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INTRODUCTION

Client Address	**Hampshire County Council** **PBRS** **Three Minsters House** **76 High Street** **Winchester** **Hampshire** **SO23 8UL**
Site Name	**Westholme NCU**
Site Address	**55 Harestock Road** **Winchester** **Hampshire** **SO22 6NT**
Site contact	**Marion Wilson**
Site telephone number	**01962 881481**
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	**10th 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The Assessment should be reviewed regularly (at least every two years) and whenever there is reason to suspect it is no longer valid.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 managers 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 managers 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 and hot water storage vessel flow temperatures being taken and results recorded within the logbook documentation?	Yes	Monthly temperature monitoring of the hot water calorifier and hot water storage vessel flow is being carried out and recorded in the relevant section of the logbook.
Are hot water calorifier and hot water storage vessel return temperatures being taken and results recorded within the logbook documentation?	Yes	Monthly temperature monitoring of the hot water calorifier and hot water storage vessel 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?	No	The cold water storage tanks are not 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?		Unknown
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 in approximately January 2012 but no records or documentation were seen within the logbook.

SAMPLING

Has any Legionella or bacteriological water sampling been carried out on the domestic water systems?	Yes	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.
Have Legionella or bacteriological water sampling test results if taken been filed within the logbook documentation?	No	No documentation was found within the 2012 logbook. Ensure all water sampling test results if taken are filed within the relevant section of the water systems 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 some areas.

ANCILLARY EQUIPMENT

Is there any ancillary equipment on site?	Yes	Boiler room - online scale reducer on the boosted domestic cold water pipe. Boiler room - strainer on the domestic down service cold water pipe to the booster pumps.
Is ancillary equipment being serviced and maintained to the manufacturer's recommendations?	No	Boiler room - inline scale reducer on the boosted domestic cold water pipe. It is unknown if this has been cleaned / replaced. I would recommend that the manufacturer is contacted for maintenance recommendations. Boiler room - strainer on the domestic down service cold water pipe to the booster pumps. It is unknown if this has been cleaned / replaced. I would recommend that the manufacturer is contacted for maintenance recommendations.

HOT WATER STORAGE

Hot water storage at Westholme NCU is by one calorifier and one hot water storage vessel located within the Boiler Room. The calorifier was manufactured by Andrews Water Heaters and is supplied by the domestic cold water storage tanks within the loft via a pressure reducer and 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 was also manufactured by Andrews Water Heaters and has insulation under the factory fitted metal outer casings and is of a steel construction.

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 destratification / shunt pumps are operated automatically by a time clock and run for one hour every day before first use. This pump is left on continuously which I would consider satisfactory.

The return pipework from the building returns to the storage vessel via a circulation pump which at the time of the survey also appeared to be working correctly.

I would recommend that the calorifier and hot storage vessel be purged to drain to check the water quality on at least 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 hot storage vessels are checked internally for scale and sludge on an annual basis. I was informed that this is not being carried out.

There is a temperature gauge on each unit to show the storage temperature but no temperature gauge on the return pipework and this should be rectified.

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.

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

Calorifier	Storage	64.2°C	Satisfactory
Calorifier	Return	63.0°C	Satisfactory
Hot Storage Vessel	Storage	63.0°C	Satisfactory
Hot Storage Vessel	Return	63.0°C	Satisfactory

COLD WATER STORAGE

Domestic cold water storage at Westholme NCU consists of two domestic cold water storage tank located within the roof space of the Jay Wing. There is also a water storage tank for the fire sprinkler system of both Westholme NCU and NCU located outside the Laundry on Westholme OPH.

As this a 'closed system' it does not pose a Legionella risk in normal operation and is therefore not covered by this survey.

It is thought that the domestic cold water storage tanks supply the calorifier and all cold outlets and appliances (with the exception of the heating boilers pressurisation unit and outside tap by the boiler room) via a two pump booster set. The booster pumps switch automatically ensuring that neither pump becomes a dead leg.

Domestic cold water storage tank no. 1 is of a GRP, sectional construction. There is a screened vent on the lid and a screen on the overflow pipe and overflow warning pipe. This vessel has integral insulation to the body, lid, access hatch and inlet valve housing.

One of the bolts that secures the access hatch has been cross threaded and will not come out. Removing the other bolt allows an internal inspection but not full access for cleaning etc and this should be rectified.

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

It is unknown when this vessel was last cleaned and disinfected and I would recommend that this be carried out within the near future.

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

12.7°C Satisfactory

Domestic cold water storage tank no. 2 is of a GRP, sectional construction and at the time of the survey was drained and out of service. There is a screened vent on the lid and a screen on the overflow pipe and overflow warning pipe. This vessel has integral insulation to the body, lid, access hatch and inlet valve housing.

