Aquastat
water treatment specialists

# LEGIONELLA RISK ASSESSMENT

## THE PREVENTION AND CONTROL OF LEGIONNAIRES' DISEASE

| | |
|---|---|
| **Client:** | Wessex RF & CA |
| **Site:** | Wyvern Barracks – Building 19 |
| **Address:** | Officers & Sgts Mess, Barrack Road, Exeter, Devon EX2 |
| **Risk Rating:** | Low |
| **Report Ref:** | AQST/LRA/331 |
| **Surveyed By:** | G. Ford |
| **Survey Date:** | 12th March 2024 |
| **Report Date:** | 15th March 2024 |
| **Written By:** | L. Blakemore |
| **Checked By:** | J. Rooney |
| **Recommended Review Date:** | March 2026 |

# Contents





Artius Property Protection Limited T/A Aquastat
Registered Office: SBC House, Restmor Way, Wallington, Surrey SM6 7AH
Registered in England No. 09632816

## 1. EXECUTIVE SUMMARY

This document is intended to identify the risk of developing legionnaire's disease from the building water system. The Health and Safety Executive Approved Code of Practice recommends Risk Assessments should be reviewed on a regular basis and in accordance with the current ACOP recommendations.

The Health and Safety commission issued an Approved Code of Practice for "Prevention of Legionellosis (including legionnaires' disease)" which came into effect on 15th January 1992, requiring a risk assessment to be undertaken. Guidance notes were issued by the Health and Safety Executive in the form of HS(G)70 and on the 8th January 2001 the Approved Code of Practice L8 came into force and BS8580:2019. This risk assessment is structured around the requirements of these documents, ACOPL8 revised and HSG274 Parts 1, 2 and 3 and The Water Regulations Guide.

Legionellosis is the term used for infections caused by legionella pneumphila and other bacteria from the family Legionellaceae. Legionnaire's Disease is a pneumonia that principally effects those who are susceptible due to age, illness, immunosuppression, smoking etc. and may be fatal. Legionellae can also cause less serious illnesses that are not fatal or permanently debilitating but which can affect all people. Infection is attributed to inhaling legionellae, either those water droplets which are small enough to penetrate deeply into the lung, or in droplet nuclei (particles left when water has evaporated). Legionellae are widespread in natural sources of water. They may enter man-made systems or water services, where they can multiply under certain conditions, and if there is a means of creating the transmitting water droplets, people in the vicinity may be at risk. Between 200-400 cases of legionellosis are reported in England and Wales every year.

For a risk to be present a chain of events has to occur:

* System infection
* Legionellae proliferation enhanced by system conditions
* Aerosol formation
* Inhalation of aerosol by susceptible individual

Since aerosol formation and inhalation is difficult to avoid the onus falls on the operator to prevent system infection and to eliminate conditions in which legionellae thrive. The aim is to reduce the risk to an acceptable level by controlling the conditions necessary for proliferation of the bacterium. As a general rule, in practice this means: Keeping the hot water storage temperature at greater than $60^0$C, maintaining cold water temperatures at less than $20^0$C, keeping water systems clean and in good condition and controlling contamination of the water systems. It is, however, understood that some small systems, particularly when instantaneous water heaters are being used as a hot water source, may not be able to achieve these parameters and further recommendations will be given as required.

In order to achieve this aim, a detailed legionellosis risk assessment has been carried out, the results of which are used to produce recommendations for the control of the bacterium.

Full details of the required actions are enclosed.



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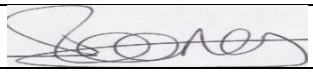
## 1.1 STATEMENT OF INTENT

Aquastat has completed this Legionella Risk Assessment based on a defined programme of work and terms and conditions agreed with the client. Aquastat accepts no responsibility to any parties whatsoever, following the issue of the Legionella Risk Assessment for any matters arising outside the agreed scope of the work.

**Competency of Assessors**

The Legionella Risk Assessment survey and subsequent report were undertaken and completed by an authorised representative of Aquastat. We can confirm they have achieved a third-party accreditation and have sufficient experience to demonstrate competency in the ability to assess risk in terms of legionella risk within domestic water systems.

This report was checked by an authorised senior representative of Aquastat. Written evidence of appropriate competency can be provided where necessary.

| | |
|---|---|
| **Checked by** | Jason Rooney |
| **Signed** |  |
| **Position** | Account Manager |
| **Date Checked** | 16th April 2024 |

Any questions or matters arising from this risk assessment should be addressed in the first instance to:

| | |
|---|---|
| **Address:** | Unit N, The Old Parlour<br>Purn House Farm,<br>Bleadon,<br>Weston-Super-Mare<br>North Somerset,<br>BS24 0QE |
| **Telephone Number:** | 01934 811264 |
| **E-Mail:** | enquiries@aquastat.co.uk |
| **Account Manager** | Jason Rooney |
| | Contact Telephone No: 01934 811564 |
| | Mobile Phone: 07979 278370 |
| | Email : jason.rooney@aquastat.co.uk |

**This risk assessment does not involve the preparation of the written scheme of control, but rather provides information that is critical to its preparation, improvement, and review.**

**Ensuring that there is a written scheme of control is a legal requirement of the duty holder, though they might instruct the risk assessor to advise or prepare the scheme of control on their behalf as a separate commission. It is important that operation and maintenance individuals are consulted.**

The survey and assessment were conducted by Gary Ford of Aquastat on 12/03/2024 on behalf of Wessex RF & CA**.**

This risk assessment only covers those water systems identified and made accessible to the assessor at the time of the survey.

