

JONES LANG  
LA SALLE.

Water Hygiene Log Book & Policy Document



**AQUA**  
**SMASHER**

© Jones Lang LaSalle  
System for Managing Safety  
Health and Environmental Risk

**THE JONES LANG LASALLE  
WATER HYGIENE LOG BOOK  
AND POLICY DOCUMENT  
AQUA SMASHER**

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# ● Log Book Audit Form

This Water Hygiene Log Book and Policy Document will be inspected by an authorized or responsible person every **six months** (See Responsibility Structure in Section A2 for definitions), unless the local Environmental Health Officer or the Independent Water Hygiene Specialist recommends a shorter period between successive inspections.

This is to ensure that the regimes detailed within the log book are being implemented and to comply with current legislation.

The authorised or responsible person must fill in the form below listing the nominated persons for the property and shall update accordingly.

Property Name:- EXCHEQUER COURT, EC3A 8LL

Nominated Name (Print)	Job Title	Organisation
SANDRA BOGGISS	ASSET MANAGER	JONES LANG LASALLE
PETER CARR	REGIONAL FACILITIES MANAGER	JONES LANG LASALLE
DICK DOREY	SITE FACILITIES MANAGER	JONES LANG LASALLE
DOUG ALLEN	HEALTH & SAFETY	JONES LANG LASALLE

The above nominated persons must complete the form on the next page after each inspection of the log book and shall sign and date accordingly.

**Note:- For any further information concerning potential nominated persons contact:**

**Technical Services**  
**Jones Lang LaSalle**  
**22 Hanover Square**  
**London**  
**W1A 2BN**  
**Tel No. 020 7439 6040**

## **Log Book Audit Form**

Property Name: EXCHEQUER COURT, EC3A 8LL



SECTION A

**A1**

# **Water Hygiene Policy Statement**



## Water Hygiene Policy Statement

This statement and the Water Hygiene Log Book and Policy Document applies to all properties managed by Jones Lang LaSalle on behalf of Clients regardless of size and complexity.

It is the policy of Jones Lang LaSalle to secure, so far as is reasonably practicable, the health, safety and welfare of all its employees and other persons who may be affected by the operation and use of water systems in premises which it manages.

Jones Lang LaSalle seeks to achieve this policy aim by providing and maintaining plant and equipment, which are safe, by operating systems of work which are safe and without risks to health and by providing suitable arrangements for employees' welfare. All necessary information, training and supervision will be provided to ensure the implementation of this policy. Details of these procedures are set out in the remainder of this Water Hygiene Log Book and Policy Document AQUA SMaSHER.

Where necessary expert advice will be sought on policy, legislative requirements and the implementation of safe practices.

It is the duty of all Directors and Staff to assist in reducing risk from water systems by observing the procedures laid down in this document.

Signed

A handwritten signature in black ink, appearing to read "R. Phillips".

Richard Phillips  
European Director  
February 2001

**A2**

## **Responsibility Structure**

# Responsibility Structure

In accordance with the Approved Code of Practice and Guidance (L8), the responsibility/management structure must be clearly defined.

The following responsibility chart details all persons who are involved in the implementation and application of the Approved Code of Practice and Guidance (L8) for this site. It must therefore be completed and updated as necessary.

# Responsibility Structure

## **Chairman, Management Services**

Has overall responsibility for water hygiene policy within all managed properties.

## **The Lead Director**

Is responsible for water hygiene in a portfolio of properties and for allocation of Jones Lang LaSalle resources to ensure adequate management of all water hygiene issues in these properties.

## **The Asset Manager**

Is responsible for ensuring that the available resources are deployed so as to achieve the water hygiene goals set out in the policy statement.

The Asset Manager has spending discretion in respect of water hygiene of up to £2500

## **The Regional Facilities Manager**

Is responsible for establishing site procedures which will secure the goals set out in the policy statement, for directing the Building/Facilities Manager and assessing the effectiveness of those procedures.

The Regional Facilities Manager has spending discretion in respect of water hygiene of up to £1000

## **The Building Facilities Manager**

Is responsible for the implementation of the site procedures and specific duties set out in this policy.

The Building Facilities Manager has spending discretion in respect of water hygiene of up to £500

## **The M&E Maintenance Contractor**

Is responsible for maintenance and operation of the properties building engineering services and for carrying out specific procedures as detailed in this policy.

## **The Water Treatment Specialist**

Is responsible for operation of the chemical treatment and testing program and for carrying out specific procedures as detailed in this policy, relevant Approved Code of Practice and Guidance (L8) Codes of Practice & Guidance (L8) and other statutory and non-statutory documentation.

## **The Independent Water Hygiene Specialist**

Is responsible for monitoring regimes and ensuring compliance with relevant regulations, detailed within this policy, and the relevant Approved Code of Practice & Guidance (L8) and other statutory and non-statutory documentation. The Water Hygiene Specialist must be completely independent from the Water Treatment Specialist.

**The Authorised Person** will be a representative from Technical Services or the Health and Safety Team from Jones Lang LaSalle, or an approved Independent Water Hygiene Specialist or an Environmental Health Officer.

**The Responsible Person** will be the Building Facilities Manager or the Regional Facilities Manager for the specific property.

The above persons should be competent and have a clear understanding of their duties and the overall health and safety management structure and policy within Jones Lang LaSalle.

# Water Hygiene Responsibility Structure

For: Exchequer Court, 33 St Mary Axe, London EC3A 8LL

[\* Responsible Person must complete the structure and ensure it is up to date and accurate\*]

**Lines of responsibility:-**

— **Direct Responsibility**

— **Advisory Role**

**Client Name:** Clerical Medical Investment Group Ltd

**Name:** Tony Bones  
**Lead Director, Management Services**  
**Jones Lang LaSalle**

**Name:** Sandra Boggiss  
**The Asset Manager**  
**Jones Lang LaSalle**  
 Direct Dial Number 020 7399 5213

**Name:** Peter Carr  
**Regional Facilities Manager**  
**Jones Lang LaSalle**  
 Tel No: 020 7852 4680  
 Emergency Tel No: 07747 013021  
 Fax No: 020 7399 5225

**Independent Water Hygiene Specialist**  
 Urban Environments Ltd  
**Name:** David Harper  
 Tel No: 01732 351161  
 Emergency Contact No: 07951 727394  
 Fax No: 01732 770264

**Name:** Dick Dorey  
**Building/Facilities Manager**  
**Property Management Resources Ltd**  
 Tel No: 020 7283 6446  
 Emergency Tel No: 07790 836137  
 Fax No: 020 7283 6556

**M&E Contractor:** Amec Facilities  
 Responsible Individuals Name: John Williams  
 Position: Service Manager  
 Tel No: 020 7369 0449  
 Emergency Tel No: 07775 805039  
 Fax No: 020 7369 0466

**Water Treatment Specialist** Nation Water Treatments  
 Ltd  
 Responsible Individuals Name: J Harrison  
 Position: Operations Supervisor  
 Tel No: 01342 833693  
 Emergency Tel No:

**Environmental Health Department**  
**Authority:** Corporation of London  
 Tel No: 020 7606 3030 ext. 3474  
 Emergency Tel No: 020 7606 3030  
 Fax No: 020 7332 1623

**A3**

**Approved Code Of Practice And  
Associated Guidance (L8)**

# **Approved Code of Practice & Guidance**

The “Approved Code of Practice & Guidance (L8) for Legionnaires’ Disease: The control of legionella bacteria in water systems” is incorporated within this document.

The Responsible Person must insert any revisions into this section and complete the table below.

**A4**

## **Typical Maintenance and Operating Procedures**

# Typical Maintenance & Operating Procedures

The following regimes along with the Approved Code of Practice & Guidance (L8) document are the minimum requirements. The equipment specified is among the most common utilised. Some properties may have equipment not included in this Section, if this is the case then further advice should be sought from:

**Technical Services**  
**Jones Lang LaSalle**



**Telephone Number 020 7493 6040**

Other works may also be required which do not relate to the Water Hygiene Measures and are not detailed in this section.

## TYPICAL MAINTENANCE & OPERATING PROCEDURES

Certain terms are used frequently and these are defined as follows:-

- |                |   |
|----------------|---|
| <b>EXAMINE</b> | A careful and critical scrutiny of an item carried out without dismantling by using the senses of sight, hearing, smell and touch, to verify the plant or equipment is in working order.            |
| <b>TEST</b>    | To operate the plant or equipment and/or use the appropriate testing instruments to ensure that the plant or equipment is functioning correctly.  |
| <b>CHECK</b>   | To make a thorough inspection for damage, wear or deterioration; also to ascertain that the plant or equipment is correctly adjusted to conform to the required standard.                           |
| <b>N.B.</b>    | In addition to establishing the normal functioning of plant and equipment "EXAMINE", "TEST" and "CHECK" as defined above must include verification of the satisfactory state of all safety aspects. |

The frequencies of the Maintenance Tasks are intended only for guidance and may be adjusted by prior agreement with the Employers Representative to suit the degree of usage, local environmental conditions of the plant, equipment or services involved.

Manufacturers maintenance recommendations are to be taken into account by the Contractor when carrying out the Works.

The following plant and equipment maintenance tasks have been included:-

### **AIR CONDITIONING**

1. Cooling Towers
2. Spray Humidifier Units
3. Fan Coil Units
4. Induction Units
5. Heat Pumps

### **HEATING**

6. Hot Water Storage Calorifiers
7. Hot Water Storage / Immersion Heating
8. Feed and Expansion Tanks

### **DOMESTIC WATER SERVICES**

9. Gas Water Heaters
10. Electric Water Heaters
11. Showers
12. Thermostatic Mixing Valve
13. Cold Water Storage Tanks (Cisterns)
14. Cold Water Booster Sets
15. Drinking Water
16. Water Softener

### **FIRE SAFETY**

17. Hose Reels Booster Set and Break Tank
18. Hose Reels
19. Sprinklers

### **OTHER WATER SERVICES**

20. Water Fountains/Features

## COOLING TOWERS

### **DAILY** (*Subject to Risk Assessment Findings and Local Authority Requirements*)

Check operation of plant and record any undue defects.

Take dipslide test for water quality within each pond, as near to the heat source as possible and also from the furthest point on the system and incubated.

Record in Water Hygiene Log Book and Policy Document the times when plant is inoperative due to faults or maintenance.

Log any observations, actions required in Water Hygiene Log Book and Policy Document.

### **WEEKLY**

Carry out Daily Tasks (*even if not required on a daily basis*).

Check conductivity cell for correct operation.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

### **MONTHLY**

Carry out weekly tasks.

Drain and clean pond and strainer, record in Water Hygiene Log Book and Policy Document.

Check overflows clear of obstructions.

Check fill pack and drift eliminator.

Check operation of water treatment equipment and program.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

Sample water to be taken for TVC analysis.

### **QUARTERLY**

Carry out monthly tasks.

Sample water from pond and analyse for presence of Legionella.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**ITEM 1**

**HALF YEARLY**

Carry out quarterly tasks.

Isolate, drain and clean tower in accordance with the Approved Code of Practice & Guidance (L8).

Remove fill pack and clean, inspect internal surfaces and treat for rust using WRc approved materials.

Remove drift eliminator and clean, inspect surfaces and treat for rust using WRc approved materials.

Inspect external surfaces and treat for rust using WRc approved materials.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**ITEM 1 Cont**

**SPRAY HUMIDIFIER UNITS****WEEKLY**

Take dipslide test of sump for general microbiological activity and incubate.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**MONTHLY**

Carry out weekly tasks.

Carry out full chemical analysis (Water Treatment Specialist).

Sample of water to be taken for TVC analysis.

Take unit off-line, thoroughly clean sump, eliminator plates, baffles and other wetted surfaces with a solution of sodium hypochlorite with a suitable biocidespersant. Circulate solution for one hour. Drain and re-fill with water.

Clean or change nozzles.

Clean strainers.

Check sump level control and adjust as necessary.

Check operation of blow-down valve.

Check operation of water treatment program (refer to BACS code).

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**QUARTERLY**

Carry out monthly tasks.

Sample for TVC using dipslide.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**HALF YEARLY**

Carry out quarterly tasks.

Clean and disinfect spray humidifiers and make-up tanks including all wetted surfaces, descaling as necessary.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**ITEM 2**

**ANNUAL**

Carry out half yearly tasks.

