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INTRODUCTION

This report relates to a **Review** of the Legionella Risk Assessment that was carried out by Freeston Water Treatment in April 2008; this is the latest Risk Assessment for this centre. The Review Survey was carried out at Locksheath Day Centre, Heath Road, Locksheath Southampton SO31 6PJ. The Review of Recommendations highlighted in the previous Risk Assessment was 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 as asked for by Hampshire County Council in accordance with ACoP L8 'The control of Legionella bacteria in water systems' (APPROVED CODE OF PRACTICE & GUIDANCE) only:

The Review has been limited to the terms of reference agreed between Hampshire County Council 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, pipe work 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.

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.

During this Review Survey it was identified that temperature monitoring of the domestic hot and cold water systems is now being carried out. A new water systems logbook has now been issued for 2011 by Hampshire County Council; all monitoring and checks are being recorded within the logbook and at the time of this Review the monthly monitoring was found to be up to date. The duty holder and responsible persons have been nominated in writing but the operational staff have not been identified; I would recommend the operational staff that carry out the monitoring procedures be named in writing.

The procedures which have been implemented by Hampshire County Council regarding the showerheads is being carried out and recorded within the logbook documentation. The showerheads are being cleaned and disinfected on a weekly basis and the showerheads are being descaled on a quarterly basis; again this is being recorded when carried out. The adjustable showerheads have now been replaced with new non adjustable type as recommended.

The calorifier flow and return temperatures are now being recorded monthly in the water systems logbook. At the time of this Review the calorifier return temperature was found to be low; this has been the same for the last three months and has been reported to the site management. I would recommend the return system be investigated as soon as possible for the correct operation. The calorifier return system must maintain at least 50°C or more at all times.

The logbook is being audited by the site manager on a monthly basis and recorded when carried out.

COLD WATER STORAGE

There are no cold water storage tanks at Locksheath Day Services; all cold water is supplied directly from the mains water services.

HOT WATER STORAGE

Hot water storage within Locksheath Day Centre is by one gas fired Andrews's calorifier with a storage capacity of 145 litres. The calorifier has factory fitted insulation beneath the outer metal casing; the calorifier has a return system this is fitted with a single circulating return pump. As already mentioned at the time of this Review and for the past few months the return temperature has been found to be below those recommended in the ACoP L8; I would recommend this be investigated as soon as possible to ensure the correct operation of the return system. Temperature gauges have been fitted to the flow and return pipe work to aid with monthly temperature monitoring; these are not a very good fit to the pipe work and do not give accurate readings.

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.

The calorifier flow and return temperatures at the time of this Review were:

Calorifier Flow	**65.0°C**	**This is Satisfactory**
Calorifier Return	**45.0°C**	**This is Not Satisfactory**

The hot water return temperature should be maintained at 50°C or more at all times; I would recommend the return pump be investigated for the correct operation.

Andrews's hot water calorifier serving all hot water outlets within the day centre.

Temperature gauges fitted to the flow and return pipe work have been fitted to aid with monthly monitoring. Gauges do not fit well and do not give an accurate temperature.

GENERAL

There are two showers within the day centre; these have had new non-adjustable showerheads fitted to them as recommended in the last Risk Assessment. The procedures implemented by Hampshire County Council regarding the cleaning and disinfection and descaling are being carried out.

All outlets and infrequently used outlets within the day centre are being flushed on a weekly basis and this is being recorded within the water systems logbook when carried out.

Scale build up on tap outlets can act as a nutrient for bacteria proliferation; I would recommend that tap outlets be cleaned and descaled on a regular basis.

The TMV's within the day centre are being serviced and maintained by contractors; this is being carried out on a six monthly basis. All maintenance records are being filed in a separate folder from the water systems logbook. The TMV's within the day centre are adjusted to meet the correct water temperatures by contractors during servicing and maintenance; this was last carried out in February 2011.

Since the Risk Assessment was carried out some bubble tubes have been removed; there is still one left in place. The water is changed within the tube every two months; supplied from the mains water services this is not recorded.

The hydrotherapy pool is being monitored daily by site staff; the following are recorded within the logbook:

PH

Chlorine Levels

Combined Chlorine

I was informed that the hydrotherapy pool is being drained and cleaned and refilled with fresh water at least on a fortnightly basis. The sand filter is being backwashed at least on a fortnightly basis; I would recommend this is carried out on a daily basis. Monthly planned maintenance is being carried out by contractors Carillion; it was noticed that no bacteriological or Legionella water sampling is being carried out on the water system; I would recommend that bacteriological water sampling be carried out monthly and Legionella water sampling be carried out on the water system at least on a quarterly basis.

