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**PREFACE**

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**Date of Assessment:** 9<sup>th</sup> December 2013

**Date of Review:** December 2015

Freeston Water Treatment Limited  
Water Risk Assessment Review Survey

## INTRODUCTION

This report relates to a water source Risk Assessment Review carried out by Mr Chris Wilson of the Risk Assessment carried out by Mr Peter Smith on the 25th January 2007 and Mr Chris Wilson (both of Freeston Water Treatment Ltd) on the 15<sup>th</sup> May 2008 on behalf of Marina Developments Ltd.

The First Risk Assessment Review survey was carried out by Mr Chris Wilson of Freeston Water Treatment Limited on the 27<sup>th</sup> September 2011.

This Second Risk Assessment Review survey was carried out by Mr Chris Wilson of Freeston Water Treatment Limited on the 9<sup>th</sup> December 2013 at Saxon Wharf Marina, Lower York Street, Northam, Southampton SO14 5QF.

During the course of the Survey water sources within the buildings were assessed for risk. These sources were chosen as being fully representative of the overall domestic water systems and outlets within these buildings.

**At the time of the 2008 Risk Assessment, access could not be gained to Units 11, 12 and 14.**

**At the time of the 2011 Risk Assessment Review I was informed that there is no water within Units 11 and 12.**

**At the time of the 2011 Risk Assessment Review, access could not be gained to Units 3, 4, 14 and 22.**

**At the time of the 2013 Risk Assessment Review, access could not be gained to Units 1, 2 and 3.**

The Review of Recommendations highlighted in the previous Risk Assessment were 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 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).

The Review has been limited to the terms of reference agreed between Marina Developments Limited 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, pipework 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.

For water samples collected and returned to the laboratory, Legionella pneumophila is recovered by propagation of the organism on a specially supplemented nutrient growth medium. Such samples are normally then incubated at around 37°C. It may take up to 7 days for colonies of Legionella to appear. Legionella can be recognised by visual examination of the colonies followed by a number of laboratory techniques to identify species and serogroup.

## ASSESSMENT OF RISK

### Rationale

Legionnaire's disease is most commonly caused by the inhalation of water droplets contaminated with the Legionella bacteria. It is therefore important that systems susceptible to colonisation by Legionella and which incorporate a potential means for creating and disseminating water droplets should be identified and the risk they present assessed. ACoP L8 requires this identification and assessment.

The assessment must be completed for routine system operation and also for circumstances such as breakdown, abnormal operation, commissioning or other unusual circumstances.

Once the assessment has been completed, a strategy can be prepared for preventing or controlling the risk. The strategy will be based on a sound knowledge of the varying levels of attention required by the differing risk sources within the building.

The assessment takes account of:

- A) The potential for formation of droplets.
- B) The condition of the water.
- C) Water temperature.
- D) The water turnover rate.
- E) The susceptibility of persons exposed to droplets.
- F) The population density exposed to droplets.

Water droplets are normally created in various ways such as by spraying, bubbling and following impact onto hard surfaces. Large drops may be reduced to irrespirable size by further impact or evaporation. Smaller particles can remain airborne for long periods and will be carried on air currents.

In undertaking the Risk Assessment and drawing up precautions, particular attention must be paid to situations where:

- 1) The population exposed contains a relatively high number of people susceptible to Legionella, for example in Hospitals and Nursing Homes.
- 2) The density of population is high and therefore the number of people at potential risk is high.

The Risk Assessment should be reviewed whenever there is reason to believe that the original assessment may no longer be valid and ideally an annual review of all sources should be undertaken. The original assessment may be compromised if:

- 1) Changes are made to plant or water systems or its use.
- 2) Changes are made to building use in which the water system is installed.
- 3) New information about risks or control measures becomes available.
- 4) Results of checks indicate that control measures are no longer effective.

Once a risk has been identified and assessed, a scheme should be prepared for preventing or controlling it. The risk is heightened when conditions are not monitored and control of the system is lost, thereby allowing Legionella to proliferate. The scheme should be implemented together with a planned preventative maintenance schedule in line with that contained within the general recommendations section of this report. This will meet the requirements of the ACoP.



## REVIEW OF RISK ASSESSMENT AND OBSERVATIONS

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.

Compliance with ACoP L8 may be classified into two distinct categories:

- a) Management Procedures - The management procedures which have been implemented to ensure that all control measures, record keeping and monitoring are adequate and effective.
- b) Systems Conditions - The physical conditions of the water systems in the building must be considered when assessing the risk from Legionellosis.