If in service there would be a good cross flow of water through the tank as the outlet and inlet pipes are at opposing ends of the vessel.

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.

It is unknown when the vessel was last cleaned and disinfected and I would recommend that this be carried out if it is to be put back into service.

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

EMPTY

COLD WATER STORAGE TANK PHOTOGRAPHS

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

ADDITIONAL PHOTOGRAPHS

Boiler Room

The drain on the inlet pipe to the booster pumps from the tanks is too long and creating a dead leg.

Boiler Room

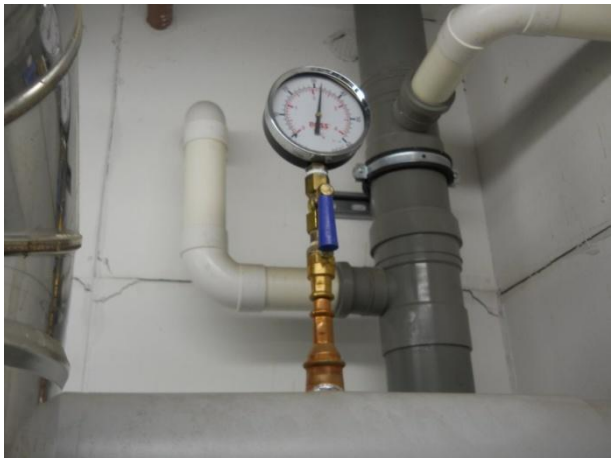
There is a swan neck type dead leg pipe to the pressure gauge on the outlet pipe of the booster pump set. The pipe that it is on is to the pressure relief valve, this pipe is too long and also creating a dead leg and should be shortened as far as possible.

Boiler Room

The pipe to the temperature gauge on the flow pipe of the calorifier is too long and creating a dead leg.

Boiler Room

The pipe to the pressure gauge on the flow pipe of the calorifier is too long and creating a dead leg.



Roof Space above Jay Wing

The valve on the mains cold water pipe to the inlet of tank no. 2 is shut and creating a dead leg.

Roof Space above Jay Wing

The valve on the outlet pipe of tank no. 2 is shut and creating a dead leg on the outlet header pipe.

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
Wren Wing OT Room Hand Basin	61.9	12.6	41.9	Satisfactory
Jay Wing Lounge Sink	58.8	13.8	41.7	Satisfactory
Dove Wing Room 1 Hand Basin	62.3	13.0	41.6	Satisfactory
Lark Wing Room 15 Hand Basin	56.1	13.3	41.0	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 – The drain on the inlet pipe to the booster pumps from the tanks is too long and creating a dead leg.
  - Boiler Room - There is a swan neck type dead leg pipe to the pressure gauge on the outlet pipe of the booster pump set. The pipe that it is on is to the pressure relief valve, this pipe is too long and also creating a dead leg and should be shortened as far as possible.
  - Boiler Room – The pipe to the temperature gauge on the flow pipe of the calorifier is too long and creating a dead leg.
  - Boiler Room – The pipe to the pressure gauge on the flow pipe of the calorifier is too long and creating a dead leg.
  - Roof space above Jay Wing – The valve on the mains cold water pipe to the inlet of tank no. 2 is shut and creating a dead leg.
  - Roof space above Jay Wing – The valve on the outlet pipe of tank no. 2 is shut and creating a dead leg on the outlet header pipe.

- 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.

- Commence monthly temperature monitoring of inlet pipe to the TMV's (not just the blended water outlet) and record in the water systems logbook.

- There is an inline scale reducer on the boosted domestic cold water pipe within the boiler room. These should be cleaned / maintained in line with the manufacturer's recommendations. It is not thought that this is being carried out.

- There is a strainer on the down service domestic cold water pipe to the booster pumps within 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.

- Commence six monthly temperature monitoring of the cold water storage tank 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 as soon as is practicable and repeat annually if required.

- Clean and disinfect domestic cold water storage tank no. 2 if brought back into service.

- Fit a temperature gauge to the domestic hot water return pipe within the boiler room.

- Remove the cross threaded bolt that secures the access hatch on domestic cold water tank no. 1 and ensure that a new bolt can be bolted down with ease.

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 Water Treatment and Hampshire County Council.

Completed remedial work carried at Westholme NCU includes some dead leg removal.

Domestic cold water storage tank no. 1 is in service and tank no. 2 is empty and not in service. The domestic cold water storage tanks have not been cleaned and disinfected for many years and I would recommend that this be carried out within the near future on tank no. 1 and also on tank no. 2 if brought back into service.

Legionella management including temperature monitoring of outlets and calorifier and hot water storage vessel; 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 calorifier and hot water storage vessel and descaling is not being carried out.