**Location:**
Within Wyvern Barracks

**Site Description:**
Officers & Sgts Mess

**Site Layout:**
2 storey brick built building consists of kitchen, toilets and bars

**Mains Cold Water Services (MCWS):**
The incoming mains stop tap is in the G/F Kitchen store (boxed in)

**Cold Water Storage Tank(s) (CWST) and Cold-Water Down Services (CWDS):** N/A

**Hot Water Storage Vessel(s) and Hot Water Systems (HWS):**
There is a calorifier in the cloak room roof space (another calorifier is off line)

**Thermostatic Mixer Valves (TMV) and Thermostatic Mixer Taps (TMT):**
There are 3 x TMV's on site in the G/F Kitchen, Disabled and 1st f Gents

**Showers and Spray Outlets:**
There are 3 x showers on site 2 in the 1st f Gents and 1 in the 1st f Ladies

**Water Heaters:** N/A

**Expansion Vessels:** N/A

**Water Softeners:**
There are 2 x water softeners, 1 on the G/F Kitchen steamer and 1 on the G/F Kitchen dishwasher

## 2. SUMMARY OF RECOMMENDATIONS and RISK RATING

This Risk Assessment has been carried out in order to ascertain the possible risk of contracting Legionellosis, including Legionnaires' disease, from water systems and to identify the maintenance activities required to control or prevent the risk from Legionella, including any remedial works that may be required to improve upon the findings of this assessment.

The water systems throughout this building, unless otherwise stated, have been surveyed utilising the specific asset survey forms within section six of this assessment. Each question is answered and, depending upon the survey findings, a risk score is allocated utilising the matrix below.

This matrix is designed to indicate possible risk or problematic areas within the assets or water systems.

Multiple questions will be asked for all aspects of the water asset or services present on the site.

The results from these questions will then be scored upon the risk of Legionella. The key to this scoring is:

**KEY**

| | Risk Level | Action |
|---|---|---|
| **N/A** | The risk from Legionella is not applicable under normal operating conditions. | No action required for the control of Legionella. Other remedial actions may be applicable. |
| **LOW** | There is a low risk under normal operating conditions. | No additional actions required above ensuring compliance with ACoP L8 |
| **MEDIUM** | There is a medium risk under normal operating conditions. | Implement risk reduction measures in compliance with ACoP L8 e.g.: Remedial Works or Control Scheme. |
| **HIGH** | There is a high risk under normal operating conditions. | Implement Immediate or more radical risk reduction measures e.g. Emergency disinfection. / System changes or prohibition of use. |

Where Legionella management and training is insufficient or lines of communication are not established, which are quantifiable on the surveyor's experience and knowledge.

The assessor will use the knowledge of others as well as his own technical knowledge in the judgement of the water systems assessed within this document.

We cannot guarantee that all pipe work passing underground or through floors, walls and ceilings has been traced, and it is possible that certain system dead-ends or dead-legs may not have been identified. As a result, the schematic diagram(s) contained within this report only details the visible or assumed pipe work.

Whilst every effort has been made to ensure the accuracy of the content of this document, Aquastat will accept no responsibility for any omissions that are not included.

## OVERALL SYSTEM RISK STATUS

The susceptibility of personnel upon this site to the cause and effects of Legionnaires' disease have been assessed within the known range for specific Legionella susceptibility. Understandably, not every person has been interviewed to their susceptibility. Therefore, assumptions have been made as appropriate, based upon visual observations and communication during this assessment.

| Population Profile | |
|---|---|
| Health of Users | Generally fit & healthy |
| Property Occupancy | Site staff |

| Risk Assessment | | LOW 1-2 | MEDIUM 3 | HIGH 4-5 |
|---|---|---|---|---|
| Are conditions suitable for multiplication of bacteria including Legionella Pneumophila? *E.g. where optimum temperatures for microbial growth and stagnation occur, e.g. dead legs and infrequently used outlets*. | | **1** | | |
| Are nutrients present within the system? *E.g. sludge, scale, rust, algae and other organic matter.* | | **2** | | |
| Is there a means of creating and disseminating breathable droplets? *E.g. aerosol generated by a shower.* | | | **3** | |
| Are high risk groups using the water services? *E.g. persons over the age of 45, those with impaired or underlying health issues and compromised immune systems.* | | **2** | | |
| Are control systems in place and checks currently being carried out? *E.g. Is monitoring being carried out at correct intervals? is it effective? Have there been positive legionella cases identified?* | | **1** | | |
| Risk Factor | **9** | **LOW** | | |
| **Low 5-11; Medium 11-19; High 19+** | | | | |
| **Important Note:**<br>Low risk does not mean no risk and all recommendations highlighted within this document should be addressed.<br>It remains the responsibility of the Duty Holder to ensure that the risk assessment remains valid at all times, any significant changes to the systems/type of occupancy/management structure may warrant a new assessment to be undertaken. Contact Aquastat if further advise is required. | | | | |



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## RECOMMENDATIONS & REMEDIAL ACTIONS REQUIRED

| SYSTEM TYPES | | | RISK RATING |
|---|---|---|---|
| | ***HOT AND COLD WATER SYSTEMS:*** | | |
| 01 | Flexi's should be WRAS approved or hard piped where possible | | Medium |
| | Actioned date: | Company/initials: | |



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## LOG BOOK DOCUMENTATION/RECORD KEEPING

PREMISES : Wyvern Barrack - Building 19

| | | |
|---|---|---|
| **Is there a water hygiene log book on site** | YES | |
| If yes - please confirm the following: | | |
| Where is the log book located? | Building 22 | |
| Name and position of person responsible for log book? | Dean Bywood | |
| Has this person received the appropriate training in Legionella Control & is there evidence | | NO |
| Does the log book contain a copy of the existing Legionella Risk Assessment? | YES | |
| Does the log book contain written scheme for Legionella control? | | NO |
| Are there any non-conformances outstanding from previous Risk Assessments | | NO |
| Are monthly temperature checks being taken and regularly recorded? | YES | |
| Is there an attendance log sheet in the book? | YES | |
| If applicable are showers being dismantled, cleaned and disinfected on a regular basis and regularly recorded? | YES | |
| Are CWST's and Hot Water Storage Vessels being monitored on a 6 monthly or Annual basis? | N/A | |
| If applicable are little used outlets being flushed weekly and regularly recorded? | | NO |
| If applicable are mixer valves being serviced on an annual basis and regularly recorded? | YES | |
| If no log book on site, please advise the following: | | |
| **Is the log book held at a different location?** | | |
| If yes - please give name of responsible person and full address and telephone number | We understand copies of all related works are held centrally and uploaded onto a shared drive | |
| Is there an asset register on site? | YES | |
| Are Safety Data Sheets held for chemicals associated with Legionella control? | | NO |