Repaint interior of sump with WRc approved coating, treat adjacent areas for rust with particular attention to eliminators and downstream areas.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**ITEM 2 Cont**

## FAN COIL UNITS

### QUARTERLY

Check and clean coils.

Clean filters in water circuit.

Vent coils.

Check condensate tray is clean and drain is clear.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

### ANNUAL

Carry out quarterly tasks.

Examine heating/cooling water circuits for leaks.

Clean condense trays. Repaint/touch up as required.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**ITEM 3**

## INDUCTION UNITS

### QUARTERLY

Check and clean coils.

Clean filters in water circuit.

Vent coils.

Check condensate tray is clean and drain is clear.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

### ANNUAL

Carry out quarterly tasks.

Examine heating/cooling water circuits for leaks.

Clean condense trays.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

ITEM 4

## HEAT PUMPS

### QUARTERLY

Check and clean coils.

Clean filters in water circuit.

Vent coils.

Check condensate tray is clean and drain is clear.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

### ANNUAL

Carry out quarterly tasks.

Verify correct water flow.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**ITEM 5**

## HOT WATER STORAGE CALORIFIERS

### MONTHLY

Note hot water storage temperature and log. Adjust as necessary to achieve temperature of 60°C.

Check setting of each thermostat (where fitted). Readjust/recalibrate where required and log.

Check all valves and draincocks for correct operation, and report any defects immediately.

Check operation of HWS primary controls where fitted, re-adjust where necessary.

Check temperature gauge for correct operation.

Record in Water Hygiene Log Book and Policy Document nearest and furthest outlet temperatures to each floor and carry out random checks to other floors of the HW system to prove greater than 50°C at up to 1 minute. This monthly task is to be rotated so that all outlets are tested annually.

Blow down from lowest drain to remove sediment and sludge with clear plastic pipe down the drain to stop aerosol emission.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

### HALF YEARLY

Carry out monthly tasks.

Sample water to be taken for TVC analysis noting condition of drain water where drain point available, otherwise a post flush sample shall be taken from the nearest outlet to calorifier.

Test thermostatic controls.

Examine mountings, connections and thermal insulation.

Clean and examine thermometers and altitude gauges, recalibrate if necessary.

Examine vent pipes; ensure they are clear.

Check stratification pumps (where fitted) and associated controls to ensure minimum temperature is maintained throughout calorifier.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

### ANNUAL

Carry out half yearly tasks.

Check internal surfaces of calorifier for scale and sludge.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**ITEM 6**

**PERIODICALLY**

Prepare for Engineers Survey / Inspection as follows:-

Isolate primary pipework and secondary pipework to calorifier. Pasteurise the whole volume of water to 70°C for minimum of 1 hour.

Drain down calorifier secondary shell and remove bolted head or manhole cover for inspection.

Disconnect primary pipework to primary coil and withdraw coil for inspection.

Clean primary coil and after inspection test to one and half times working pressures.

Clean inside of calorifier shell and remove all scale or deposits.

Refit bolted head, manhole and primary coil using new jointing rings. (WRc approved).

Reconnect all pipework to calorifier and refill.

Pasteurise the system for a minimum of 1 hour.

Clean and disinfect system in accordance with the Approved Code of Practice & Guidance (L8), pasteurise the system for a minimum of 1 hour.

Ensure that calorifier is on line and re-commission to working temperature.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**ITEM 6 Cont**

## HOT WATER STORAGE/IMMERSION HEATING

### ANNUAL

Drain, remove element and descale.

Test operation of thermostat.

Record water storage temperature.

Where applicable inspect break tank.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**ITEM 7**

## FEED AND EXPANSION TANKS

### HALF YEARLY

Test ball valves and stopcocks, adjust and grease as necessary. Examine water level (float should be 150-300 mm above tank bottom). Water Regulations 1999 to be complied with.

Examine tank to ensure lids fitted correctly and overflow is clear. Report any defects.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

### ANNUAL

Carry out half yearly tasks.

Drain system and clean out tanks.

Repaint using WRc approved coating internal surface as necessary.

Test temperature of stored water and where possible maintain below 20°C.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**ITEM 8**

## GAS WATER HEATERS

### MONTHLY

Note water storage temperature, re-adjust where necessary.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

### HALF YEARLY

Carry out monthly tasks.

Where applicable inspect break tank.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**ITEM 9**

## ELECTRIC WATER HEATERS

### QUARTERLY

Note water temperature, re-adjust where necessary so that outlet temperature is between 50 °C and 60 °C.

Clean out break tank and disinfect where necessary.

Examine for condition, leaks and security of fixings.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

### ANNUAL

Carry out quarterly tasks.

Remove and clean water heating elements.

Descale as necessary.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**ITEM 10**

## SHOWERS

### WEEKLY

Purge shower(s) on coldest temperature setting for 5 minutes and record temperature.

Purge shower(s) on highest temperature setting for 5 minutes and record temperature.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

### MONTHLY

Carry out weekly tasks.

Remove shower heads, descale if necessary and disinfect.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

### QUARTERLY

Carry out monthly tasks.

Check hot and cold mixing valves; clean internally and replace as necessary.

Clean strainers.

Check operation of non-return valves.

Clean and disinfect mixing valves and spray heads.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

ITEM 11

## THERMOSTATIC MIXING VALVE

### MONTHLY

Examine for leaks, rectify as necessary.

Check temperature settings and correct operation, adjust as necessary.

Clean strainers where fitted.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

### QUARTERLY

Carry out monthly tasks.

Descale all components, including shower heads where appropriate.

Test mixing valve for failsafe operation (i.e. mixed water temperature is at or below 43°C).

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**ITEM 12**

## COLD WATER STORAGE TANKS (CISTERNS)

### HALF YEARLY

Test float-valves and service valves, repack glands as necessary.

Examine overflows, insect screens or flap and ensure clear of blockages.

Examine for leaks.

Ensure lids are correctly fitted.

Check operation of frost protection heaters in tank room.

Examine insulation and repair as necessary.

Check and log water temperatures during winter and summer period – advise if over 20°C.

Check compliance with the Water Supply Regulations 1999.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

### ANNUAL

Carry out half yearly tasks.

Sample water from tanks and two outlets (nearest and furthest) and test for E.Coli, Coliforms, TVC @ 22°C for 72 hours and TVC @ 37°C for 24 hours.

Rewasher ball valves, with WRc approved materials.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

### PERIODICALLY AS REQUIRED

Carry out full disinfection of tank and down services in accordance with the Approved Code of Practice & Guidance (L8) and BS 6700.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**ITEM 13**

## COLD WATER BOOSTER SETS

### MONTHLY

Visually examine pumps for leaks.

Drip discharge pipes where fitted are to be cleaned and rodded through where necessary.

Where pump suction strainers are fitted these are to be cleaned and strainer elements and seals inspected for damage or wear. A damaged strainer element or worn seal should be replaced at time of inspection.

Change over duty pump ensuring valves on pumps are in correct settings.

Check spill tank level switches.

Check operation of ball valve and adjust where necessary.

Check operation of pressure cylinder and bleed where applicable.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**ITEM 14**

## DRINKING WATER

### ANNUAL

Water sample to be taken from incoming main and from nearest and furthermost outlets and carry out full potability analysis for TVC.

Provide written report from qualified and UKAS (United Kingdom Accreditation Service) accredited analyst only.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**ITEM 15**

## **WATER SOFTENER**

### **DAILY**

Backwash Regenerate System or as manufacturers recommendations.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

### **WEEKLY**

Carry out daily tasks.

Test hardness of raw and treated water.

Top up salt level if required

Check operation of timer and or pulse meter.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

### **HALF YEARLY**

Carry out weekly tasks.

Test throughput of water.

Test for correct backwash and rinse time and report if exceeded.

Test accuracy of water meters.

Test pressures at inlet and outlet of plant.

Clean strainers.

Examine condition of float valves; renew as necessary.

Check the water softener equipment has been cleaned and disinfected in compliance with manufacturer's instructions. Undertake as necessary and at the same time as clean/disinfection of systems served.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**ITEM 16**

## HOSE REELS BOOSTER SET AND BREAK TANK

### MONTHLY

Drip discharge pipes where fitted are to be cleaned and rodded through where necessary.

Where pump suction strainers are fitted these are to be cleaned and strainer elements and seals inspected for drainage or wear. A damaged strainer element or worn seal should be replaced at time of inspection.

Check spill-tank levels switches.

Check float-valve.

Check all gauges for accuracy and recalibrate if required.

Record all gauge readings.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

### ANNUAL

Carry out monthly tasks.

Test operation of float-valve and stop cocks, adjust where necessary.

Examine cold water tank for condition, correctly fitted lids and overflow is clear.

Drain system and clean out tank.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**ITEM 17**

## HOSE REELS

### HALF YEARLY

Examine for leaks at valve glands and nozzle.

Examine nozzle for blockages and ensure hose is free from cracks or other faults.

Check hose guide rollers move freely by running out hose for a few metres.

Ensure instructions are clearly legible.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

### ANNUAL

Carry out Half Yearly tasks.

With hose fully charged and ready for use under pressure unwind from reel to its full extent.

Examine for leaks or other defects.

Check flow rate is not less than 30 litres/minute.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document .

#### Notes:-

Ensure testing is carried out in a controlled manner so as to limit this discharge of aerosols.

The hose reels should be discharged directly down a drain until the water system has been sufficiently purged.

Testing to be carried out when there is a minimum number of people likely to be affected.

ITEM 18

## SPRINKLERS

### WEEKLY

Where connected, notify Fire Brigade of intention to simulate a fire call. Advise all occupants if necessary.

Record reading on all pressure gauges in fire systems log book.

Operate alarm bell valve by opening the 15 mm test valve or by other approved means in accordance with operating instructions.

Check for correct operation of external and direct brigade alarms and record results and response times in fire systems log book.

Close 15 mm or other test valves and ensure that the alarm valve has resulted.

Check that Fire Brigade test received the simulated fire call and record result in log book.

Restore installation pressure where necessary.

Again record in fire systems log book pressure gauge readings.

Reset and ensure all valves in the "open" or "closed" position as appropriate. Particular attention shall be given to the main Stop Valve(s) and alarm clocks.

Check that stop valves on town mains connections, pressure tank deliveries, pump suctions and deliveries are secured in the fully open position.

Ensure that spare sprinklers heads and sprinkler spanners are available.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

### QUARTERLY

Carry out Weekly tasks.

Test water flow alarm switches by the operation of a 15 mm test valve to simulate a sprinkler operation.

Operate and check to ensure that all street isolating valves on the town main connection, ring and loop mains and elevated tanks are fully open and operational.

Check to ensure that all water supply non return valves are correctly seated.

Clean the strainer and oil the external alarm water motor gong where necessary.

Duty test of town's supply at valves using 80 mm test to design flows or 50/80 mm test to fully open position with standard test arrangements.

**Note:-** Where alternative pipe systems are installed this test should be carried out during the "summer setting". Ensure alternative valve is correct mode for time of year.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**ITEM 19**

**ANNUAL**

Carry out Quarterly tasks.

Renew alarm valve seatings and or port seating, check and clean annular groove and outlet ports, polish and lubricate seating spindle/shaft and check operation or compensator valve if fitted.

Renew alarm valve cover gasket.

Renew drain and test valve washers and examine seatings.

Remove alarm and plug cock barrels, clean lap-in grease and replace.

Renew gland packing, drain and test cocks, main stop valve and hand pump.

Clear out water way for electric alarm drain.

Clean strainer on local alarms, clear water jet, flush drain, renew gasket, check operation of main spindle and striker, remove excess grease and lubricate.

Renew water supply check valve seatings and gaskets, check seating and spindle. Adjust glands and grease spindles of all stop valves.

Remove and Clean strainer and check operation of retard chamber and drainpipe.

Check, recording gauges against pre-calibrated gauge.

Overhaul in accordance with the manufacturers/suppliers Specifications all reducing valves, deluge valves, tail end dry pipe valves etc.

Reset alternative valves on air or water depending on Contract visit.

Check wiring connection to all direct Brigade alarm units and that fire line is adequately supported in good condition.

Physically check all pressure switches to ensure that components are free of corrosion, securely mounted and in working order.

Operate all pressure reducing valves to the full extent of piston movement and check for correct operation under flow conditions. Check readings on the low pressure side of the valves for deterioration from the original test readings.