This report therefore addresses the above categories. A general overview of existing Management Procedures is included and followed by comprehensive observations of the Systems Conditions as seen during the course of the Survey.

## **General Management Compliance**

### ACoP L8 para 23 - Identify Sources of Risk

#### Observations

The Survey was commissioned in order to identify and assess sources of risk from the water storage and distribution systems in the premises and this Review highlights the remedial works and recommendations from that Report.

#### Further Action

**Following receipt of the Review, all recommendations and remedial work should be carried out at the earliest opportunity.**

## **General Management Compliance**

ACoP L8 para's 39, 53 and 66 - Prepare a Scheme for Preventing or Controlling the Risk - Implement and Manage Precautions - Maintain Records

### **Observations**

A regime of repair and breakdown maintenance should be operational on the site for all of the water services and systems. Direct labour and contract staff should undertake the work. Procedures and records for the various maintenance activities must be documented and the particular procedures relative to the control of Legionellosis are documented within an operational logbook.

### **Further Action Required**

A written scheme for preventing or controlling the risks from Legionellosis identified in the Risk Assessment must be drawn up to maintain and provide a monitoring function for the relevant equipment and water systems.

A written scheme contained within the logbook must be implemented and monitored in order to meet the requirements of ACoP L8.

A logbook system will meet the requirement for maintaining records of precautions implemented. The logbook documentation should include:

- Definition of Management responsibilities.
- Description of systems and inclusion of available system schematic drawings and plans.
- A record of Risk Assessment.
- Details of system operation relevant to controlling the risk.
- The precautions to be implemented.
- System inspection and check procedures.
- All details of precautions carried out including checks, inspections, cleaning and disinfection.

The logbook documentation and operation should be audited on a periodic basis in order to ensure that the system conditions and precautionary procedures are being carried out satisfactorily.

The logbook should contain simple schematic diagrams of the domestic hot and cold water systems indicating the areas of storage and areas of distribution. This information may already be available in the building record drawing systems but for ease of reference simple line diagrams should be considered for the logbook.

The precise procedures relating to the precautionary measures i.e. cleaning of water tank systems and calorifiers, together with start up and shut down procedures for calorifiers should be maintained within the log book system and updated as required. The details of persons who are trained and competent to undertake the works should also be recorded in the log with details of the training undertaken. This also applies to specialist contractors who may undertake part of these duties.

The operating logbook document should state the details of the persons appointed as being responsible for the operational policy and management of precautions regarding control of Legionellosis on the site. The responsibilities should be clearly set out and lines of communication defined. Any specialist water treatment company providing a service on site and persons responsible for any auditing of the system operation and documentation should also be defined within the structure.

The present precautionary measures and maintenance activities should continue and the measures should be reviewed on an ongoing basis dependant on feedback on systems conditions and updated knowledge on the control of Legionella bacteria.

Consideration should be given to the inclusion of periodic water quality tests in order to monitor and record changes in local water conditions i.e. cold water from storage tanks, calorifiers and associated outlets.

**This Review relates to observations made and information supplied from the existing Risk Assessment and Review together with information supplied by others.**

**The following observations and recommendation were made in the 2011 Risk Assessment Review.**

Fit scald warning sign near very hot outlets.

**This has not been carried out.**

Flush any pontoon hoses as often as necessary to keep the cold water temperature to below the maximum temperature of 20°C as outlined in L8.

**This has not been carried out.**

Clean and disinfect all showerheads quarterly and record when carried out.

**This is being carried out.**

Ensure all domestic pipe work is adequately insulated to prevent heat gain / loss.

**This has not been carried out in all areas.**

TMV to be serviced and maintained as per the manufacturer's recommendations.

**This has not been carried out.**

I would recommend bacteriological and legionella water samples be taken if temperatures fall outside the required limits (as is currently the case).

**This has not been carried out.**

Remove all dead leg pipe work.

**This has been carried out in some areas.**

Weekly flushing of all low use infrequently used facilities showers, wash down hose reels etc. and record when carried out. Especially in winter months when facilities are not used.

**This is being carried out.**

Take water temperatures from the domestic cold water storage tank within the Marina Office roof space on a six monthly basis and record within the logbook.

**This is being carried out.**

Inspect the cold water storage tank within the Marina Office roof space annually and clean and disinfect if required.

**This is being not carried out.**

Commence temperature monitoring of the domestic cold water system (including **all** sentinel outlets) and record within the logbook.