If there is no log book on site, or held at a different location this represents a non-compliance with the Approved Code of Practice

All records and inspection reports should be kept in the site legionella control logbook for a period of 5 years

If the log book is held at a different premises, it is the duty of the responsible person to ensure the above checks are carried out and fully recorded.

| Control Scheme | Is it Actioned | Carried out by whom | Frequency | Is it logged | Comments |
|---|---|---|---|---|---|
| Infrequently used outlet flushing | Yes | Site | Weekly | No | Required Weekly |
| Hot and cold sentinel outlets temperature monitoring | Yes | Aquastat | Monthly | Yes | Required Monthly |
| Hot and cold representative outlet monitoring | Yes | Aquastat | Monthly | Yes | Required Monthly |
| Shower, rinse hose, spray outlet descales | Yes | Aquastat | Quarterly | Yes | Required Quarterly |
| Hot Water Storage Vessel flow and return temperature monitoring | Yes | Aquastat | Monthly | Yes | Required Monthly |
| Hot Water Storage Vessel internal inspections | Yes | Aquastat | Annually | Yes | Required Annually |
| TMV servicing | Yes | Aquastat | Annually | Yes | Required Annually |
| Strainer cleaning | Yes | Aquastat | Annually | Yes | Required annually |
| Water Softener servicing | No evidence seen | | | | Required annually |
| Risk Assessment | Yes | Aquastat | As per LRA Review Date | Yes | This assessment replaces out of date LRA |
| Log Book Audit | No | Site | Annually | No | Log book required for implementation of control schemes |
| Regular reviews of Control schemes, Training and competency. | No | Site | Annually | No | Required |
| Sampling (Legionella or TVC) | Yes | Aquastat | Annually | Yes | As Required |

## 3. GENERAL PRECAUTIONS AND ACTIONS

The list below indicates the essential practical maintenance/management actions for which the head of site is responsible for ensuring.

1. Operate hot water systems at or above the approved minimum temperature. Storage should be above 60°C. Outlet (tap) temperatures should be above 50°C (unless fitted with a thermostatic mixing valve (TMV). Terminal fittings or communal showers in buildings used by young children/the very old and those with sensory loss should be supplied with water through thermostatic mixing valves so that the temperature of the water discharged at the outlets does not exceed 43 degrees C.

2. Maintain cold systems at or below the approved maximum water temperature. It is acceptable for the temperature to be 2°C greater than the incoming mains water temperature. However, this should not exceed 25°C.

3. Infrequently used outlets should be removed and any dead legs capped off at the main circulation or added to a flushing regime. Where showers are required and retained, they are to be run at least once per week or if possible, daily. Shower heads should be cleaned and disinfected in accordance with HSG274 at least on a quarterly basis.

4. Avoid the creation of unnecessary aerosols of water.

5. Ensure that the system is cleaned and disinfected if you become aware of any activity or occurrence, which you believe, may jeopardise water hygiene. Should a disinfection be required an Aquastat representative could advise?

6. Maintain records of temperature checks – regular temperature checks should be taken from selected tap outlets after one running minute. A standard UKAS calibrated thermometer held under the water flow is all that is needed. The temperature should be recorded in the legionella log book. The results recorded on a simple temperature record table. When temperatures consistently fail to comply with the approved ranges your water hygiene company should be contacted for further guidance and advice.

7. When the site is unused for more than 72 hours it is advisable to run hot and cold tap outlets on entry to the building to ensure stagnant water is removed from the pipework before use. **

8. After plumbing (i.e. new water heater or pipework alterations etc.) have been carried out, the site should be chlorinated to BS8558 standard - it may be necessary to fit an injection point to enable this process.

9. All outside bib taps should be fitted with a double check valve to prevent back flow.

10. Buildings with mixtures of lead, copper and iron pipework should be considered for refit in the long-term budget.

11. Dedicated drinking water tap should be clearly labelled.

12. Intermittently Used Buildings:

** On entry to a building after period of closure one senior nominated person should ensure the following before any personnel are allowed to use the water systems.

*a.* The furthest tap from the mains entry point should be turned on and flushed – this will ensure that any water lying dormant within the building or trapped in the feed pipe from the mains supply is thoroughly flushed and allowing the cold water to attain towns water temperatures at outlets. Approximately 2-3 minutes constant running of a mains tap if the building is close to the towns water stop tap, or 10 minutes if over 100yds should be sufficient.

b. Instantaneous water heaters are not designed to store hot water at 60 degrees as the guidelines suggest but we would recommend that the heaters are turned on and allowed at least 5 minutes for the temperature to rise to over 45 degrees C before use.

13. Positive Legionella Results

13.1 Positive Legionella results from a water system are reported to the client's responsible person by the fastest means available. This is usually a telephone call or email which will be confirmed by emailing the laboratory's analysis report and setting down in writing the initial corrective measures that we and/or our client should be undertaking.

13.2 The corrective measures advised will depend on individual circumstances and will be based on the guidance notes form HSE's ACOP HSG274 Parts 1,2,3 and will be instigated as quickly as possible after receiving an order from client.



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## 4. GENERAL SITE INFORMATION

| | |
|---|---|
| Building Description and type of use | 2 storey red brick building |
| Approx. number of occupants and overall age group | Varies up to 50 people aged 18 years+ |
| Normal operational hours of this building | 09:00-18:00 |
| On site contact name at date of LRA | Dean Bywood |

## SCOPE OF RISK ASSESSMENT

- Non-intrusive Site inspection visit of the agreed survey site to determine the current condition and usage of plant associated with domestic water systems on site.
- Non-intrusive Site inspection visit of the agreed survey site to determine the current condition of the management control of plant associated with domestic water systems on site.
- Produce a written report to relay the results generated from the site visit.
  Produce a site-specific asset register.
  Produce a site-specific and up to date schematic of the water systems of the survey site.