Carry out inspection of sprinkler systems and pipework including all valves water supplies etc. and provide quality audit report.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document

**Notes:**

Ensure testing is carried out in a controlled manner so as to limit the discharge of aerosols.

The sprinkler system should be discharged directly down a drain until the water systems have been sufficiently purged.

Testing to be carried out when there is a minimum number of people are likely to be affected.

**ITEM 19 Cont**

## WATER FOUNTAINS / FEATURES

### DAILY (*Subject to Risk Assessment Findings and Local Authority Requirements*)

Check chemical biocide water treatment system and check filtration systems for correct operation.

Adjust nozzles and flow rates, where possible to, minimise carry over of spray into adjacent areas.

Take dipslide test for water quality within each pond, as near to the source as possible and also from the furthest point on the system and incubated.

Record in Water Hygiene Log Book and Policy Document the times when plant is inoperative due to faults or maintenance.

Log any observations, actions required in Water Hygiene Log Book and Policy Document.

### WEEKLY

Carry out Daily Tasks (*even if not required on a daily basis*).

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

### MONTHLY

Carry out Weekly Tasks

Sample water to be taken for TVC analysis (*unless required on a weekly basis*).

Check filtration system and backwash sand filters (*unless required on a weekly basis*).

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

### HALF YEARLY

(Frequency may be reduced depending on Risk Assessment Findings and Local Authority Requirements)

Carry out Monthly Tasks.

Drain, clean and disinfect pond and strainer, record in Water Hygiene Log Book and Policy Document.

Check operation of water treatment equipment and program.

Log any observations, actions taken or actions required in Water Hygiene Log Book and Policy Document.

**ITEM 20**

SECTION B

**B1**

## **Site Specific Risk Assessments**

# Site Specific Risk Assessments

This section is to include the site specific risk assessments, required as a statutory duty which must be undertaken by an independent competent person as described in the relevant ACOP documentation.

The assessment should be reviewed regularly (at least every two years) and in any case whenever there is a reason to suspect that it is no longer valid. This may be because of:-

1. Changes to the water systems or its use.
2. Changes to the use of the building in which it is installed.
3. Availability of new information about risks or control measures.
4. Results of checks indicating that control measures are no longer effective.

Previous risk assessments shall be kept for the duration for which they remain current and for at least 2 years after that period in order to comply with the legal duties set out in the relevant ACOP documentation.

Note:- If any risk assessments are not inserted into this log book they must be safely stored with written confirmation on this page of its location (e.g. Ringbinder "A1", Log Book Cabinet, Building Managers Office, 2<sup>nd</sup> Floor, Hanover House, 291 Hanover Square, W1A).

**Risk Assessment(s) Location (tick where appropriate)**

In section C1 of this Water Hygiene Log Book and Policy Document

Other location

This section also includes an example of a risk assessment which is for guidance only. Once the appropriate assessment has been undertaken the example must be removed to avoid confusion.

**L8 Water Systems  
Risk Assessment**

**Prepared for**

**Jones Lang Lasalle  
Exchequer Court, 33 St Mary's Axe,  
London, EC3A 8LL.**

Jones Lang Lasalle  
Exchequer Court  
33 St Mary's Axe  
London EC3A 8LL

March 2002

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SECTION 1 INTRODUCTION

SECTION 2 ASSESSMENT OF RISK

SECTION 3 SITE RISK ASSESSMENTS

SECTION 4 SUMMARY GRAPHS

SECTION 5 OBSERVATIONS

SECTION 6 SUMMARY OF RECOMMENDATIONS

## INTRODUCTION

This report relates to a water source risk assessment and audit carried out by Mr David Sparrowe of Urban Environments Ltd on the 22<sup>nd</sup> of March, 2002 on behalf of Jones Lang Lasalle. The risk assessment and audit was carried out at Exchequer Court, 33 St Mary's Axe, London, EC3A 8LL.

During the course of the survey a total of 40 water sources within the building were risk assessed. These sources were chosen as being fully representative of the overall water systems and outlets within the buildings.

The survey and risk assessment was undertaken in order to comply with the Health and Safety Executive requirements on the control and prevention of Legionellosis. The risk assessment has been carried out in accordance with ACOP L8 The control of legionella bacteria in water systems (APPROVED CODE OF PRACTICE & GUIDANCE).

The survey has been limited to the terms of reference agreed between Jones Lang Lasalle and Urban Environments 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. Legionnaires 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 recirculated. 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 deg C and 50 deg C. Human blood temperature of approximately 37 deg 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 deg C but is considered to be in a dormant state with no growth activity. The bacterium does not survive temperatures maintained consistently at 60 deg 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 deg 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

Legionnaires 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. This identification and assessment is required by ACOP L8.

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 respirable 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.

### Method of Risk Assessment

The risk assessment takes account of the principle parameters which govern the risk associated with each water source in the building. Selective and planned water sampling may also be carried out in order to confirm absence of Legionella. The following assessment parameters and associated risk factors have been developed in order to derive a numerical risk value and overall risk rating:

	Risk Parameter	Risk Rating	Numerical Value
A)	<u>Formation of Droplets</u>		
	* Still Water	Low	2
	* Droplets	Medium	4
	* Aerosol	High	6
B)	<u>Water Condition</u>		
	* Chemical Regime	Low	2
	* Clean	Low / Medium	4
	* Contaminated	Medium / High	6
	* Heavily Contaminated	High	8
C)	<u>Water Temperature</u>		
	* Below 20 deg C	Low	2
	* 21 deg C - 25 deg C	Medium	4
	* 26 deg C - 45 deg C	High	6
	* 46 deg C - 50 deg C	Medium	4
	* Above 50 deg C	Low	2
D)	<u>Water Turnover</u>		
	* Stagnant	High	10
	* Low Turnover	Medium	6
	* Moderate Turnover	Medium / Low	4
	* High Turnover	Low	2
E)	<u>Susceptibility Of Exposed Persons</u>		
	* Average Population	Medium	2
	* Susceptible Population	High	3
F)	<u>Population Density of Exposed Persons</u>		
	* Low Density	Low	2
	* Medium Density	Medium	4
	* High Density	High	6

### **Legionella Positive Rating Factor**

For sources sampled and found Legionella positive an additional weighting factor shall be applied to the assessment. This allows the infected source to be immediately identified as high risk.

### **UPON IDENTIFICATION OF LEGIONELLA COLONISATION, IMMEDIATE STEPS MUST BE TAKEN TO ERADICATE THE INFECTION.**

### **Source Risk Rating**

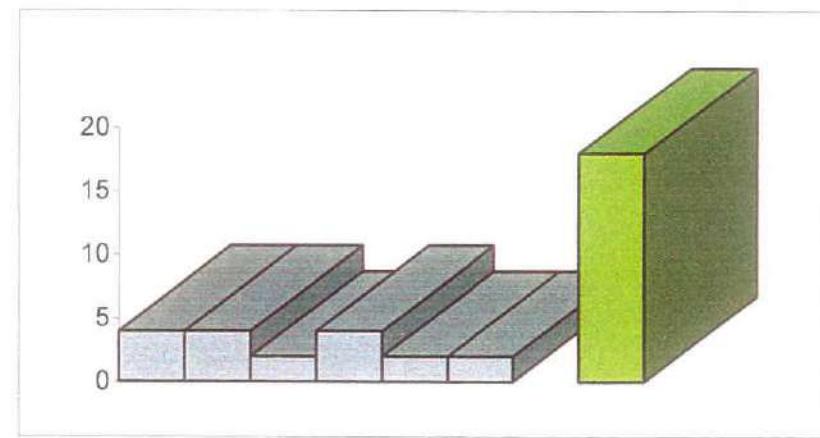
Calculated by addition of numerical values for each of the risk parameters of each source and a weighting factor if applicable.

<u>Total Numerical Value</u>	<u>Overall Risk Rating</u>
12 - 20	Low
21 - 25	Medium
Over 26	High

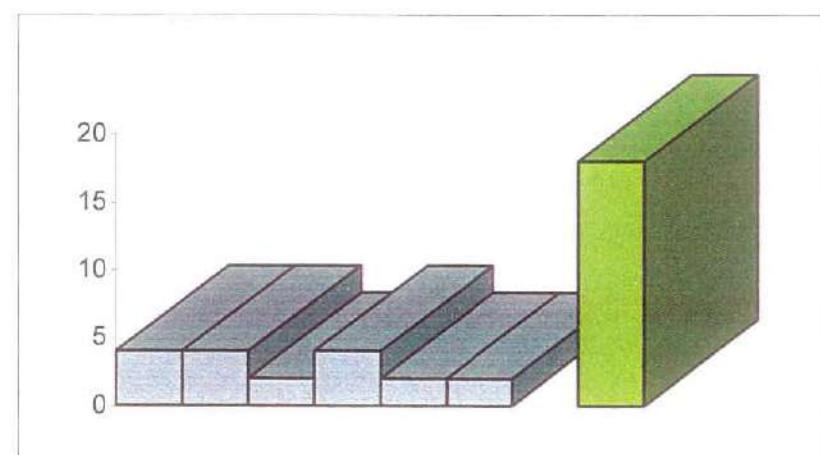
The overall risk rating for each source must be evaluated in conjunction with other influences observed during the course of the survey and with consideration for system breakdowns, abnormal operations, commissioning and other unusual circumstances.

### Risk Assessments

<u>Location &amp; Comments</u>	Temp degC	<u>Assessment Values</u>						<u>Total</u>	
		C	H	A	B	C	D	E	
No 1 B/Ment RHS CWST Sectional steel Good lid with hatch Lid Vent. Overflow screened. Opposed. Light sediment. No warning pipe Insulated	12.7	0		4	4	2	4	2	18



<u>Location &amp; Comments</u>	Temp degC	<u>Assessment values</u>						<u>Total</u>	
		C	H	A	B	C	D	E	
No 2 B/Ment LHS CWST Sectional steel Good lid with hatch Lid Vent. Overflow screened. Opposed. Light sediment. No warning pipe Insulated Tank making up	10.7			4	4	2	4	2	18



#### Total Assessment Values

20 or less = Low  
21 - 25 = Medium  
Greater than 25 = High

Location & Comments

No 3

Drinking water break tank

Stainless steel

sealed lid

lid vent

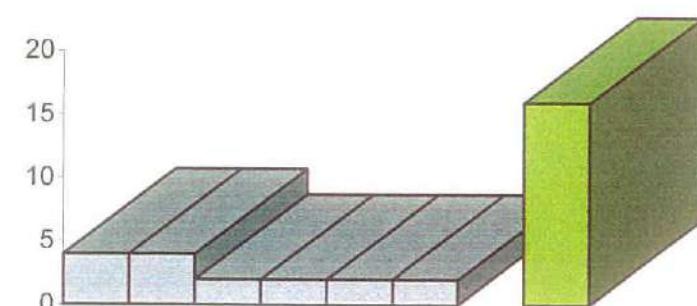
overflow screen

opposed

cleaned annually

**Risk Assessments**

Temp degC	Assessment Values						<u>Total</u>	
	C	H	A	B	C	D		
9			4	4	2	2	2	16

Location & Comments

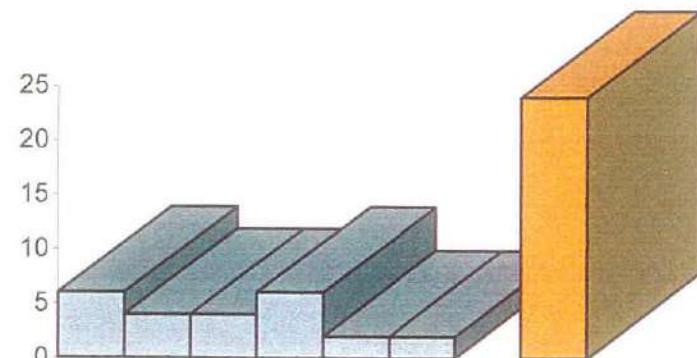
No 4

6th fl south shower

Mira electric unit

HWS too cool&lt;50

Temp degC	Assessment values						<u>Total</u>	
	C	H	A	B	C	D		
15		47	6	4	4	6	2	24

