

## CONTENTS

INTRODUCTION	Page 2
REVIEW COMPLIANCE	Page 3
SITE REVIEW & PHOTOGRAPHS	Page 4-16
SELECTED HOT & COLD WATER TEMPERATURES	Page 17
RECOMMENDATIONS & SUMMARY	Page 18-20

## INTRODUCTION

<b>Client Address</b>	<b>Hampshire County Council PBRs Three Minsters House 76 High Street Winchester Hampshire SO23 8UL</b>
<b>Site Name</b>	<b>Nightingale Lodge OPH</b>
<b>Site Address</b>	<b>Greatwell Drive Romsey Hampshire SO51 7QN</b>
<b>Site contact</b>	<b>Tracy Flint</b>
<b>Site telephone number</b>	<b>01794 512138</b>
<b>Last risk assessment carried out by</b>	<b>Freeston Water Treatment Limited</b>
<b>Date of risk assessment</b>	<b>April 2011</b>
<b>Date of previous review</b>	<b>N/A</b>
<b>Date of new review</b>	<b>20<sup>th</sup> March 2012</b>
<b>Review carried out by</b>	<b>Mr Chris Wilson</b>

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The Assessment should be reviewed regularly (at least every two years) and whenever there is reason to suspect it is no longer valid.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 main 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 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 calorifiers storage temperatures are 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 calorifiers return temperatures are 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?		25 <sup>th</sup> April 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 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?	No	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.  No records 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. Records within the logbook show that the last samples taken were tested for Legionella in November 2010 with satisfactory results.</p>
<p>Have Legionella or bacteriological water sampling test results if taken been filed within the logbook documentation?</p>	<p>Yes</p>	<p>All water sampling test results 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 has been carried out in almost all areas.</p>
---	------------	--

**ANCILLARY EQUIPMENT**

<p>Is there any ancillary equipment on site?</p>	<p>Yes</p>	<p>Main kitchen - water softener Sluice rooms - scale reducer cartridge on all pot wash machines. Boiler room - water softener. Rear garden - water feature</p>
<p>Is ancillary equipment being serviced and maintained to the manufacturer's recommendations?</p>	<p>No</p>	<p>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.</p> <p>Sluice rooms - scale reducer cartridge on all pot wash machines. It is unknown if these have been cleaned / replaced. I would recommend that the manufacturer is contacted for maintenance recommendations.</p> <p>Boiler room - water softener. This is no longer in use.</p> <p>Rear garden - water feature. This is no longer in use but I was informed that should it be brought back into use it will be thoroughly cleaned and disinfected first and then dosed with an animal safe biocide to the manufacturers recommendations.</p>

## HOT WATER STORAGE

Hot water storage at Nightingale Lodge Resource Centre - OPH is by two calorifiers located within the Boiler Room. The calorifiers were manufactured by Lochinvar and are supplied by the mains cold water supply via a water softener. The calorifiers have insulation under the factory fitted metal outer casings, are of a steel construction and are directly heated by gas.

There is a return system fitted to the calorifiers which has one circulation pump on the common return header that at the time of the survey appeared to be working correctly.

Both calorifiers are fitted with anti-stratification pumps which at the time of the survey appeared to be working correctly.

I would recommend that the calorifiers be purged to drain to check the water quality on at least a six monthly period and recorded within a water systems logbook when carried out. I was informed that it is unknown if this is being carried out.

ACoP L8 recommends that calorifiers are checked internally for scale and sludge on an annual basis. Both calorifiers were descaled by Freeston Water Treatment Limited on the 22nd December 2011.

There is a temperature gauge on each unit to show the storage temperature and also temperature gauges on the individual flow and return pipes.

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 No. 1	Storage	62.0°C	Satisfactory
Calorifier No. 1	Return	61.0°C	Satisfactory
Calorifier No. 2	Storage	62.0°C	Satisfactory
Calorifier No. 2	Return	61.0°C	Satisfactory

## **COLD WATER STORAGE**

Domestic cold water storage at Nightingale Lodge Resource Centre - OPH consists of three domestic cold water storage tanks located within the roof space of E Wing.

Tank no. 1 is of a double skinned GRP construction and is in good condition. There is a screened vent on the lid and a screen on the overflow pipe. This vessel is less than 1000 litres in capacity and therefore does not need an overflow warning pipe.

This vessel has integral insulation to the body and lid but the lid is single skinned and not insulated, I would recommend that this be insulated if water temperature becomes elevated to near 20°C in the hotter months.

There is a good cross flow of water through the tank with the inlet and outlet being at opposing ends of the vessel.

The inside of the tank showed no sediment on the base and no biofilm on the sides.

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

The tank was last cleaned and disinfected by Freeston Water Treatment Limited on the 24<sup>th</sup> May 2011. This vessel does not need cleaning and disinfecting and should be inspected again in 12 months.