The temperatures have been taken and recorded from all areas that were accessible to the assessor during the survey; however, in larger complex buildings a representative number of temperatures may only be taken and recorded.

The following areas of the site have not been assessed:

| Location: | Assets: | Reason: |
|---|---|---|
| N/A | | |

***These listed water systems will only be assessed for risk of Legionellosis and not for any other factor.***

***The extent of the Risk Assessment is reliant on information supplied from site at time of survey and on observable conditions.***

***Whilst every effort has been made to ensure the accuracy of the content of this document, Aquastat will accept no responsibility for any omissions.***



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## 5. LINES OF COMMUNICATION AND RESPONSIBILITY

At this site the following key contacts have been identified.

| | NAME | ADDRESS | TEL NOS |
|---|---|---|---|
| **Duty holder:** *Individual with the legal responsibility to ensure that health and safety is managed effectively* | | | |
| | Mark Armstrong | Wessex RF & CA<br>Mount House<br>Mount Street<br>Taunton TA1 3QE | 01823 217940<br><br>wx-estatesn@rfca.mod.uk |
| **Nominated on site responsible person:** *Individual appointed with and who has accepted responsibility under the authority of the duty holder for ensuring that for the control of Legionella all those assigned to carry out tasks are competent to do so.* | | | |
| | Kelvin Walker | Wessex RF & CA<br>Mount House<br>Mount Street<br>Taunton TA1 3QE | 01823 217942<br><br>wx-estatess@rfca.mod.uk |
| **Deputy on site responsible person:** *In a large undertaking there may be more than one responsible person* | | | |
| Deputy on site responsible person | Dean Bywood (barrack manager) | Building 22, Wyvern Barracks | dean.bywood100@mod.gov.uk |
| | Major Chris Mills (QM) | Wyvern Barracks | |
| Water Supply Company | South West Water | Peninsula House<br>Rydon Lane<br>Exeter<br>EX2 7HR | 01392 446688 |
| Mechanical contractor or Maintenance company | Wessex RF & CA | Mount House<br>Mount Street<br>Taunton<br>TA1 3QE | 01823 250116 |
| Electrical contractor or maintenance company | Wessex RF & CA | Mount House<br>Mount Street<br>Taunton<br>TA1 3QE | 01823 250116 |
| Water Treatment Company for this assessment | Aquastat | Unit N – The Old Parlour<br>Purn House Farm, Bleadon<br>Weston-Super-Mare<br>North Somerset<br>BS24 0QE | Tel: 01934 811264<br>Email -<br>enquiries@aquastat.co.uk |
| | 1st Company contact | Gary Ford<br>General Manager | As above or email<br>gary.ford@aquastat.co.uk |
| | 2nd Company contact | Louise Blakemore | As above or email<br>louise.blakemore@aquastat.co.uk |
| Water Treatment company for Compliance tasks as per HSG274 | Aquastat | Unit N – The Old Parlour<br>Purn House Farm, Bleadon<br>Weston-Super-Mare<br>North Somerset<br>BS24 0QE | Tel: 01934 811264<br>Email -<br>enquiries@aquastat.co.uk |

***NB: If any of the above are not available at the time of inspection it may represent a gap in management procedures which could lead to a risk of infection through miscommunication.***
***NNB: Any changes in the above structure must be recorded as soon as they take effect, and all parties must be notified.***

## 6 SURVEY DETAILS:

### 6. 1 MAINS WATER SUPPLY REPORT

| | |
|---|---|
| Source of supply | Mains water |
| Number of mains cold water supply? | 1 |
| Location of main isolation valve? | G/F Kitchen store (boxed in) |
| Is there a water meter installed? | No |
| Is the pipework labelled? | Yes on boxing |
| Materials of construction | Copper |
| Are there any materials or fittings visibly present on the mains water system, that do not conform to the Water Regulations Advisory Scheme (WRAS) directory? | No |
| Mains water temperature ˚C (sentinel outlets) | Nearest Tap to Incoming Main 9.0<br>Furthest Tap from Incoming Main - |
| Are all other distribution temperatures that were tested within the correct temperature range? i.e. Below 20 ˚C? | Yes |
| Are there any none flow through expansion vessels to any services on this system? | No |
| Is the pipework suitably insulated? | Yes |
| Does the cold-water supply have any inline filters including scale inhibitors/softeners? | No |
| **COMMENTS** | |
| Mains Water Supply Risk Score | Low |

**Photos**


CWM stop tap

## 6. 2 OTHER ASSETS REPORT

| | |
|---|---|
| Are dead legs / infrequently used outlets present within system pipework? | No |
| Are thermostatic mixer valves present on individual outlets? | Yes |
| Are there single mixer valves serving a number of outlets? | No |
| Is the mixed temperature of the pipework >1m? | No |
| Are flexible hoses fitted to any services on the mains water system? | Yes |
| Is there any unused equipment connected? | No |
| Is any scale/debris present on any of the tap outlets? | No |
| Do any tap outlets have any spray or other inserts fitted? | No |
| Are strainers fitted? | Yes |

## 6. 3 COLD WATER STORAGE TANK REPORT

Tank Ref : N/A

| | | | |
|---|---|---|---|
| **Location** | Exact location of tank | | |
| **Structure** | Accurate dimensions lxwxh or dia | | |
| | Materials of tank and any jointing's | | |
| | Insulation type and thickness | | |
| **Lid Details** | Is there a close-fitting lid | | |
| | Is it securely fixed in place | | |
| | Accurate dimensions for new lid | | |
| | Separate ball valve hatch | | |
| | Vent size has it good rodent screen | | |
| **Overflow** | Size and materials of main overflow | | |
| | Is there a rodent filter | | |
| | Size and materials of warning pipe | | |
| | Is there a rodent filter | | |
| **Supply** | Size and materials of pipework | | |
| | Fed from mains, softener or tank | | |
| | Insulation type and thickness | | |
| | Any other return or vent pipes | | |
| Outlets | Size and Materials | Insulation type and thickness | |
| Outlet 1 | | | |
| Outlet 2 | | | Are they valved |
| **Drain valve** | Is there a drain valve – size if applicable | | |
| **Water in Tank** | Temperature C | | |
| | Degree of sediment | | |
| | Biological slime severe/medium/light | | |
| | Extent of corrosion | | |
| | Is there adequate crossflow within the tank? i.e. inlet opposed from outlet? | | |
| | Is the stored water over capacity?? | | |
| **Labels** | Is the tank labelled | | |
| | Supply pipe labelled or coded | | |
| | Outlets labelled or coded | | |
| **Operation** | How far to adequate drain | | |
| | Power supply – volts/distance | | |
| | Is lighting adequate | | |
| | Access limit ht x w | | |
| **CWST Risk Score** | | Low / Medium / High | |