**Total Assessment Values**20 or less = **Low**21 - 25 = **Medium**Greater than 25 = **High**

Location & Comments

No 5

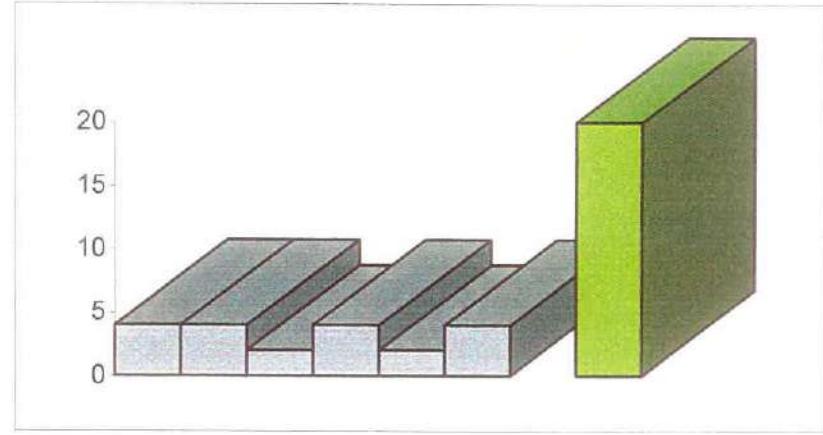
6th fl south kitchen  
not labelled as DWLocation & Comments

No 6

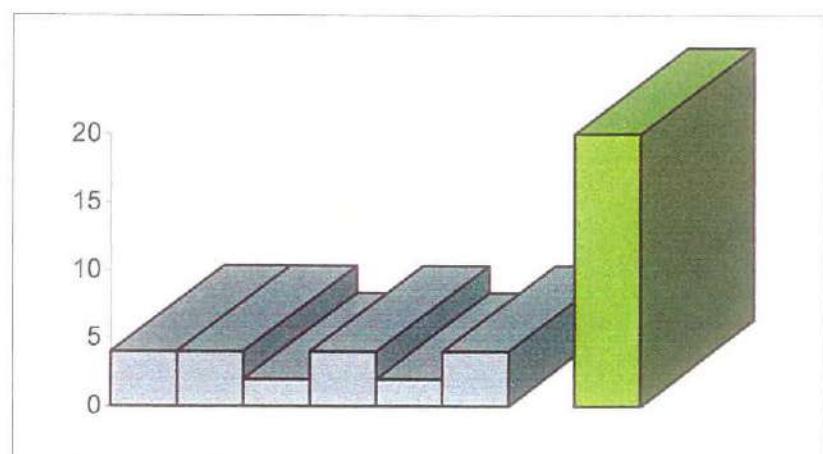
6th fl south gents

**Risk Assessments**

<u>Location &amp; Comments</u>	Temp degC		Assessment Values						<u>Total</u>
	C	H	A	B	C	D	E	F	
No 5 6th fl south kitchen not labelled as DW	17.3	55.5	4	4	2	4	2	4	20



<u>Location &amp; Comments</u>	Temp degC		Assessment values						<u>Total</u>
	C	H	A	B	C	D	E	F	
No 6 6th fl south gents	17.4	51.2	4	4	2	4	2	4	20

**Total Assessment Values**

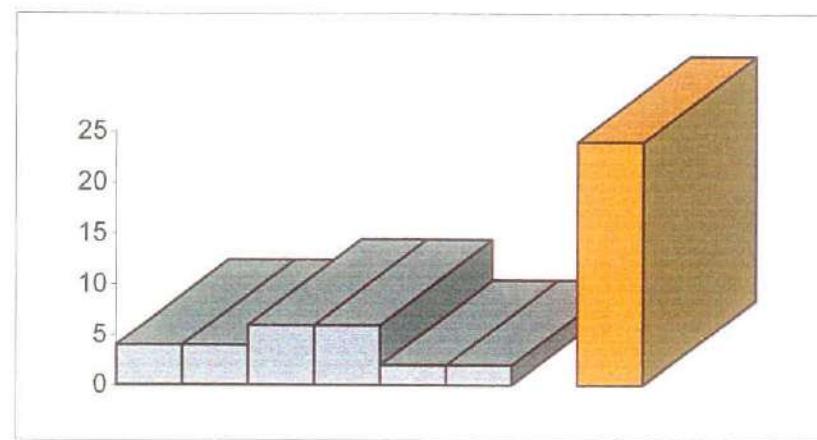
20 or less = Low

21 - 25 = Medium

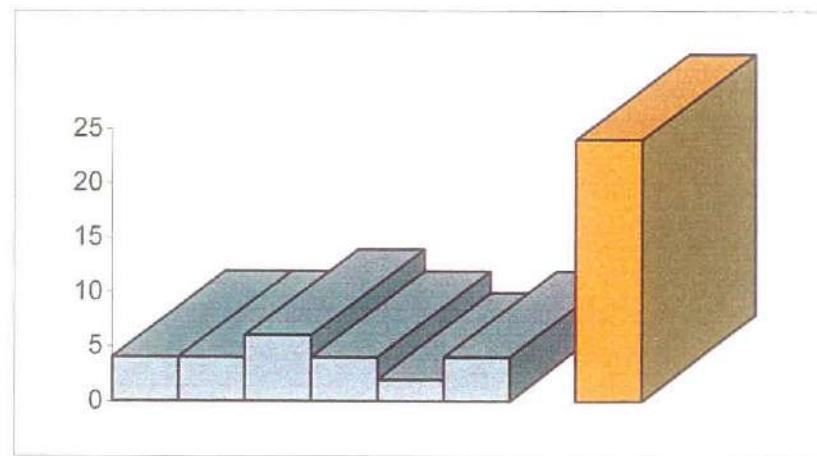
Greater than 25 = High

### Risk Assessments

<u>Location &amp; Comments</u>	Temp degC	<u>Assessment Values</u>						<u>Total</u>	
		C	H	A	B	C	D	E	
No 7 6th fl south ladies disabled WC WHB low use HWS too cool <50 CWS too warm>20	21.2	30.8		4	4	6	6	2	24



<u>Location &amp; Comments</u>	Temp degC	<u>Assessment values</u>						<u>Total</u>	
		C	H	A	B	C	D	E	
No 8 6th fl north kitchen POUH below Max temp recorded HWS too cool<50	19.3	39.1		4	4	6	4	2	24



#### Total Assessment Values

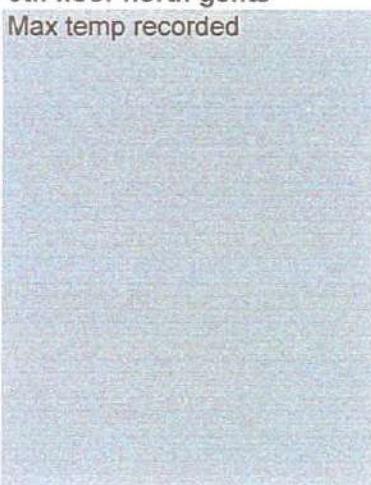
20 or less = Low  
21 - 25 = Medium  
Greater than 25 = High

