within the tank room. As this is a 'closed system' it does not pose a legionella risk in normal operation and is therefore not covered by this survey.

The domestic cold water storage tanks are of a sectional, joined, double skinned GRP construction and are in good condition. There are screened vents on the lids and screens on the overflow pipes and overflow warning pipes. The vessels have integral insulation to the body, lid and access hatch but the inlet valve housing lids are single skinned and not insulated, I would recommend that these be insulated if the stored water temperature becomes elevated to near 20°C in the hotter months.

There is a satisfactory cross flow of water through the tanks with the inlets and outlets being almost at opposing ends of the vessel.

The inside of the tank no. 1 (left side) showed a light deposit of sediment on the base and a slight amount of biofilm on the sides. The inside of the tank no. 2 (right side) showed a light deposit of sediment on the base and a slight amount of biofilm on the sides.

Sediment, corrosion and biofilm act as nutrients and an ideal environment for the proliferation of bacteria including Legionella.

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The vessels were last cleaned and disinfected on the 20th May 2011 and I would recommend that they be cleaned and disinfected again within the near future.

It is suspected that all the cold water outlets and appliances on site (with the exception of the mains fed heating boilers pressurisation unit, the outside tap by the boiler room, the fire sprinkler tank, the main kitchen and the laundry) are supplied by the boosted cold water from the tanks but this requires further investigation to be confirmed.

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

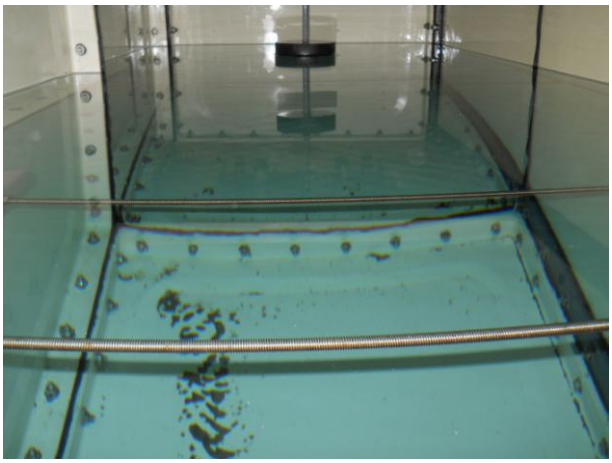
12.8°C Satisfactory

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

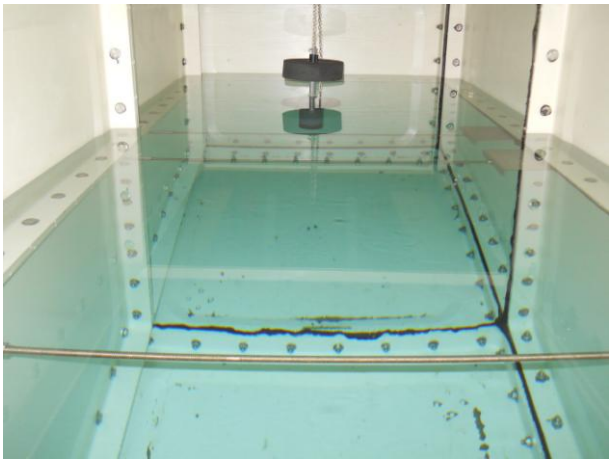
14.1°C Satisfactory

COLD WATER STORAGE TANKS PHOTOGRAPHS

Internal view of cold water storage tank no. 1.



Internal view of cold water storage tank no. 2.



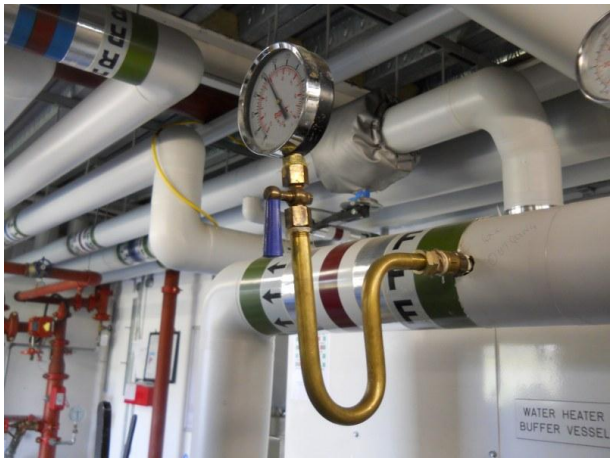
ADDITIONAL PHOTOGRAPHS

Boiler Room

There is a dead leg on the boosted cold water supply pipe to the calorifier.