**This is being carried out on the Marine Office Block and Saxon House only.**

If access allows, visually inspect the calorifiers internally for scale and sludge on an annual basis.

**This has not been carried out.**

Commence temperature monitoring of the domestic hot water system (including **all** calorifiers and sentinel outlets) and record within logbook.

**This is being carried out on the Marine Office Block and Saxon House only.**

Fit temperature gauges to the flow (and return where fitted) pipe work on hot water calorifiers for monthly temperature monitoring.

**This has not been carried out.**

Purge all calorifiers to drain annually and record when carried out.

**This has not been carried out.**

Ensure all calorifiers are adjusted to store hot water at a minimum of **60°C** and return is a minimum of **50°C** or more at all times

**This has not been carried out.**



**SITE SURVEY**

System Reference	Saxon Wharf Marina
Location	All Site
Method	Visual Assessment and Temperature Profiling

**COLD WATER STORAGE**

Cold water storage within the Marina Office Block consists of one storage tank located in the roof space. Upon inspection the tank was found to be of GRP construction. The tank is insulated with a double skin thickness. The tank is fitted with a good fitting lid and has been fitted with a screened vent. The inlet and one outlet are fully opposed therefore there is a good cross flow of water through this tank. There is an overflow pipe work fitted to the tank, this is fitted with an insect screen. This storage tank serves the toilet flushing and wash basins in the three shower rooms; it also serves the outside sinks, wash basins and toilet flushing in the outside toilets. There was a pipe that joins the mains water pipe near the inlet ball valve, this has since been removed but has left a small dead leg which should be removed. The tank was found to have a slight layer of sediment on the base but there was no biofilm on the sides.

ACoP L8 recommends storage tanks to be inspected annually and cleaned and disinfected if required. This vessel was last cleaned and disinfected in April 2009 and currently does not need repeating.

**The storage temperature of the water tank at the time of the Survey was:**

**Tank      10.4°C.      Satisfactory**

There are no domestic cold water storage tanks located in Saxon House, with the exception of the F&E tank which serves the heating system and is located in the roof space of this building.

**Marina Office Roof Space**

Internal view of the domestic cold water storage tank.



## HOT WATER STORAGE

Hot water storage within Saxon Wharf consists of four calorifiers. The first calorifier is a Sadia Mega flow directly heated vertical unit located behind panelling in the top floor ladies toilets of Saxon House. The calorifier is heated with one electric element located on the bottom of the calorifier. The insulation for this calorifier is factory fitted and located beneath the outer metal casing. The calorifier is fitted with a return system and is fitted with one circulating/return pump. There are still no temperature gauges fitted to the flow and return pipe work for the monthly monitoring of water temperatures; I would recommend these be fitted.

The calorifier is fitted with a drain valve; this should be purged to drain on at least an annual basis and recorded when carried out. I was informed that this is not being carried out. If access allows, the calorifier should be inspected internally for sludge and scale on an annual basis. I was informed that this is not being carried out.

This calorifier serves all hot water outlets within the building.

**The temperature of the stored water within the calorifier at the time of the Survey was:**

Calorifier Storage	52.1°C	Not Satisfactory
Calorifier Return	42.6°C	Not Satisfactory

ACoP L8 recommends hot water should be stored at a minimum of 60°C at all times and that return hot water should be a minimum of 50°C at all times.

I would recommend that the calorifier be adjusted as soon as is practicable to achieve the recommended temperatures.

The second calorifier is located in the Saxon Wharf Marina Office and is a Sadia Mega flow directly heated vertical calorifier located in the rear of the office. The calorifier is heated with two electric elements located on the bottom and middle of the calorifier. The insulation for this calorifier is factory fitted and located beneath the outer metal casing. This calorifier has no return system fitted.

There was still no temperature gauge fitted to the flow pipe work for the monthly monitoring of water temperatures; I would recommend a gauge be fitted.

The calorifier is fitted with a drain valve; this should be purged to drain on at least an annual basis and recorded when carried out. I was informed that this is not being carried out.

If access allows, the calorifier should be inspected internally for sludge and scale on an annual basis. I was informed that this is not being carried out.

This calorifier serves all hot water outlets within the Marina Office and outside toilets and shower rooms.