## 6. 4 HOT WATER STORAGE REPORT

HWSV Ref : CAL 01

| | |
|---|---|
| Location of hot water storage vessel | Cloak room roof space |
| Construction | Stainless steel |
| Size of hot water storage vessel | 1500 x 600 |
| Horizontal/vertical | Vertical |
| Storage/non-storage | Storage |
| Main heat source | Coil |
| Supplementary heating | None |
| Insulation type | Factory |
| Is there an open vent | No |
| Is there an Expansion Vessel | No |
| Size of Expansion Vessel | N/A |
| IS there a flow through Valve fitted? | N/A |
| Is there a drain fitted & what size? | N/A |
| What size is access hatch | N/A |
| Is there a drain valve – if yes give size | Yes ½" |
| Does drain valve work | Yes |
| Condition of water from drain valve | Clear |
| Size and materials cold feed pipe | 28mm copper |
| Is cold feed valved | Yes |
| Fed from mains, tank or softened | Mains |
| Pressure gauge reading | N/A |
| Temp from main gauge on hot water flow | 62.3 |
| Temp from gauge on sec return flow | 55.0 |
| Safety valve size | ¾" |
| Is system circulated by sec return (yes/no) | Yes |
| Is calorifier circulated | No |
| Anti-stratification Pump (yes/no) | No |
| Has pump got a time clock | N/A |
| If yes – how many hours is it set in any 24 | N/A |
| Isolating valves on flow/return | Yes |
| Is calorifier labelled | Yes |
| Is pipe work coded/labelled | Yes |
| Power supply voltage/distance | 240v 20m |
| How far to adequate drain | 15m toilet |
| Periods of availability for working | By appointment |
| Access limit Height x width | 520 x 560 |
| Temperature from nearest hot outlet | 60.0 |
| | |
| Hot Water Storage Vessel Risk Score | Low |

## 6. 4 HOT WATER STORAGE REPORT (continued)

### Photos

CAL 01

## 6.5 SHOWERS & SPRAY OUTLETS

Site : Wyvern Barracks – Building 19

**SHOWERS/SPRAY HEADS**

| Location | Nos of showers | Dismantled/ cleaned and disinfected YES/NO | Overall condition | Any repairs replacements | Regularity of Use |
|---|---|---|---|---|---|
| 1st f Gents | 2 MSH | No | Good | None | Unknown |
| 1st f Ladies | 1 MSH | No | Good | None | Unknown |
| **COMMENTS:** | | | | | |
| | | | | | |



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## 6.6 SCHEDULE OF DEAD LEGS/BLIND ENDS

Site : Wyvern Barracks – Building 19

| LOCATIONS | SYSTEM | ACTION |
|---|---|---|
| None located | | |

## 6.7 POINT OF USE WATER HEATERS

EXPANSION VESSEL INFO

| Water Heater ID Number | Location | Make/model and capacity of each heater | Mains or tank fed | Full clean possible | Is there a pressure vessel – Yes/No | If yes – make model and size and whether fitted horizontally or vertically |
|---|---|---|---|---|---|---|
| | None in this building | | | | | |

For information purposes:

A. All cold water should be stored at less than 20 degrees C.
B. All hot water should be set to produce at least 45 degrees C at outlets after one running minute.
C. Temperatures between 20 degrees C at 45 degrees C produce ideal breeding ground for bacteria and should be avoided at all times.

## 6.8 FIRE HOSES

Fire hoses were not located on this site

## 6.9 WATER SOFTENER

Water Softener/s was/were located on site

| LOCATION | MAKE/MODEL | SERVICE RECORDS AVAILABLE | SALT SUPPLY AT TIME OF VISIT |
|---|---|---|---|
| G/F Kitchen steamer | N/A | No | N/A |
| G/F Kitchen dishwasher | N/A | No | None |

## 7. WATER OUTLETS: SITE: Wyvern Barracks – Building 19 March 2024

| Location | Sentinel /Rep Outlet | Sink | WHB | WC T/M | Other | Shower | Bath | Temperature | | | Flexible Hose | Expansion Vessels | TMV's | Mains Tap | Tank Tap | Hot Tap | HW Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Hot | Cold | Blended | | | | | | | |
| ***GROUND FLOOR*** | | | | | | | | | | | | | | | | | |
| Kitchen | S | 3 | 1 | | 1 spud 1 TB | | | 58.9 | 9.0 | 44.0 | 1 | | 1 | 4 | | 4 | CAL 01 |
| Extension | | 1 | | | 1 DSW 1 SO | | | | | | | | | 1 | | 1 | CAL 01 |
| Kitchen Gents | | | 1 | 1 | | | | | | | | | | 1 | | 1 | CAL 01 |
| Kitchen Ladies | | | 1 | 1 | | | | | | | | | | 1 | | 1 | CAL 01 |
| Cleaners | | 1 | | | | | | | | | | | | 1 | | 1 | CAL 01 |
| Disabled | | | 1 | 1 | | | | 56.0 | 9.0 | 41.3 | | | 1 | 1 | | 1 | CAL 01 |
| Gents | S | | 2 | 1 | 3 UR | | | | 14.2 | | | | | 2 | | 2 | CAL 01 |
| Ladies | | | 2 | 2 | | | | | | | | | | 2 | | 2 | CAL 01 |
| JR Bar | | 1 | | | | | | | | | | | | 1 | | 1 | CAL 01 |
| ***1ST FLOOR*** | | | | | | | | | | | | | | | | | |
| Gents | S | | 4 | 4 | 3 UR | 2 MSH | | 60.0 | 10.6 | 40.0 | | | 1 | 4 | | 4 | CAL 01 |
| Ladies | | | 4 | 3 | | 1 MSH | | | | | | | | 4 | | 4 | CAL 01 |
| Bar | | 1 | | | 1 glass wash | | | | | | 2 | | | 1 | | 1 | CAL 01 |