### Location & Comments

No 9

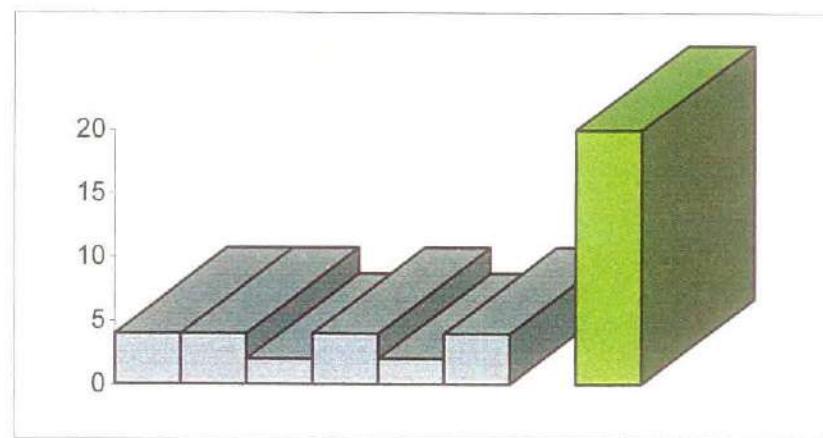
6th floor north gents

Max temp recorded



### Risk Assessments

Temp degC	Assessment Values						Total	
	C	H	A	B	C	D		
12.3		50.1	4	4	2	4	2	20

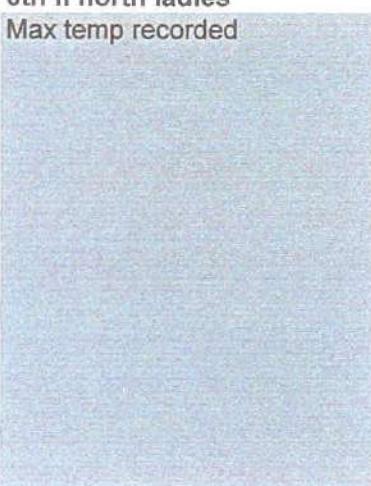


### Location & Comments

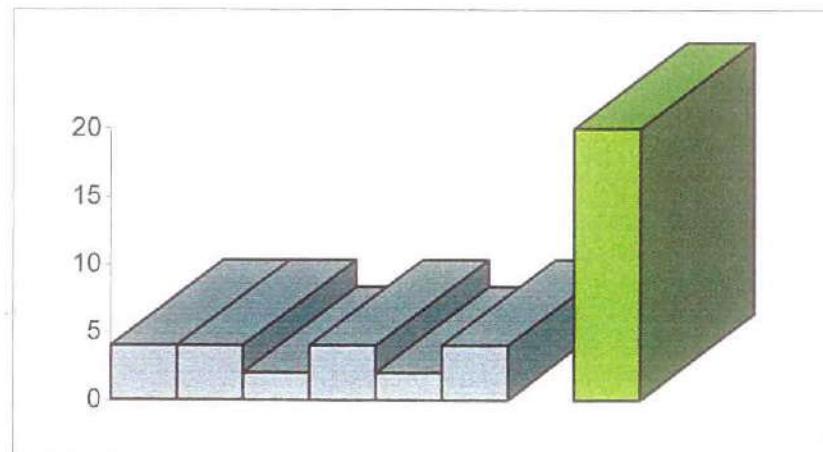
No 10

6th fl north ladies

Max temp recorded



Temp degC	Assessment values						Total	
	C	H	A	B	C	D		
14.9		53.4	4	4	2	4	2	20

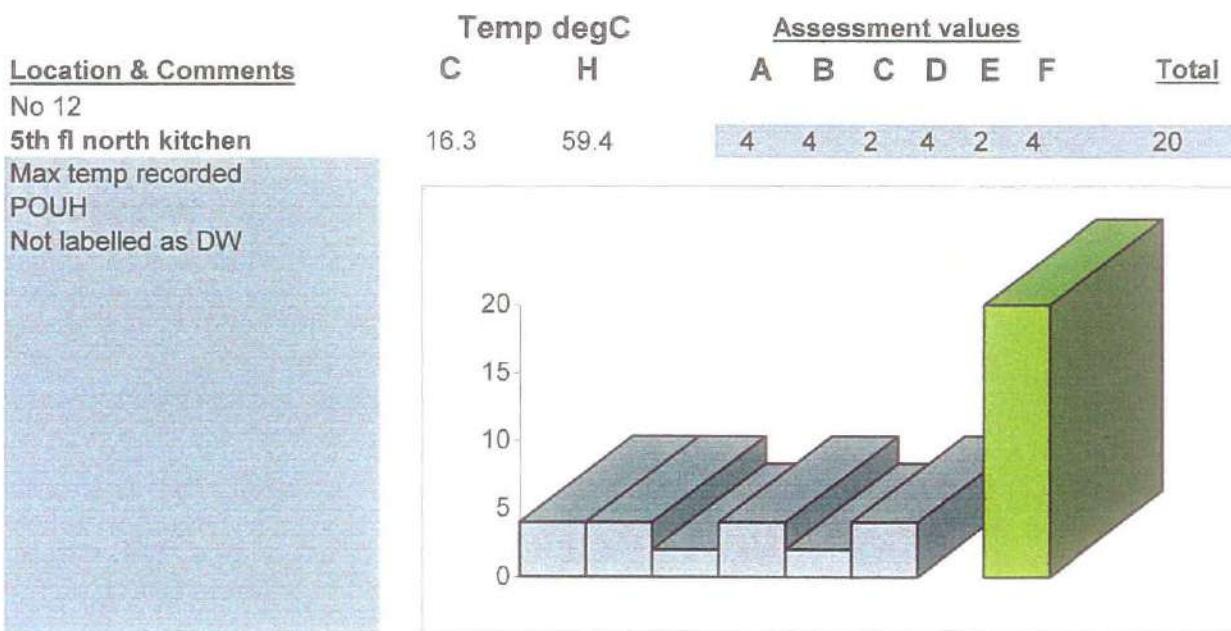
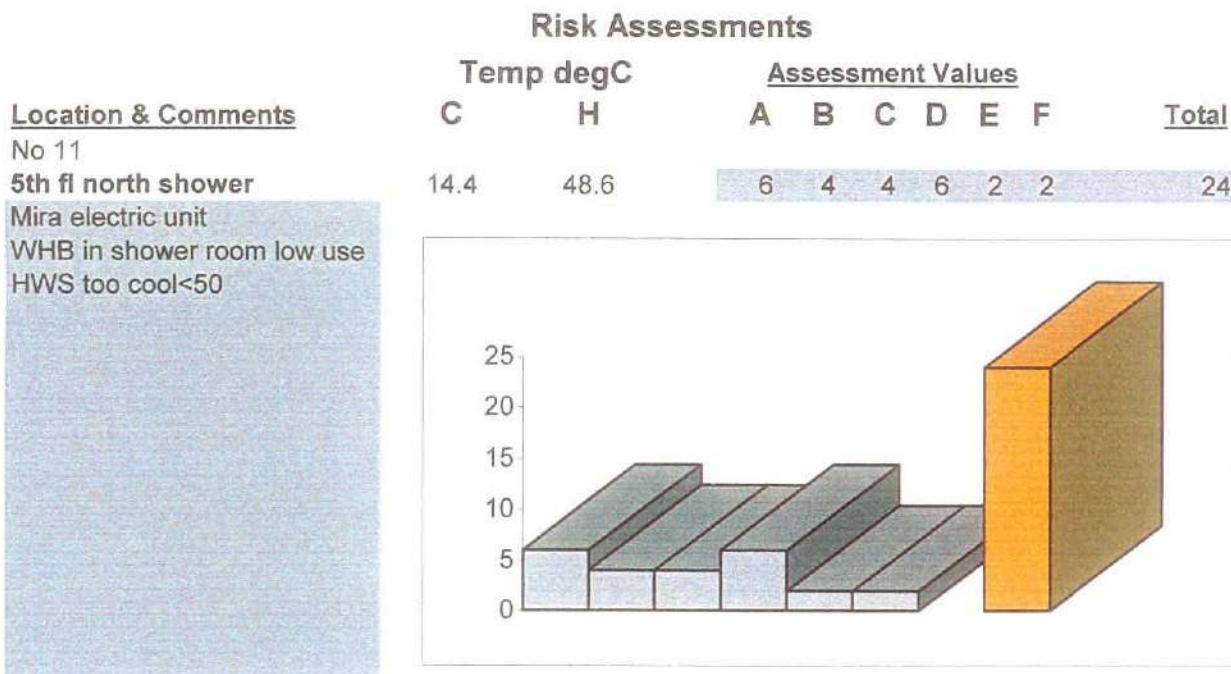


### Total Assessment Values

20 or less = Low

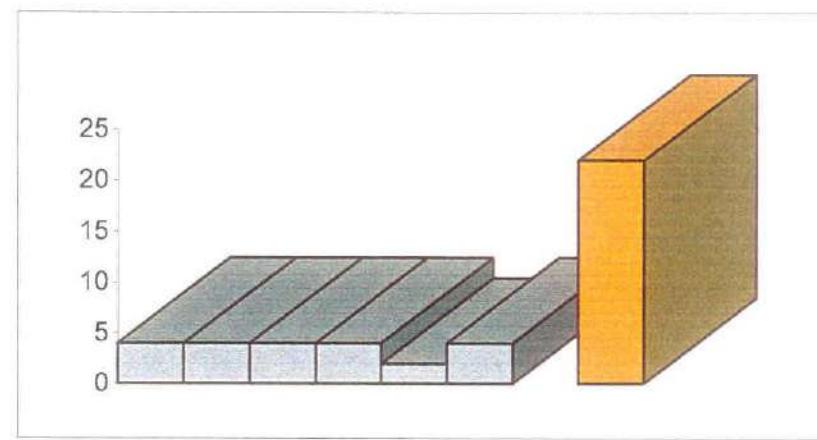
21 - 25 = Medium

Greater than 25 = High

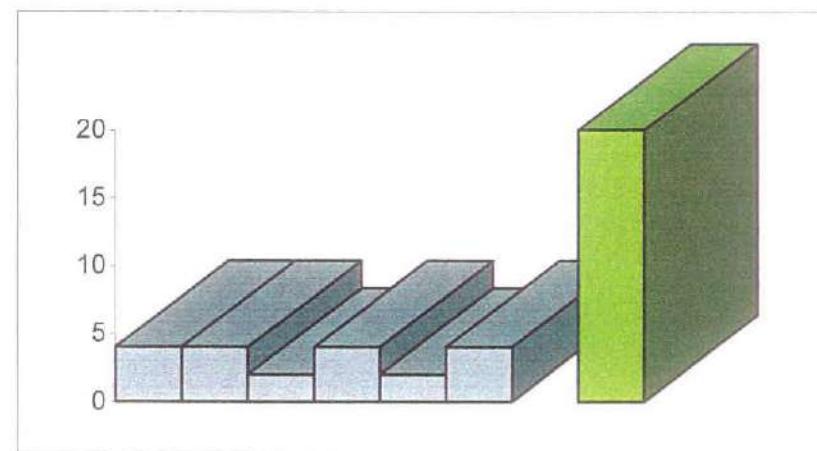


### Risk Assessments

<u>Location &amp; Comments</u>	Temp degC	<u>Assessment Values</u>						<u>Total</u>		
		C	H	A	B	C	D	E		
No 13 5th floor north ladies Max temp recorded Disabled WHB isolated HWS too cool <50	15.1	47.9		4	4	4	4	2	4	22



<u>Location &amp; Comments</u>	Temp degC	<u>Assessment values</u>						<u>Total</u>		
		C	H	A	B	C	D	E		
No 14 5th floor south kitchen Max temp recorded	17.1	57.1		4	4	2	4	2	4	20



#### Total Assessment Values

20 or less = Low  
21 - 25 = Medium  
Greater than 25 = High

Location & Comments

No 15

4th fl cleaners

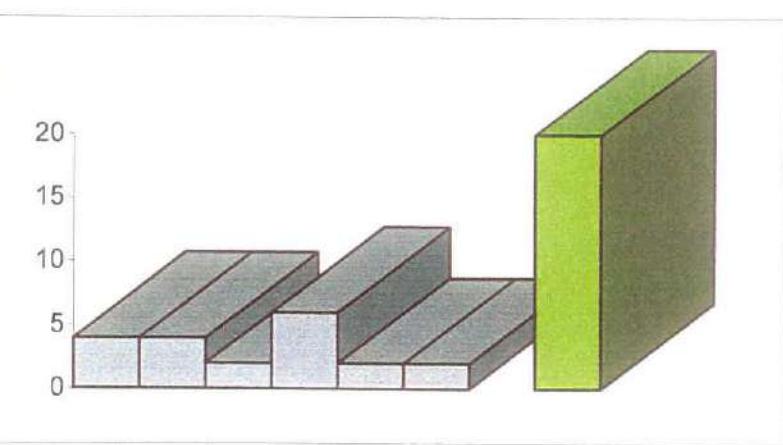
POUH switched off

All cleaners not used

HWS too cool &lt;50

**Risk Assessments**

<u>Location &amp; Comments</u>	Temp degC		Assessment Values						<u>Total</u>
	C	H	A	B	C	D	E	F	
No 15 4th fl cleaners POUH switched off All cleaners not used HWS too cool <50	15.3	15.3	4	4	2	6	2	2	20

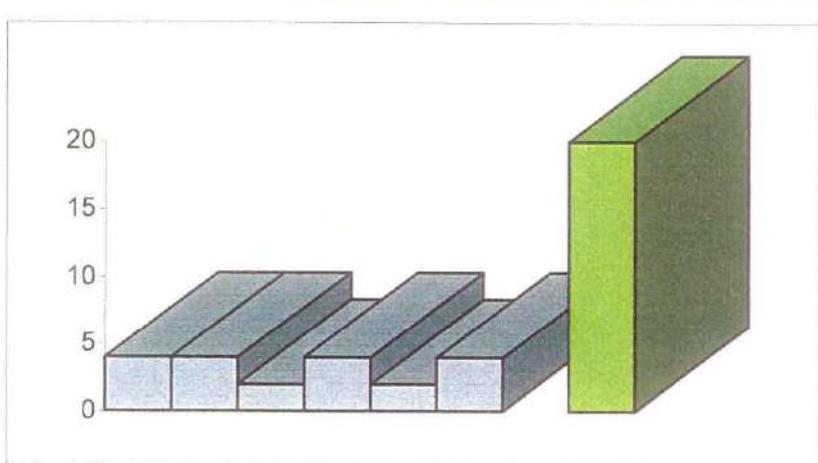
Location & Comments

No 16

5th floor south gents

Max temp recorded

<u>Location &amp; Comments</u>	Temp degC		Assessment values						<u>Total</u>
	C	H	A	B	C	D	E	F	
No 16 5th floor south gents Max temp recorded	14.1	57.1	4	4	2	4	2	4	20

**Total Assessment Values**

20 or less = Low

21 - 25 = Medium

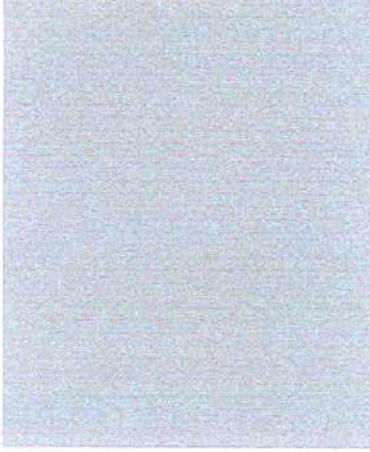
Greater than 25 = High

Location & Comments

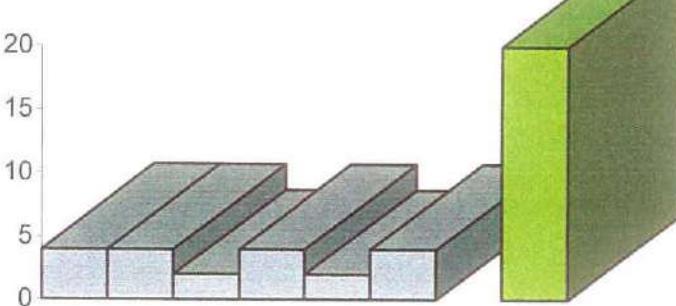
No 17

5th fl south ladies

Max temp recorded

**Risk Assessments**

<u>Temp degC</u>	<u>Assessment Values</u>						<u>Total</u>
	C	H	A	B	C	D	
13.7	50.4		4	4	2	4	20

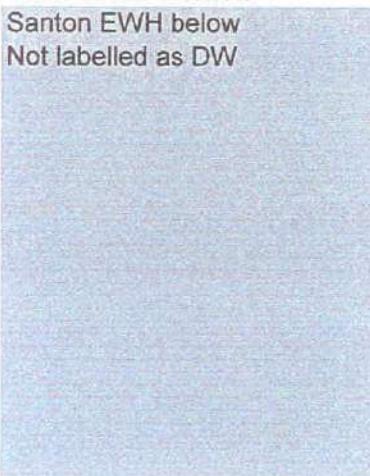
Location & Comments

No 18

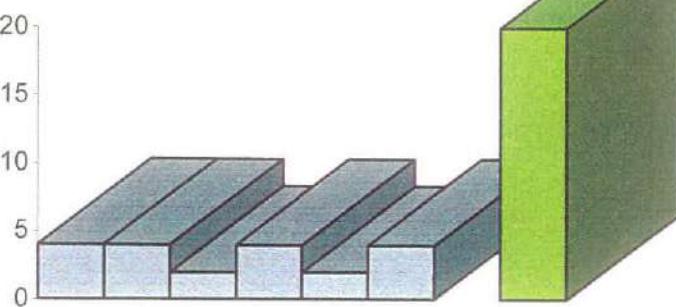
4th fl south kitchen

Santon EWH below

Not labelled as DW

**Temp degC**

<u>Temp degC</u>	<u>Assessment values</u>						<u>Total</u>
	C	H	A	B	C	D	
13.8	51.5		4	4	2	4	20