**The temperature of the stored water within the calorifier at the time of the Survey was:**

**Calorifier Storage            54.6°C            Not Satisfactory**

**ACoP L8 recommends hot water should be stored at a minimum of 60°C at all times.**

**I would recommend that the calorifier be adjusted as soon as is practicable to achieve the recommended temperatures.**

The third calorifier in Saxon Wharf Marina is located on the second floor of Unit 16. It is an OSO indirect, unvented unit that is heated by the main heating boiler and is fed by mains cold water. The insulation for this calorifier is factory fitted and located beneath the outer metal casing. This calorifier has no return system fitted.

There was still no temperature gauge fitted to the flow pipe work for the monthly monitoring of water temperatures; I would recommend a gauge be fitted.

The calorifier is fitted with a drain valve; this should be purged to drain on at least an annual basis and recorded when carried out. I was informed that this is not being carried out.

If access allows, the calorifier should be inspected internally for sludge and scale on an annual basis. I was informed that this is not being carried out.

**The temperature of the stored water within the calorifier at the time of the Survey was:**

**Calorifier Storage      47.0°C      Not Satisfactory**

**ACoP L8 recommends hot water should be stored at a minimum of 60°C at all times.**

**I would recommend that the calorifier be adjusted as soon as is practicable to achieve the recommended temperatures.**

The fourth calorifier in Saxon Wharf Marina is located in the gents toilets on the first floor of Unit 24. This is now sited behind a panel which could not be removed and was therefore not surveyed. I was informed that the following details remain the same from the previous assessment.

The unit is a Sadia Mega flow directly heated vertical calorifier and is heated with electric elements and is fed by mains cold water. The insulation for this calorifier is factory fitted and located beneath the outer metal casing. This calorifier has no return system fitted.

It is thought that there is still no temperature gauge fitted to the flow pipe work for the monthly monitoring of water temperatures; I would recommend a gauge be fitted.

This calorifier serves all hot water outlets within the Marina Office and outside toilets and shower rooms.

**The temperature of the stored water within the calorifier at the time of the Survey was:**

**Calorifier Storage            44.3°C            Not Satisfactory**

**ACoP L8 recommends hot water should be stored at a minimum of 60°C at all times.**

**I would recommend that the calorifier be adjusted as soon as is practicable to achieve the recommended temperatures.**

## DOMESTIC WATER DISTRIBUTION

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.

Domestic hot water within Saxon House distributes from one hot water calorifier located in the top floor ladies toilet and serves all hot water outlets within the building, these include the ladies and gents toilet wash basins, kitchen and cleaners room on the top floor and ladies and gents toilet wash basins, disabled toilet wash basin and kitchen on the ground floor.

Mains cold water within Saxon House enters the building in the ground floor kitchen and serves all cold water outlets within the building, hot water calorifier and the storage tank for the heating system.

Domestic hot water within the Marina Office distributes from one hot water calorifier located in the rear of the office and serves hot water outlets in the kitchen, outside toilets and sinks, also the wash basins in the three shower room cubicles.

Cold water down services within the Marina Office distributes from the one cold water storage tank located in the roof space and serves the wash basins and toilet flushing in the outside toilets, the three shower rooms and also serves the outside sinks.

Mains cold water service enters the Marina Office at the rear and serves the cold water storage tank. The mains water then serves the hot water calorifier and showers.

Domestic hot water within the Unit 16 distributes from one hot water calorifier located on the first floor and serves all the hot water outlets in this building except the kitchen which has an electric local water heater.

Domestic hot water within the Unit 24 distributes from one hot water calorifier located on the first floor gents' toilets and serves all the hot water outlets in this building.

All other buildings on site that have a water supply are mains fed and the hot water is supplied by local electric water heaters.

In all areas of distribution and use, inspection, test and measurement was undertaken at representative positions in order to evaluate conditions and areas of potential risk.



At the time of the Survey (within one minute) these hot water outlets within the buildings were recorded as follows:-

<b>Saxon Wharf Marina</b>	
Saxon House Ground Floor Gents Toilet Wash Basin	50.0°C Satisfactory
Marina Office Kitchen Sink	55.5°C Satisfactory
Unit 1 Kitchen Sink	No access was available to this building
Unit 2 Unisex Toilet Hand Basin	No access was available to this building
Unit 3 Unisex Toilet Hand Basin	No access was available to this building
Unit 4 Kitchen Sink	Electric Local Water Heater 54.5°C Satisfactory
Unit 5 Toilet Hand Basin	Electric Local Water Heater 47.3°C Not Satisfactory
Unit 8 Sink	Electric Local Water Heater 66.5°C Satisfactory
Unit 16 Gents Toilets Hand Basin	46.3°C Not Satisfactory
Unit 16 Ground Floor Kitchen Sink	Electric Local Water Heater 44.2°C Not Satisfactory
Unit 17 First Floor Ladies Toilets Hand Basin	Electric Local Water Heater 61.7°C Satisfactory
Unit 22 First Floor Kitchen Sink	No access was available to this building.