## Water Outlet Legend:

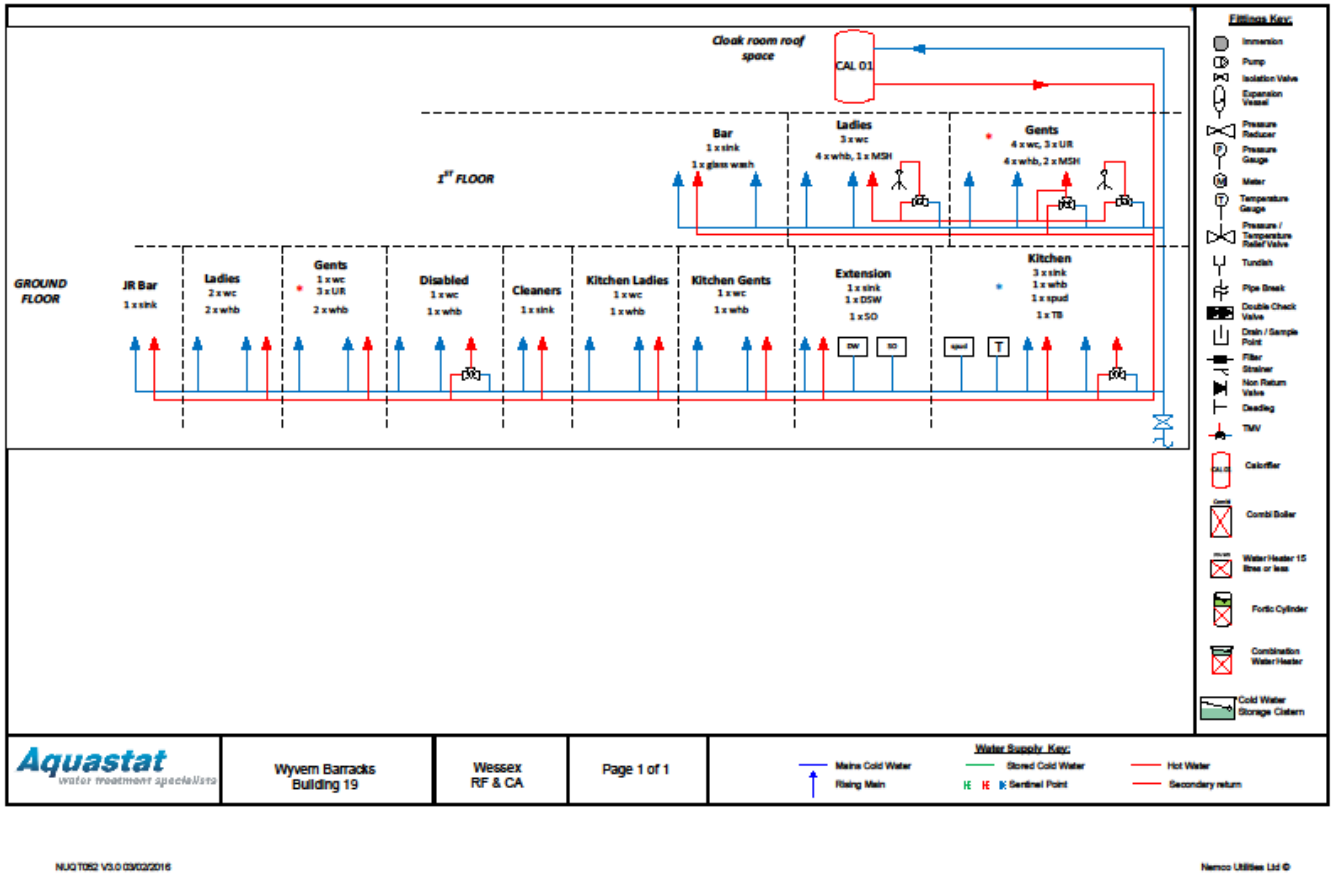
SNK = Sink
UR = Urinal
DWF = Drinking Water Fountain
HBT = Hose Bib Tap
TMV = Thermostatic Mixing Valve
ESH = Electric Shower
QFL = Quick Fill Link
EXP = Expansion Vessel
CM = Coffee machine
RH = Rinse Hose
SPB = Spray Booth
SO = Steam Oven
BIB = Bib tap

WHB = Wash Hand Basin
TSH = Thermostatic Shower
CWD = Chilled Water Dispenser
WSM = Washing Machine
HWB = Hot Water Boiler
CAL = Calorifier
BE = Blind Ends
STR = Strainer
MSH = Mixer shower
CO = Combi Oven
INF = Infrequently
BID = Bidet
TB = Tea Boiler

WC = Water Closet
WH = Water Heater
VM = Vending Machine
DSW = Dish Washer
CMB = Combi Boiler
PRU = Pressurisation Unit
DL = Dead Leg
EWC = Electronic Water Conditioner
DWT = Drinking Water Tap
FC = Fume Cupboard
CDU = Chemical Dispensing Unit
HWSV = Hot Water Storage Vessel

## 8. LINE DRAWINGS OF WATER SYSTEMS SITE: Wyvern Barracks – Building 19 March 2024

**NB: Due to the complexity of the pipe work at this site it is not possible to ensure the total accuracy of these line drawings. They may require revision.**