Boiler Room

There is a swan neck type dead leg pipe to the pressure gauge on the flow pipe of the calorifier to the storage vessel.



Boiler Room

Boiler Room – The drain on the outlet pipe of the booster pump set is too long and creating a dead leg

Boiler Room

The drain on the bottom of the hot water storage vessel is too long and creating a dead leg.

Main Kitchen

Small dead leg behind the dishwasher.

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 60ºC and distributed at no less than 50ºC, obtainable at user outlets within one minute of opening.

Cold water should be stored and distributed at no more than 20ºC, obtainable at user outlets within two minutes of opening.

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

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

Location	Hot °C	Cold °C	Mixed °C	Comments
Chestnut Wing Kitchenette Sink	43.3	17.4	41.9	Not Satisfactory
Beech Wing Kitchenette Sink	48.2	16.2	42.3	Not Satisfactory
Elm Wing Kitchenette Sink	47.7	17.7	43.8	Not Satisfactory
Main Kitchen Chemical Store Sink	54.6	11.8	N/A	Satisfactory
Ash Wing Kitchenette Sink	49.6	14.4	43.0	Not Satisfactory
Cherry Wing Kitchenette Sink	48.6	17.1	43.0	Not 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:-

  - Boiler Room - There is a dead leg on the boosted cold water supply pipe to the calorifier.
  - Boiler Room - There is a swan neck type dead leg pipe to the pressure gauge on the flow pipe of the calorifier to the storage vessel.
  - Boiler Room – The drain on the outlet pipe of the booster pump set is too long and creating a dead leg.
  - Boiler Room – The drain on the bottom of the hot water storage vessel is too long and creating a dead leg.
  - Main Kitchen – There is a small dead leg behind the dishwasher.

- Purge the calorifier and hot water storage vessel to drain on at least an annual basis and record when carried out.

- If access allows, visually inspect the calorifier and hot water storage vessel internally for scale and sludge on an annual basis.

- ACoP L8 recommends that destratification / shunt pumps are operated automatically by a time clock and run for one hour every day before first use. I would recommend that this be carried out as it will become a dead leg if not used within a week.

- Commence six monthly temperature monitoring of the cold water storage tank and record results within the logbook.

- Clean and disinfect the domestic cold water storage tanks within the near future. Inspect the tanks annually and repeat if required.

- There is an inline scale reducing device on the inlet pipe of the cold water booster pump set in the boiler room. This should be cleaned / maintained in line with the manufacturer's recommendations. It is not thought that this is being carried out.

- The bubble tube in the sensory room should be dosed with an appropriate and safe biocide, cleaned and maintained in line with manufacturer's recommendations. I was informed that it is not known if this being carried out.

- There is a water softener for the dishwasher within the main kitchen. This should be disinfected and maintained in line with the manufacturer's recommendations. It is unknown if this is being carried out.

- Ensure deputy responsible persons are appointed and are competent and adequately trained.

- Ensure the maintenance operative on site is competent and adequately trained in Legionella management.

- Ensure the calorifier is adjusted to achieve a minimum stored water temperature of 60ºC within the calorifier and hot water storage vessel at all times and a minimum temperature of 50ºC on the hot return pipe to the calorifier at all times.

- Fit a temperature gauge to the flow pipe on the hot water storage vessel to allow monthly temperature monitoring to be carried out.

SUMMARY

Since the Risk Assessment was carried out a new water systems logbook has been put in place for 2012 and is in use. A new maintenance operative has been appointed since the Risk Assessment and as no training records were seen within the logbook I would recommend that he be adequately trained in Legionella management as soon as is practicable.

Most of the 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 Water Treatment and Hampshire County Council.

Completed remedial work carried out at Hawthorne Court NCU includes tank cleaning and dead leg removal. The domestic cold water storage tanks were cleaned and disinfected on the 20th May 2011 but this needs to be carried out again within the near future.

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

I was informed that quarterly descaling of showerheads and hoses is being carried out but not being recorded and will be recorded in future.

Monthly temperature monitoring of the hot flow pipe of the hot water storage vessel is not being carried out and should commence as soon as is practicable and be recorded when carried out.

The hot outlet temperatures are only being taken from the outlets and not on the inlet pipework to the TMVs. I was informed that this will be carried out and recorded within the logbook in future.

Six monthly domestic cold water storage tank temperature monitoring and annual purging and descaling of the calorifier and hot water storage vessel is not being carried out although the calorifier was a new install in November 2011 and does not yet need an internal inspection.