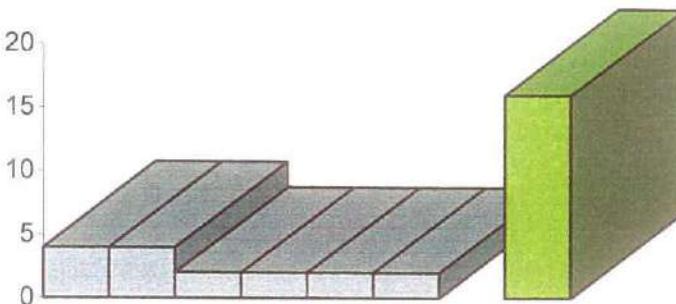
**Total Assessment Values**20 or less = **Low**21 - 25 = **Medium**Greater than 25 = **High**

Location & Comments

No 19  
4th fl south main kitchen  
Santon EWH below  
Not labelled as DW

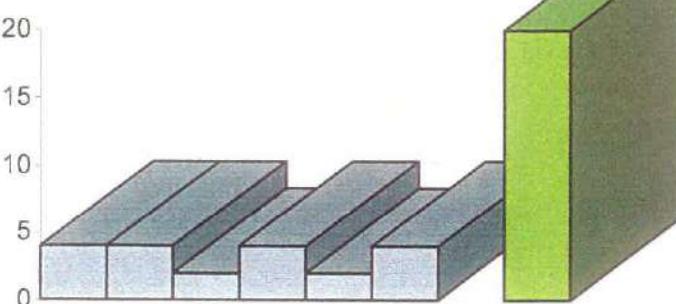
**Risk Assessments**

Temp degC	Assessment Values						<u>Total</u>	
	C	H	A	B	C	D		
13.2	56.4		4	4	2	2	2	16

Location & Comments

No 20  
4th fl north ladies  
Max temp recorded

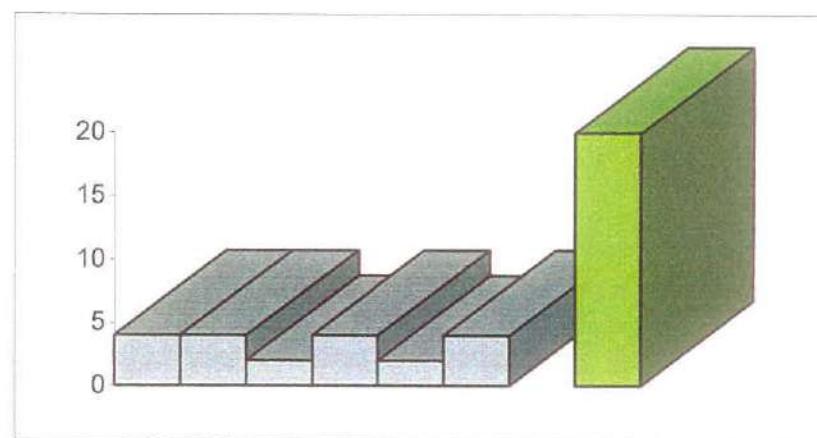
Temp degC	Assessment values						<u>Total</u>	
	C	H	A	B	C	D		
12.6	51.4		4	4	2	4	2	20

**Total Assessment Values**

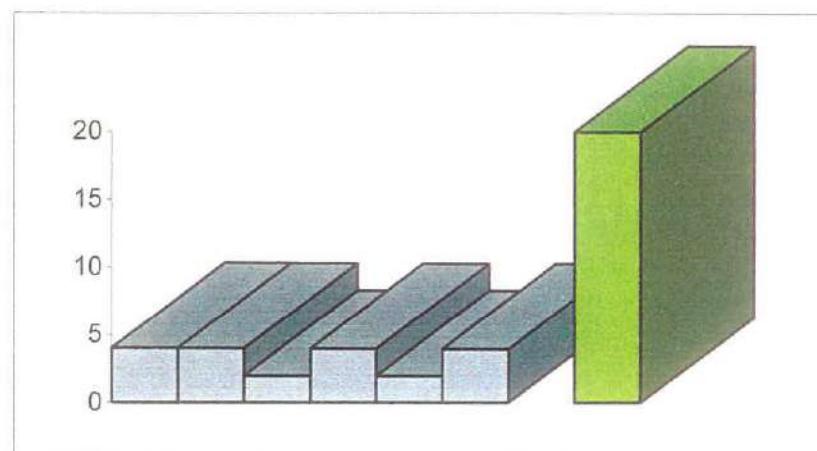
20 or less = Low  
21 - 25 = Medium  
Greater than 25 = High

### Risk Assessments

<u>Location &amp; Comments</u>	Temp degC	<u>Assessment Values</u>						<u>Total</u>		
		C	H	A	B	C	D			
No 21 4th fl north gents Max temp recorded Low flow from disabled WHB Disabled WHB low use	12.6	50.4		4	4	2	4	2	4	20



<u>Location &amp; Comments</u>	Temp degC	<u>Assessment values</u>						<u>Total</u>		
		C	H	A	B	C	D			
No 22 3rd fl north ladies Max temp recorded Disabled WHB isolated	12.2	60.1		4	4	2	4	2	4	20



#### Total Assessment Values

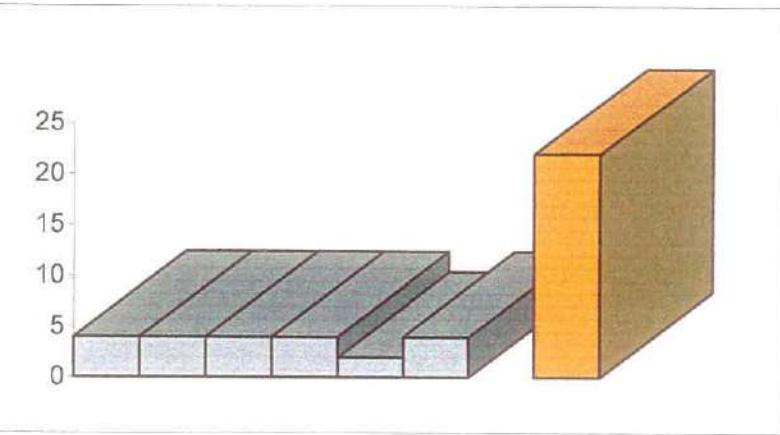
20 or less = Low  
21 - 25 = Medium  
Greater than 25 = High

Location & Comments

No 23  
3th fl north kitchen  
Ewh below  
Not labelled as DW  
Max temp recorded  
HWS too low <50

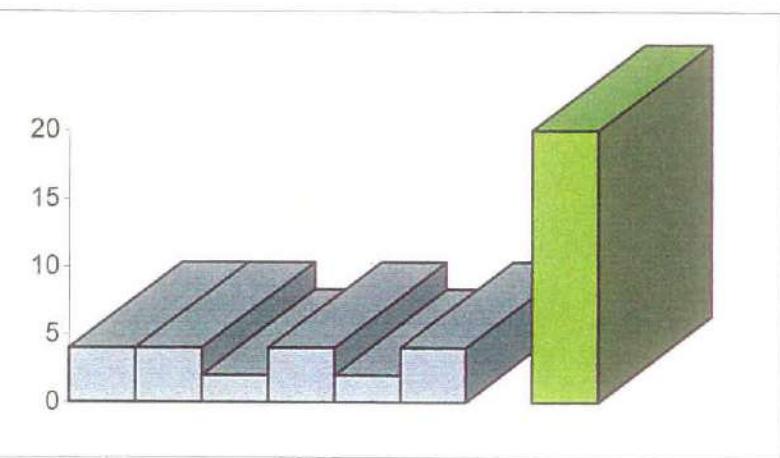
**Risk Assessments**

Temp degC	Assessment Values						<u>Total</u>
	C	H	A	B	C	D	
12.3	49.8		4	4	4	4	22

Location & Comments

No 24  
3rd fl south ladies  
Max temp recorded  
HWS too cool <50

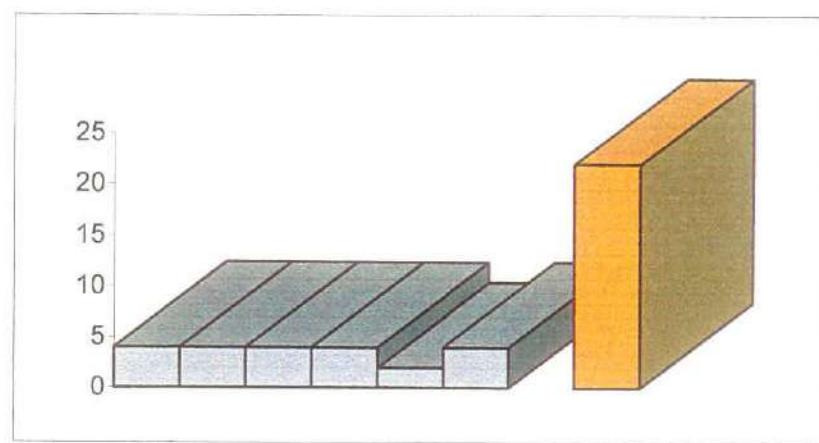
Temp degC	Assessment values						<u>Total</u>
	C	H	A	B	C	D	
12.3	32.4		4	4	2	4	20

**Total Assessment Values**

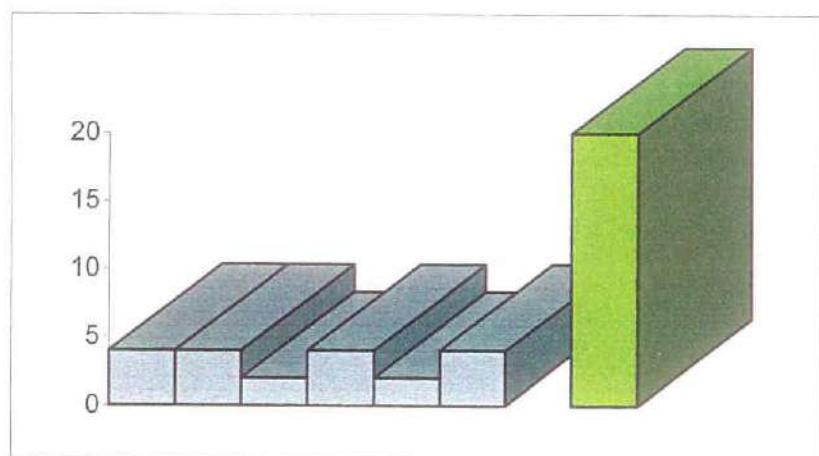
20 or less = Low  
21 - 25 = Medium  
Greater than 25 = High

### Risk Assessments

<u>Location &amp; Comments</u>	Temp degC		Assessment Values						<u>Total</u>
	C	H	A	B	C	D	E	F	
No 25 3th fl south kitchen Ewh below Not labelled as DW Max temp recorded HWS too low<50	13.7	49.2	4	4	4	4	2	4	22



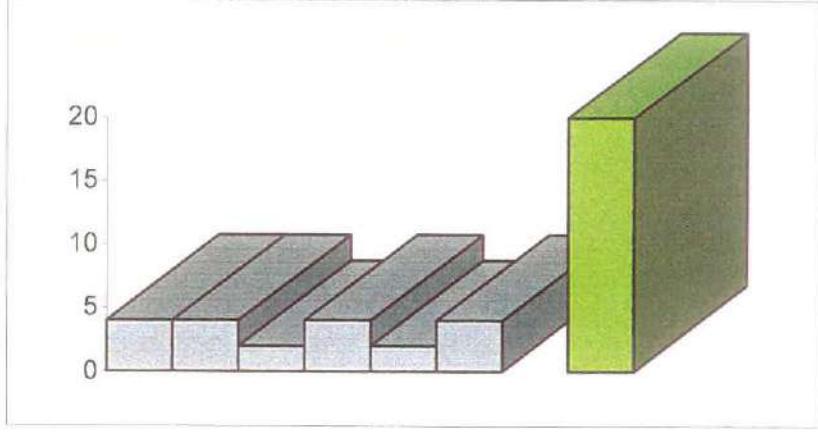
<u>Location &amp; Comments</u>	Temp degC		Assessment values						<u>Total</u>
	C	H	A	B	C	D	E	F	
No 26 3rd fl south gents Max temp recorded Disabled WHB tap not working	12.4	50.1	4	4	2	4	2	4	20