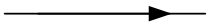
# SCHEMATICS KEY

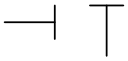

Hot water


Mains Cold Water Supply

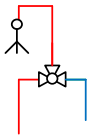

Borehole Cold Water Supply


Tank Fed Water


Recycled Water


Dead legs/Ends

Water Meter


Mixed shower




Electric shower

Temperature gauge

Pressure Gauge/Switch


Plate Heat Exchanger


Incoming main


Expansion vessel

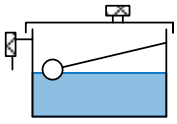

Filter

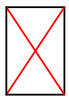
Hydro

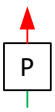
Combined Chiller/Boiler Unit

Chilled Drinking Water Unit

Drink Fountain


Cold Water Storage Tank


Small/Medium Volume Water Heater



Instantaneous Water Heater

Vending Machine

Dishwasher

Ultra Violet

Strainer


Isolation Valve


Non-return Valve


Double check Valve


Pressure reducing Valve

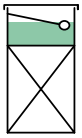

RPZ Valve

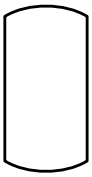

Three Way Valve


Thermostatic mixer Valve


Pressurised Pump


Fire Hose Reel


Combination Cylinder


Calorifier/Hot Water Cylinder

Tea Boiler

Humidifier

Washing Machine

Mains fed sentinel

Tank fed sentinel

Hot fed sentinel

Small Softener/ Purifier

Bib tap


Thermostatic mixer tap


Pump set

## 9. OTHER PHOTOGRAPHS


Sign

## 10. ASSET REGISTER SUMMARY

| Asset: | Asset Number of: |
|---|---|
| Outlets | 46 |
| Sentinel outlets | 3 |
| Infrequently used outlets | - |
| Cold Water Storage Tanks | 0 |
| Hot Water Storage Vessel | 1 |
| Plate Heat Exchangers | 0 |
| Combi Boilers | 0 |
| Point of Use Water Heaters - >15 Litres | 0 |
| Point of Use Water Heaters - <15 Litres | 0 |
| Instantaneous Water Heaters | 0 |
| Combination Water Heaters (Fortic style) | 0 |
| Combination Water Heaters with Storage (FBM style) | 0 |
| Water Softeners | 2 |
| Showers | 3 |
| Rinse Hoses | 0 |
| Spray Outlets | 0 |
| TMVs | 3 |
| TMTs | 0 |
| Strainers | In TMV's |
| Flexible Hoses | 3 |
| Expansion Vessels | 0 |
| Pumps | 0 |
| RPZ Valve | 0 |



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Registered in England No. 09632816

## 11. Water Treatment & Hygiene Experience and Training Details

All personnel undertaking water treatment and hygiene works must only be carrying out their duties if they are suitably qualified, trained and competent to do so. Details of the assessor for this risk assessment are recorded below:

| | |
|---|---|
| Persons name: | Gary Ford |
| Job description: | Engineer/assessor |
| Company: | Aquastat |
| Experience: | 19 years employment as water hygiene engineer preceded by 6 months in house training |
| External Qualifications: | Responsibilities under L8 (*WMS*) – Nov 2005 |
| | BS005 - Disinfection of water supply systems within buildings (*Develop Swindon*) – April 2006 |
| | Basic Risk Assessment of water systems – (*WMS*) – June 2007 |
| | Operatives Health & Safety (*Construction Skills*) – February 2008 updated to May 14 |
| | Asbestos Awareness (*BSG Ltd*) – January 2009 |
| | Confined space training including introduction to breathing apparatus (*Bristol International Fire & Safety Training Department*) – February 2009 |
| | Pre-Commissioning cleaning of pipe work (*BSRIA, Bracknell*) – September 2010 |
| | Asbestos Awareness (*UKATA*) – May 2012 |
| | Emergency First Aid at Work – September 2013 |
| | Asbestos Awareness *(UKATA)* 14.06.13 |
| | Confined Space *(Bristol International Airport)* November 2013 |
| | Health & Safety Environment Test CITB Sept 2014 |
| | Introduction to commissioning (BISRIA)<br>Sept 2014 |
| | Pre-commissioning Cleaning of Pipework Systems (BISRIA) September 2014 |
| | Asbestos Awareness (Encompassed) – December 2014 |
| | Water Quality in Building Water Systems and Legionella Awareness Course (Aquadition) January 2015 |
| | Citb – Site Supervision Safety Training Feb 2018 |
| | Confined Space Training – Feb 2018 |
| | Dewey Waters Tank Installation – May 2018 |

Certification for all of the above are held at Aquastat offices.

## 12. Legislation and Codes of Practice

### References

1 *Health and Safety at Work etc Act 1974 (c.37)* The Stationery Office 1974 ISBN 978 0 10 543774 1

2 *Control of substances hazardous to health (COSHH). The Control of Substances Hazardous to Health Regulations 2002 (as amended). Approved Code of Practice and guidance* L5 (Sixth edition) HSE Books 2013 ISBN 978 0 7176 6582 2 www.hse.gov.uk/pubns/books/l5.htm

3 *The Management of Health and Safety at Work Regulations 1999* SI 3242/1999 The Stationery Office

4 *Reporting accidents and incidents at work: A brief guide to the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR)* Leaflet INDG453(rev1) HSE Books 2013 www.hse.gov.uk/pubns/indg453.htm

5 *The Notification of Cooling Towers and Evaporative Condensers Regulations 1992* SI 1992/2225 The Stationery Office

6 *Consulting employees on health and safety: A brief guide to the law* Leaflet INDG232(rev2) HSE Books 2013 www.hse.gov.uk/pubns/indg232.htm

7 *Legionnaires' disease: A guide for duty holders* Leaflet INDG458 HSE Books 2012 www.hse.gov.uk/pubns/indg458.htm

8 *Managing for health and safety* HSG65 (Third edition) HSE Books 2013 ISBN 978 0 7176 6456 6 www.hse.gov.uk/pubns/books/hsg65.htm

9 *The control of legionella: A recommended Code of Conduct for service providers* The Legionella Control Association 2013 www.legionellacontrol.org.uk