Unit 24 Gents Toilets	44.3°C Not Satisfactory
Unit 24 Mess Room Sink	59.5°C Satisfactory
Portacabin Kitchen (rear of Unit 24) Sink	47.1°C Not Satisfactory

ACoP L8 recommends that the hot water should achieve 50°C, obtainable at user outlets within one minute of opening.

TMV's (Thermostatic Mixing Valves) are often fitted to ensure that the water temperature at hot water outlets does not exceed 43°C and scald users (and ideally should not be less than 39°C).

The hot water supplying the TMV's should be 50°C at the TMV inlet as recommended in ACoP L8.

At the time of the Survey (within two minutes) the cold water outlets within the buildings were as follows:

<b>Saxon Wharf Marina</b>	
Saxon House Ground Floor Gents Toilet Wash Basin	10.6°C Satisfactory
Marina Office Kitchen Sink	9.4°C Satisfactory
Unit 1 Kitchen Sink	No access was available to this building
Unit 2 Unisex Toilet Hand Basin	No access was available to this building
Unit 3 Unisex Toilet Hand Basin	No access was available to this building
Unit 4 Kitchen Sink	9.4°C Satisfactory
Unit 5 Toilet Hand Basin	9.2°C Satisfactory
Unit 8 Sink	10.6°C Satisfactory
Unit 16 Gents Toilets Hand Basin	9.7°C Satisfactory
Unit 16 Ground Floor Kitchen Sink	13.3°C Satisfactory
Unit 17 First Floor Ladies Toilets Hand Basin	10.9°C Satisfactory
Unit 22 First Floor Kitchen Sink	No access was available to this building.

Unit 24 Gents Toilets	10.5°C Satisfactory
Unit 24 Mess Room Sink	10.9°C Satisfactory
Portacabin Kitchen (Rear of Unit 24) Sink	10.2°C Satisfactory
Pontoon Hose	5.4°C Satisfactory

**ACoP L8 recommends cold water should be stored and distributed at no more than 20°C.**

**GENERAL**

- All infrequently used outlets, wash basins, showers; cleaner's sinks outside taps etc. create dead legs and should therefore be flushed on a weekly basis (without creating an aerosol) and recorded in a systems water logbook when carried out. I was informed that the outside tap on Unit 7 is only used approximately every three weeks. The only outlets being flushed on a weekly basis are the outside taps and pontoon hoses.
- Dead leg pipe work is an ideal area for the proliferation of bacteria including Legionella. Dead legs should be removed or put on a weekly flushing regime (without creating an aerosol) and recorded in the logbook when carried out.

At the time of this 2013 Risk Assessment Review dead legs were found in the following areas:-

- DL1 - Unit 16 - There is a dead leg on the cold water pipe in the ground floor gents' toilets.
- DL2 - Marina Office Roof Space - there is a small dead leg on the mains cold water pipe to the inlet ball valve.

In Unit 8 the cold water pipe runs along the wall and then penetrates it and on previous surveys could not be traced further. I was informed on this 2013 survey that the pipe supplies the building next door.

- Most of the taps within the Marina Office Block are push down type fitted with spray inserts, these spray inserts reduce the flow of water through the system. I would recommend these inserts be removed to increase water turn over. I would consider replacing the push down taps with conventional taps with handles this would greatly increase flow of water through the hot and cold water systems.
- TMV valves in the Marina Office Block should be adjusted to supply the hot water to the wash basin at a maximum of **43.0°C**.
- Monthly temperature monitoring of the calorifier flow and return pipework (where fitted) should be carried out and recorded. There are four calorifiers on site but monthly temperature monitoring is only being carried out on Saxon House and the Marina Office Building.

**This should be also carried out on the calorifiers within Unit 16 and Unit 24 and commenced as soon as is practicable.**

- Monthly temperature monitoring of the hot and cold outlets is being carried out on some the hot and cold outlets. The water temperatures of **every** sentinel (the nearest and furthest from the supply) outlet must be taken monthly and recorded. Other representative basis should have temperatures taken on a monthly rotational basis so that over a period of 12 months all outlets will have been covered.