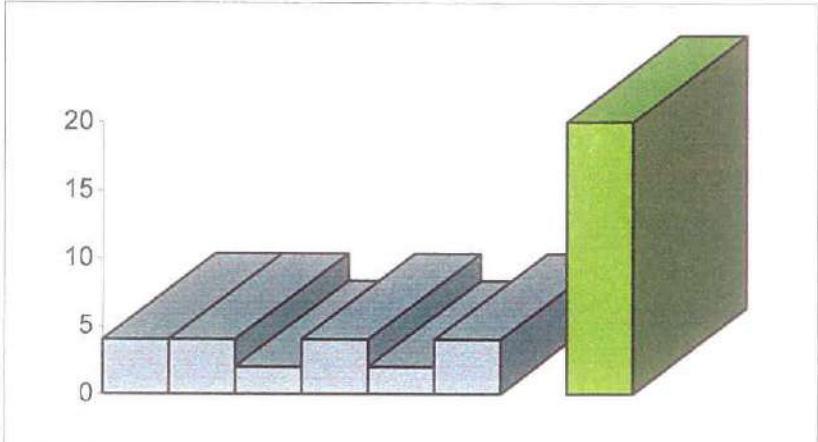
#### Total Assessment Values

20 or less = Low  
21 - 25 = Medium  
Greater than 25 = High

<u>Location &amp; Comments</u>	Risk Assessments						<u>Total</u>		
	Temp degC		Assessment Values						
C	H	A	B	C	D	E	F		
No 27 2nd fl south gents Low flow from disabled WHB Max temp recorded	12.3	57.3	4	4	2	4	2	4	20



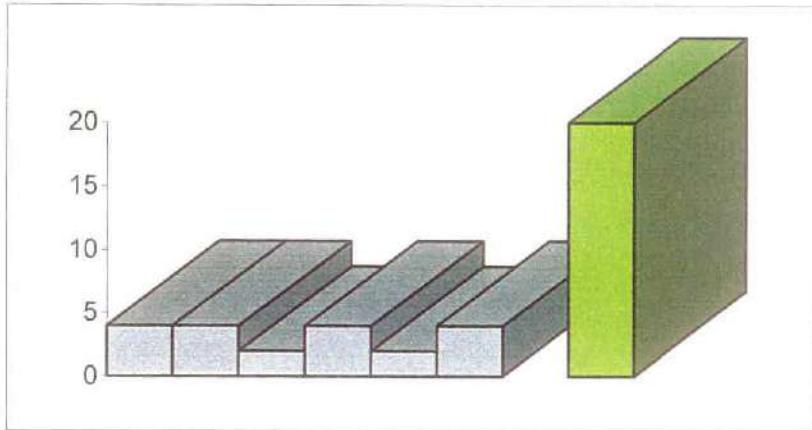
<u>Location &amp; Comments</u>	Risk Assessments						<u>Total</u>		
	Temp degC		Assessment values						
C	H	A	B	C	D	E	F		
No 28 2nd fl north gents Max temp recorded	12.9	59.2	4	4	2	4	2	4	20



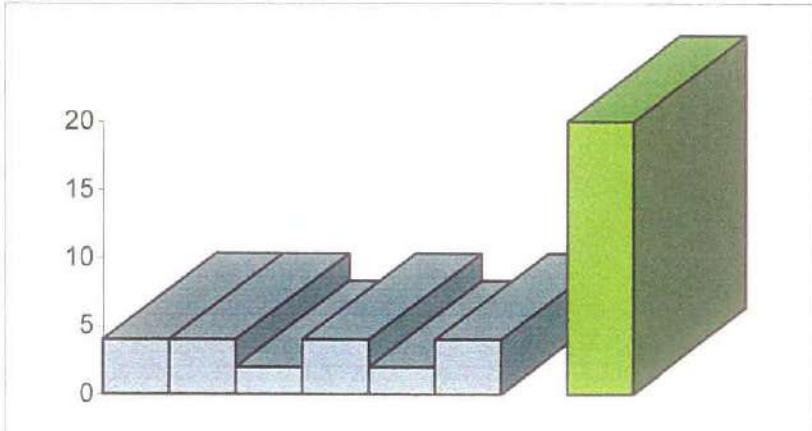
#### Total Assessment Values

20 or less = Low  
 21 - 25 = Medium  
 Greater than 25 = High

<u>Location &amp; Comments</u>	Risk Assessments						<u>Total</u>		
	Temp degC		Assessment Values						
	C	H	A	B	C	D	E		
No 29 2nd fl north kitchen EWH not working Not labelled as DW	11.9	18.1	4	4	2	4	2	4	20



<u>Location &amp; Comments</u>	Risk Assessments						<u>Total</u>		
	Temp degC		Assessment values						
	C	H	A	B	C	D	E		
No 30 1st fl north gents Max temp recorded	12.1	56.4	4	4	2	4	2	4	20



#### Total Assessment Values

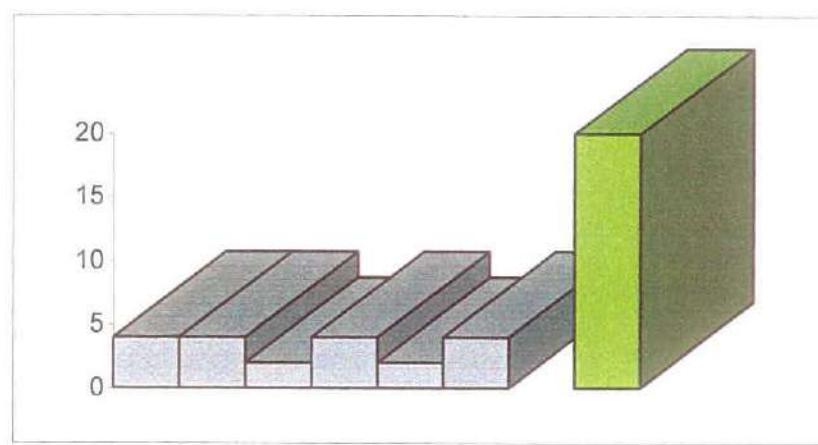
20 or less = Low

21 - 25 = Medium

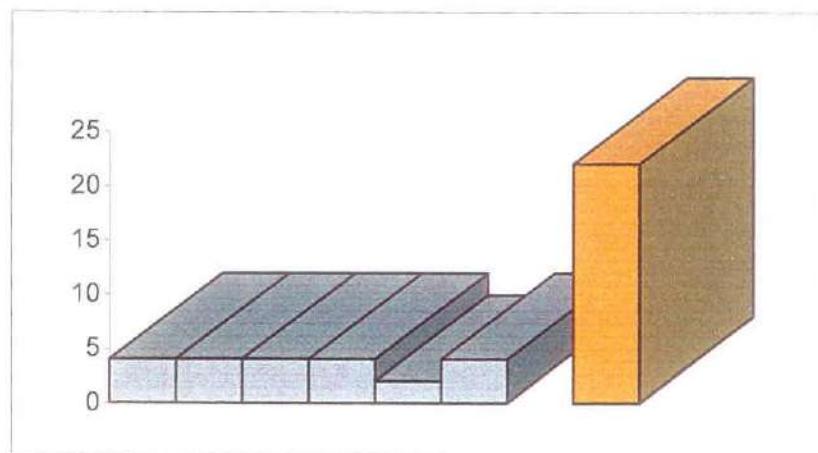
Greater than 25 = High

### Risk Assessments

<u>Location &amp; Comments</u>	Temp degC	<u>Assessment Values</u>						<u>Total</u>		
		C	H	A	B	C	D	E		
No 31 1st fl north ladies Low flow from disabled tap Max temp recorded	11.8	51.2		4	4	2	4	2	4	20



<u>Location &amp; Comments</u>	Temp degC	<u>Assessment values</u>						<u>Total</u>		
		C	H	A	B	C	D	E		
No 32 1st fl south gents Low flow from disabled tap Max temp recorded HWS too cool<50	12.6	48.2		4	4	4	4	2	4	22



#### Total Assessment Values

20 or less = Low  
21 - 25 = Medium  
Greater than 25 = High

Location & Comments

No 33

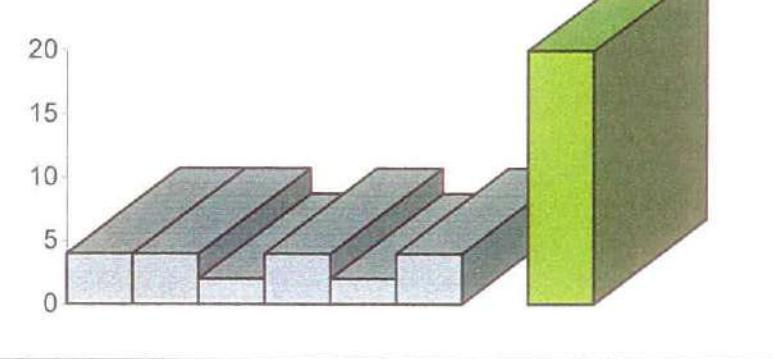
1st fl south kitchen

EWH below

Max temp recorded

Not labelled as DW

<u>Location &amp; Comments</u>	Temp degC		Assessment Values						<u>Total</u>
	C	H	A	B	C	D	E	F	
No 33 1st fl south kitchen EWH below Max temp recorded Not labelled as DW	13.3	51.9	4	4	2	4	2	4	20

Location & Comments

No 34

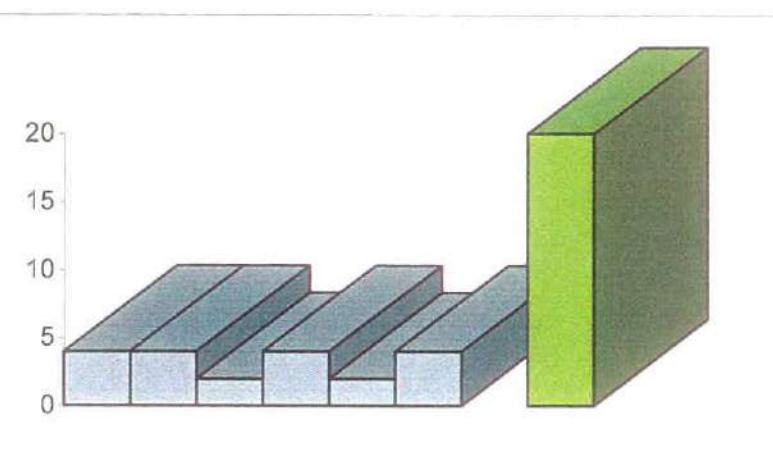
Grd fl north kitchen

EWH below

Max temp recorded

Not labelled as DW

<u>Location &amp; Comments</u>	Temp degC		Assessment values						<u>Total</u>
	C	H	A	B	C	D	E	F	
No 34 Grd fl north kitchen EWH below Max temp recorded Not labelled as DW	13	54.9	4	4	2	4	2	4	20

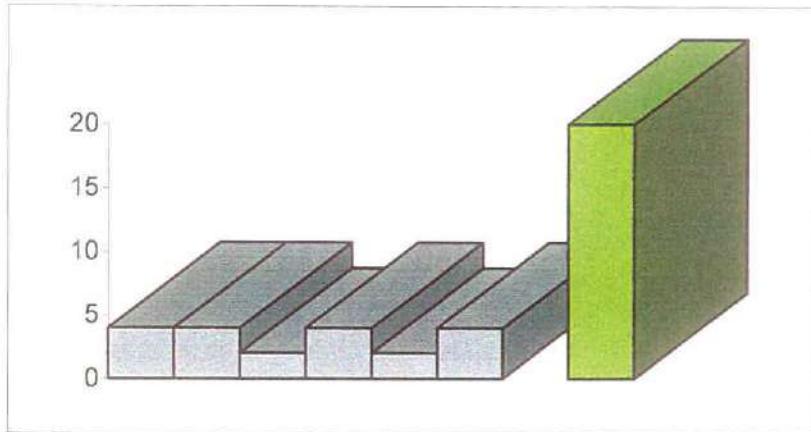
**Total Assessment Values**

20 or less = Low

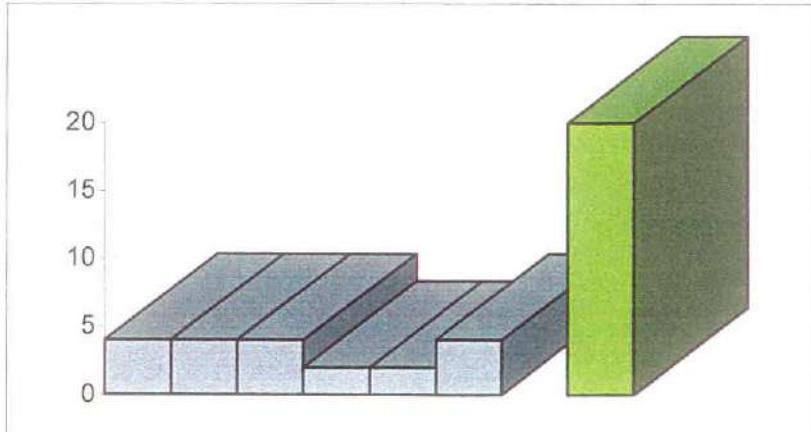
21 - 25 = Medium

Greater than 25 = High

<u>Location &amp; Comments</u>	Risk Assessments								
	Temp degC		Assessment Values						
C	H	A	B	C	D	E	F	Total	
No 35 Grd fl north gents  Max temp recorded	11.8	53.9	4	4	2	4	2	4	20