General

Hydrotherapy pool is drained and cleaned and refilled with fresh water at least on a fortnightly basis. The water system is being monitored and checked on a daily basis.

The pool sand filter is being back washed at least on a fortnightly basis. I would recommend this is carried out on a daily basis.

TMVs are being serviced and maintained and temperature adjustment if required on a six monthly basis by contractors.

HOT & COLD WATER TEMPERATURES

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.

The following water temperatures were taken at random as follows:-

Toilet No.1 Wash Basin		
Hot	50.0°C to TMV 39.0°C from TMV	Satisfactory
Cold	12.1°C	Satisfactory
Cleaners Room Sink		
Hot	64.5°C	Satisfactory
Cold	12.2°C	Satisfactory

RECOMMENDATIONS & SUMMARY

During the Last Risk Assessment several items were recommended:-

Commence temperature monitoring of the domestic hot and cold water system and record in the logbook.

This is now being carried out and recorded in the water systems logbook.

Manually check circulating pump monthly to ensure effective operation.

This is checked when monitoring return temperature monthly.

Ensure all hot water calorifiers are adjusted to achieve 60.0°C storage temperature & 50.0°C or more on the return temperature.

Return temperature was found to be low and has been for three months; this was reported to the management.

Purge calorifiers to drain periodically at least six monthly and record when carried out and condition of water.

No record of this being carried out.

Fit temperature gauges to the flow and return pipe work on calorifier.

This has been carried out.

Twice weekly flushing of all low use infrequently outlets - showers, toilets, hand basins, sinks, hose reels etc. and record when carried out.

Weekly flushing is being carried out on all outlets and also on infrequently used outlets and recorded when carried out.

Bacteriological and Legionella water samples to be taken annually or more frequently if temperatures fall outside limits or the Centre has 'at risk' clients.

No record of any water sampling being carried out.

Clean and disinfect showerheads quarterly record when carried out.

Showerheads are being cleaned and disinfected weekly and descaled on a quarterly basis; this is recorded when carried out.

Thermostatic mixing valves should be serviced and maintained as per manufacturer's recommendations.

This is being carried out on a six monthly basis; last carried out in February 2011.

Thermostatic mixing valves to be adjusted to achieve the correct outlet temperatures.

This is being carried out at the time of the service and maintenance schedule.

Replace all adjustable spray showerheads with non adjustable items as recommended.

Showerheads have now been replaced with non adjustable type.

Fit check valve to mains cold water supply pipe work to bubble tube manifold.

This has not been carried out; all bubble tubes have been removed with the exception of one which is drained and refilled with clean fresh water every two months.

Fit 'scald risk' warning sign to cleaners sink hot outlet.

Hot water warning label has been fitted.

It is recommended that the following are carried out:-

- Continue with all current procedures implemented by Hampshire County Council and continue to record in water systems logbook.

- Investigate the low hot water return temperature as soon as possible; determine if return pump is operating correctly.

- I would recommend bacteriological and Legionella water sampling be carried out on the hydrotherapy pool water system.

- I would recommend the hydrotherapy pool sand filter system be back washed daily and completely changed of water at least every two days.

- Start purging calorifier to drain on at least a six monthly basis and record in the water systems logbook when carried out.

SUMMARY

As reported a new water systems logbook has been issued by Hampshire County Council for 2011 for the day centre and monthly temperature monitoring is being carried out by site staff; and at the time of this Review the logbook was seen to be up to date. I would recommend that the operational staff carrying out the monitoring be nominated in writing and recorded within the logbook documentation.

It should be ensured that the calorifier return system be investigated for the correct operation as monthly temperature monitoring has proved low temperatures for the last three months; this has been reported to the site management and should be acted upon.

I would recommend that the current procedures and checks that have been implemented be continued; and continued to be recorded within the logbook documentation.

It was found during this Review that no bacteriological or Legionella water sampling is being carried out on the hydrotherapy pool system. I would recommend that bacteriological and Legionella water sampling be started on the hydrotherapy pool. I would also recommend the sand filter be back washed on a daily basis.