10 *Water fittings and materials directory* Water Regulations Advisory Scheme www.wras.co.uk/Directory

11 *Water Supply (Water Fitting) Regulations 1999* SI 1148/1999 The Stationery Office

### Further reading

BS 8580-1 2019 *Water quality. Risk assessments for Legionella control. Code of practice* British Standards Institution

BS 8558:2015 *Guide to the design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages* British Standards Institution

BS EN 806 (Parts 1-5) *Specifications for installations inside buildings conveying water for human consumption* British Standards Institution

*Water systems: Health Technical Memorandum 04-01: Safe water in healthcare premises.*

*Code of Practice*: *Cooling water treatment* Water Management Society 2007 www.wmsoc.org.uk

*Getting specialist help with health and safety* Leaflet INDG420(rev1) HSE Books 2011 www.hse.gov.uk/pubns/indg420.htm

*Minimising the risk of Legionnaires' disease* TM13 The Chartered Institution of Building Services Engineers 2013

Doc: AWRA1 -Appendice A

# SUMMARY OF THE APPROVED CODE OF PRACTICE L8 (revised) and HSG274 Parts 1, 2 and 3 FOR THE PREVENTION OR CONTROL OF LEGIONELLOSIS

Any water system operating with temperatures of greater than 20C and which may release a spray or aerosol presents a reasonably foreseeable risk of Legionellosis. Experience shows that the following are the key systems, which required attention.

- **Systems incorporating cooling towers or evaporative condenser.**
- **Hot water services**
- **Humidifiers and air washers.**
- **Spa baths and pools.**
- **Hot and cold water services in premises where the occupants are particularly susceptible.**

For premises covered by the Health and Safety at Work Act 1974, the HSC's Approved Code of Practice requires the following:

- **A risk assessment undertaken by a competent person to identify the risk of Legionellosis and any necessary and reasonably practicable precautionary measures required.**

- **A management plan identifying steps to be taken to minimise the risk. The plan should also identify the responsible persons, the lines of communication and the training and competence requirements for employees and sub-contractors.**

- **Implementation of the plan including training.**

- **Record keeping to track remedial activities and to monitor performance.**

- **The owner should ensure that the management system performance is audited and subject to management review to keep it relevant.**

The following list provides an indication of the requirement of the ACOP, which is enforced by the Health and Safety Executive or the Environmental Health Department of the local authority, depending on your premises type. Failure to comply is not in itself an offence, but failure to comply may be taken by a court as proof that the person has contravened the legal requirements.

* **Risk Assessments**
* **Management plan and procedure development**
* **Training of personnel**
* **Remedial action such as**
  **- cleaning and disinfection**
  **- Tank refurbishment**
  **- Regular water treatment (chemical/plant)**
* **Provision of log books**
* **Regular monitoring and system maintenance including sampling analysis, chemical cleaning and disinfection.**

Doc: AWRA2 -Appendice B



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## THE CONTROL OF LEGIONELLOSIS L8 SUMMARY FOR HOT & COLD-WATER SERVICES

L8 (Revised) and HSG274 Parts 1, 2 and 3 applies to all premises covered by the Health and Safety at Work Act 1974, where foreseeable risk of Legionellosis is present i.e. most commercial premises with a hot and cold water system

The prime focus of this document is to avoid conditions that permit Legionellae to proliferate and to avoid the creation of sprays or aerosols or where this is impracticable to minimise the release of droplets.

The conditions that promote legionellae proliferation are:

- **Temperatures in the range of 20 - 45 C**
- **Presence of sediment, sludge, scale or organic matter which act as nutrients.**
- **Some unapproved water fittings may harbour legionella and act as a nutrient.**
- **High microbial levels may act as nutrients and as a host for legionellae.**
- **Biofilms and slimes may harbour and protect Legionellae from biocides. These are often caused by stagnant or low flow conditions.**

The main areas of concern for hot and cold water services are shown in Table (1) along with some possible precautionary measures. A risk assessment should be carried out on each site and a management plan developed to minimise the risk. The management plan and its execution should be completely documented as detailed in Table (2).

### TABLE 1 - TYPICAL RISKS IN HOT AND COLD WATER SERVICES

| ITEM | POSSIBLE PROBLEM | OPTIONS & PRECAUTIONARY MEASURES |
|---|---|---|
| Storage Tank | Stagnation<br>Temperature>20C<br>Sludge and Scale build up<br>Corrosion deposits build up<br>Ingress of nutrients | Location of inlet and outlet<br>Ensure tanks not too large or numerous<br>Insulation, or low level chlorination<br>Clean and disinfect on regular basis<br>Refurbishment/Butyl lining<br>Tight fitting covers and insect mesh on overflow |
| Softeners & Filters | Deposit builds up<br>Microbiological build up<br>Fitting harbouring legionella | Backwash regularly<br>Disinfect 6 monthly or as monitoring requires<br>Use approved fittings only |
| Calorifiers | Stratification (temp<60C)<br>Intermittent use<br>Scale builds up | Pumped circulation or regular thermal<br>Disinfection<br>Thermal disinfection<br>Pre-treat water or descale as required |
| Dead legs<br>(e.g., taps, showers and other appliances) | Fittings harbouring legionella<br>Stagnation | Use approved fittings only<br>Chlorination and flush through<br>Thermal disinfection and flush through<br>Keep pipe runs short |
| All pipework and systems | Sludge, Scale, Debris build up | Clean and disinfect on a regular basis<br>Regular microbiological monitoring (e.g.<br>Dip-slide 4 - 6 per annum<br>Legionella sampling annually |

### RECORDS FOR HOT AND COLD-WATER SERVICE

A log book with the following contents is recommended: -

- **Identification of those responsible and lines of communication.**
- **Description and plan of the system.**
- **Risk Assessment.**
- **Operation of the system.**
- **Procedures for inspection and checking of the system.**
- **Management plan of remedial activities and records of progress.**
- **Records of:**
  - **Water temperatures**
  - **Record of operation, maintenance and checking**
  - **Inspection record and subsequent action.**
  - **Cleaning and disinfection record**