- Water temperatures from the domestic cold water storage tanks is being taken (remote from the inlet valve) on a six monthly basis and be recorded within the logbook.
- It must be ensured that all personnel involved with Legionella management are competent and adequately trained. I would also recommend that refresher training is given annually.
- A Written Scheme should be prepared to ensure that all necessary controls are maintained, monitored and remain effective.

BS8580 states – ‘Note- The Risk Assessment does not involve the preparation of the written scheme but rather provides information that is critical to the preparation’.

## RECORDS

A logbook is being used on this site but not all practices are being recorded, e.g. flushing of infrequently used outlets, pontoon hoses etc.

### **Details of the following should be included:**

- Maintenance carried out on water systems.
- Cleaning and disinfection of the domestic cold water storage tank.
- Inspection of the domestic cold water storage tank.
- Monthly temperature monitoring.
- Flushing of infrequently used outlets (weekly).
- Annual inspections of calorifiers.
- Purging of calorifiers.
- Changing/cleaning of inline filters.
- Faults and defects to be recorded.
- Audit sheet for inspections of the logbook and dated when completed.

**All of the above should be included in the water systems logbook and signed for when completed.**



**ADDITIONAL PHOTOGRAPHS**

**DL 1**

**Unit 16**

There is a dead leg on the cold water pipe in the ground floor gents' toilets.



**DL2**

**Marina Office Roof Space**

There is a small dead leg on the mains cold water pipe to the inlet ball valve.



## **SUMMARY OF RECOMMENDATIONS**

For ease of reference the actions and recommendations made throughout this report are summarised in this section. They should read in conjunction with the preceding observations section.

### **LEGIONELLA RISK CATEGORY KEY**

1 = Insignificant risk.

2 = Controlled risk.

3 = Risk is controlled, but deteriorating conditions could increase risk.

4 = Potential hazards identified, but uncertain about risk.

5 = Risk Uncontrolled

Site Reference/ Address	Remedial/Recommendations	Priority	Date Actioned	Signature
<u>Hot Water Storage</u> <u>Saxon Wharf</u> <u>Marina</u>	Ensure all calorifiers (where needed) are adjusted to store hot water at a minimum of <b>60°C</b> at all times and the return is a minimum of <b>50°C</b> at all times.	<b>5</b>		
	Purge all calorifiers to drain annually and record when carried out.	<b>4</b>		
	Fit temperature gauges to the flow (and return where fitted) pipe work on hot water calorifiers for monthly temperature monitoring.	<b>3</b>		
	Commence full temperature monitoring of the domestic hot water system (including <b>all</b> calorifiers and sentinel outlets) and record within logbook.	<b>5</b>		
	If access allows, visually inspect the calorifiers internally for scale and sludge on an annual basis.	<b>4</b>		
<u>Cold Water Storage</u> <u>Saxon Wharf</u> <u>Marina</u>	Commence full temperature monitoring of the domestic cold water system (including <b>all</b> sentinel outlets) and record within the logbook.	<b>5</b>		
	Inspect the cold water storage tank within the Marina Office roof space annually and clean and disinfect if required.	<b>3</b>		

Site Reference/ Address	Remedial/Recommendations	Priority	Date Actioned	Signature
<u>Distribution</u> <u>Saxon Wharf</u> <u>Marina</u>	Weekly flushing of all low use infrequently used facilities showers, wash down hose reels etc. and record when carried out. Especially in winter months when facilities are not used.	5		
	Remove all dead leg pipe work or put on a weekly flushing regime (without creating an aerosol) and record within the logbook when carried out.	5		
	I would recommend bacteriological and legionella water samples be taken if temperatures fall outside the required limits (as is currently the case).	5		
	TMV's to be serviced and maintained as per the manufacturer's recommendations.	5		
	Ensure all domestic pipe work is adequately insulated to prevent heat gain / loss.	5		
	Flush any pontoon hoses as often as necessary to keep the cold water temperature to below the maximum temperature of 20°C as outlined in L8.	5		
	Fit scald warning signs near very hot outlets.	1		
	A Written Scheme should be prepared to ensure that all necessary controls are maintained, monitored and remain effective. BS8580 states – 'Note- The Risk Assessment does not involve the preparation of the written scheme but rather provides information that is critical to the preparation'.	5		

Site Reference/ Address	Remedial/Recommendations	Priority	Date Actioned	Signature
	I would recommend that <u>all</u> legionella management be recorded within the water services logbook.	4		
	It must be ensured that all personnel involved with Legionella management are competent and adequately trained. I would also recommend that refresher training is given annually.	5		