**It is unknown which outlets this tank supplies although it is suspected that this and the two other tanks supply the pot wash machines in the four Sluice Rooms but this should be investigated further.**

**The cold water storage temperature of the tank was:-**

**15.3°C            Satisfactory**

Tank no. 2 is of a double skinned GRP construction and is in good condition. There is a screened vent on the lid and a screen on the overflow pipe and the overflow warning pipe. This vessel has integral insulation to the body and lid.

There is a good cross flow of water through the tank with the inlet and outlet being at opposing ends of the vessel.

The inside of the tank showed no sediment on the base and a medium amount of biofilm / staining on the sides.

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

The tank was last cleaned and disinfected by Freeston Water Treatment Limited on the 24<sup>th</sup> May 2011 and I would recommend that this be repeated within the near future.

**It is unknown which outlets this tank supplies although it is suspected that this and the two other tanks supply the pot wash machines in the four sluice rooms but this should be investigated further.**

**The cold water storage temperature of the tank was:-**

**14.8°C            Satisfactory**

Tank no. 3 is of a double skinned GRP construction and is in good condition. There is a screened vent on the lid and a screen on the overflow pipe. This vessel is less than 1000 litres in capacity and should therefore not need an overflow warning pipe.

This vessel has integral insulation to the body and lid but the lid is single skinned and not insulated, I would recommend that this be insulated if water temperature becomes elevated to near 20°C in the hotter months.

There is a good cross flow of water through the tank with the inlet and outlet being at opposing ends of the vessel.

The inside of the tank showed a heavy 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.

The tank was last cleaned and disinfected by Freeston Water Treatment Limited on the 24<sup>th</sup> May 2011 and I would recommend that this be repeated within the near future.

**It is unknown which outlets this tank supplies although it is suspected that this and the two other tanks supply the pot wash machines in the four sluice rooms but this should be investigated further.**

**The cold water storage temperature of the tank was:-**

**13.8°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.



Internal view of cold water storage tank no. 3.



## ADDITIONAL PHOTOGRAPHS

### Boiler Room

Dead legs either side of the closed valves on the water softener pipes.



### Boiler Room

Typical example of one of the four dead legs on top of the calorifiers.



### A Wing Sluice Room

Inline scale reducing unit.



## 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
B Wing Kitchenette Sink	No access to TMV	13.3	43.2	Not Satisfactory
A Wing Kitchenette Sink	51.9	12.2	42.8	Satisfactory
A Wing Room 4 Hand Basin	No access to TMV	13.6	42.8	Not Satisfactory
Reception Area Main Kitchen Front Sink	No access to TMV Temp taken from Spray Sink 61.0	11.5	45.1	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 – The water softener pipe has two valves that are closed and this is creating dead legs either side of them.
  - Boiler Room - There are two dead legs on the top of both calorifiers.
- Purge the calorifier and hot water storage vessel to drain on at least an annual basis and record when carried out.
- Commence six monthly temperature monitoring of the cold water storage tanks and record results within the logbook.
- Clean and disinfect the domestic cold water storage tanks within the near future. Inspect all three tanks annually and repeat if required.
- Fit extra insulation to the lids of cold water storage tank no. 2 and no. 3 if needed in hotter months.
- I would recommend that the TMV's (Thermostatic Mixing Valves) are serviced, adjusted and maintained in line with the manufacturer's recommendations.
- There is an inline scale reducing cartridge on the pot wash machines in the sluice rooms. These should be replaced /cleaned / maintained in line with the manufacturer's recommendations. It is not thought that this is being carried out.

- The water softener in the boiler room has been taken out of service. This is creating a dead leg area and should be completely removed and the bypass pipe be piped through or the water softener be disinfected, serviced and brought back into service. If the water softener is brought back into service then the bypass valve should be open at least weekly to eliminate dead legs either side of it and this be recorded within the logbook when 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.
- There are two tanks within the roof space of E Wing that although drained are still connected to the mains cold water pipe and also have outlet pipes are connected. It is likely that these are completely disconnected from the domestic hot and cold water system elsewhere but I would recommend that this is investigated further to ensure that this is the case rather than being dead legs. This should all be recorded within the logbook when carried out.
- If the water feature within the rear garden is to be brought back into use it should be thoroughly cleaned and disinfected first and then dosed with an animal safe biocide to the manufacturer's recommendations. This should all be recorded within the logbook when carried out.
- 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.

## 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 but had only started two weeks prior to the time of this Review. He informed me that he was very keen to implement any Legionella management recommendations necessary for the safe operation of the site and I would therefore 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 at Nightingale Lodge includes tank cleaning, calorifier descaling and dead leg removal. The domestic cold water storage tanks were cleaned and disinfected on the 26<sup>th</sup> May 2011 but this needs to be carried out again within the near future on tanks no. 2 and 3.

There are two tanks within the roof space of E Wing that although drained are still connected to the mains cold water pipe and also have outlet pipes connected. It is likely that these are completely disconnected from the domestic hot and cold water system elsewhere but I would recommend that this is investigated further to ensure that this is the case rather than being dead legs. This should all be recorded within the logbook when carried out.

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

Six monthly domestic cold water storage tank temperature monitoring and purging of the calorifier drains is not being carried out.