<u>Location &amp; Comments</u>	Risk Assessments								
	Temp degC		Assessment values						
C	H	A	B	C	D	E	F	Total	
No 36 Grd fl reception disabled Disabled WHB tap not working  Max temp recorded HWS too cool<50	12.7	47.9	4	4	4	2	2	4	20

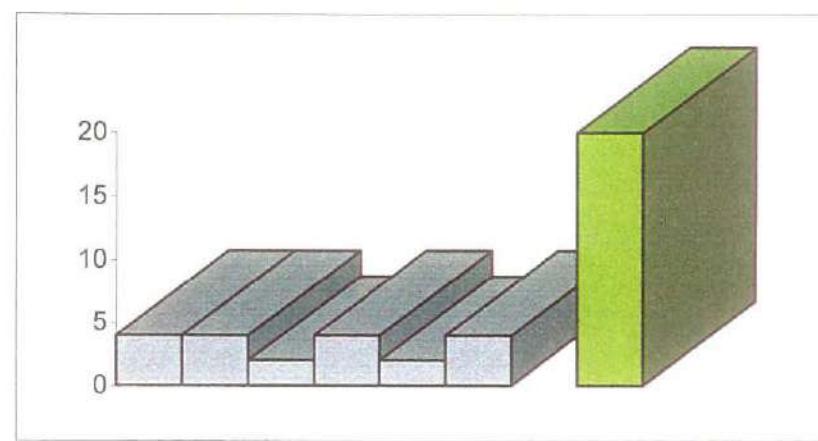


#### Total Assessment Values

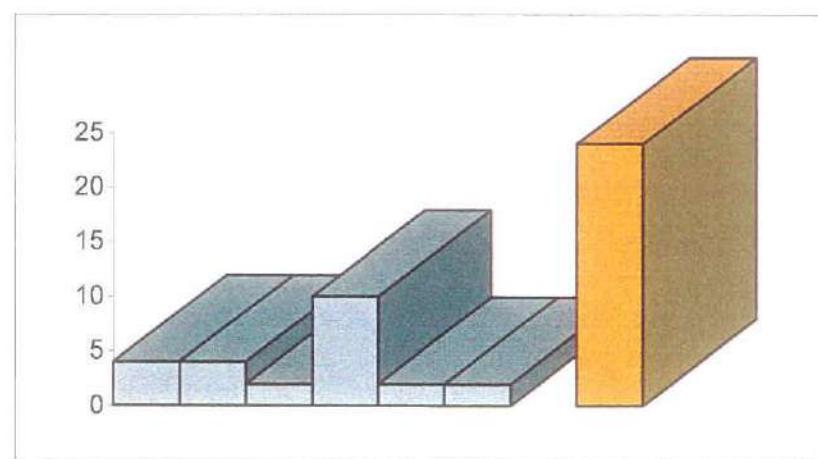
20 or less = Low  
21 - 25 = Medium  
Greater than 25 = High

### Risk Assessments

<u>Location &amp; Comments</u>	Temp degC		Assessment Values						<u>Total</u>
	C	H	A	B	C	D	E	F	
No 37 LG south kitchen EWH below Max temp recorded Not labelled as DW	11.7	57.5	4	4	2	4	2	4	20



<u>Location &amp; Comments</u>	Temp degC		Assessment values						<u>Total</u>
	C	H	A	B	C	D	E	F	
No 38 LG North gents disabled Disabled WHB tap faulty Low use  HWS too cool<50	11.8	12.1	4	4	2	10	2	2	24

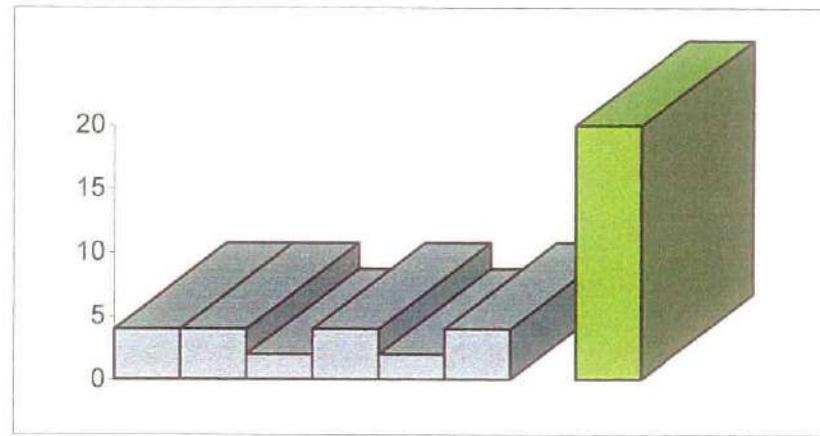


#### Total Assessment Values

20 or less = Low  
21 - 25 = Medium  
Greater than 25 = High

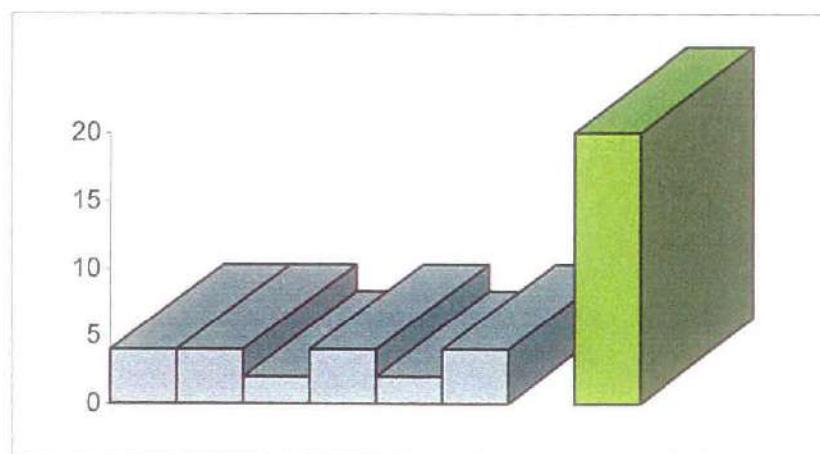
<u>Location &amp; Comments</u>	Risk Assessments						<u>Total</u>		
	Temp degC		Assessment Values						
C	H	A	B	C	D	E	F		
No 39 LG north gents	11.9	50.1	4	4	2	4	2	4	20

Max temp recorded



<u>Location &amp; Comments</u>	Temp degC		Assessment values						<u>Total</u>
	C	H	A	B	C	D	E	F	
No 40 LG south ladies Disabled WHB tap low flow Low use Max temp recorded	12	53.7	4	4	2	4	2	4	20

Max temp recorded



#### Total Assessment Values

- 20 or less = Low
- 21 - 25 = Medium
- Greater than 25 = High

## OBSERVATIONS

The survey and investigation was commissioned in order to identify and assess the risk of Legionellosis from the water sources on the premises. 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. Although references are made to compliance with the requirements L8, the survey can not be considered to have addressed all aspects of the guidance note.

The specific observations made in this report 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. The assessments are detailed in the relevant section of this report.

#### **Further Action**

The assessments of risk must be used as guidance for the preparation and implementation of an ongoing scheme for control of Legionella bacteria.

The assessments must be reviewed whenever there is a reason to believe that the original assessment may no longer be valid due to circumstances such as systems physical changes, failure of control measures etc.

A review should also be undertaken if there is change in the use of the premises or activities undertaken which may have a bearing on systems operations and occupants' susceptibility. A review should also be considered when new information becomes available and if monitoring checks indicate that control regimes may no longer be effective.

Depending on the level of change, the review of assessment may be more specific. The findings should be recorded formally and any changes to existing practices and control measures should be undertaken if appropriate.

Responsibility for deciding whether it may be appropriate to review an assessment will normally be the decision of the person appointed managerially responsible for Legionella precautions. If the ongoing auditing and monitoring of the systems conditions and operation of control procedures is undertaken by an independent body, any situation requiring re assessment should be reported to the responsible person by them.

### **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 is operational on the site for the building services plant and systems. Direct labour and contract staff undertakes the work. Procedures and records for the various maintenance activities are documented and the particular procedures relative to the control of Legionellosis are documented within an operational log book.

#### **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 control and record-keeping log book document should be prepared for the premises and the scheme contained within the log book must be implemented and monitored in order to meet the requirements of ACOP L8.

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

- 1) Definition of Management responsibilities.
- 2) Description of systems and inclusion of available system schematic drawings and plans.
- 3) A record of risk assessment
- 4) Details of system operation relevant to controlling the risk.
- 5) The precautions to be implemented.
- 6) System inspection and check procedures.
- 7) All details of precautions carried out including checks, inspections, cleaning and disinfection.

The log book, 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 log book 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 log book.

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 log book 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. A simple method such as the use of dip slides can be utilised for this purpose.

System reference	Exchequer Court
Location	All Areas
Method	Visual assessment, and Temperature Profiling

Cold water storage.

The boosted cold water services to the building are served via a two sectional steel tanks located in the basement plant room.

There is a third tank, which at the time of survey was out of service, this tank was drained and isolated. The isolation of this tank has resulted in the formation of deadlegs on the mains and service pipework. Deadlegs may provide an environment that favours the proliferation of micro-organisms which may subsequently seed the remainder of the services. It is recommended that the pipework local to this tank be modified to remove these stagnant sections of pipe.

The tanks are fitted with lids, which is sealed and secured to the tank. The lids are fitted with screened vents.

The lids are fitted with inspection hatches to allow routine monitoring and cleaning exercises. These hatches should be secured to prevent the possibility of external contaminants entering the stored water when not in use.

The overflow pipes are screened to prevent the ingress of insects etc, into the stored water.

The tanks are not fitted with warning pipes and in order to comply with the current water regulations warning pipes should be fitted. These pipes should be positioned to an area of high visibility. Warning pipes must also be screened against the ingress of external contaminants.

The inlet and outlet pipework from the tanks is opposed and this will encourage through flow within the stored water. It is reported by the maintenance supervisor on site that the mains supplies to the tanks is alternated on a weekly basis to further promote through flow. This should be recorded in the site records.

The tanks are insulated with against excessive heat gains.

The tanks were inspected internally and were found to be in a satisfactory condition with only a light level of sediment over the base surfaces. It is recommended that the tanks be inspected on a regular basis and be cleaned and chlorinated as required.

There is a separate break tank for the site drinking water located at high level in the basement pump room.

This tank is of stainless steel construction. The tank is fitted with a bolted lid to prevent the ingress of external contamination. The lid is fitted with a screened vent, and the overflow pipework is also screened.

The inlet and outlet pipework is opposed and the turnover of water is high.

The tank is insulated against excessive heat gains.

Both the CWS and drinking water pump sets are of good design and automatically alternate which will prevent the stagnation associated with duty/standby set-ups. These pumps also provide metered services to the shops etc, which are not under the control of JLL.

### **Domestic Water Distribution**

Domestic water services should operate at temperatures that prevent the proliferation of legionella. ACOP L8 specifies that hot water should be stored at no less than 60°C and distributed at no less than 50°C, obtainable at user outlets within one minute of opening. Cold water should be stored and distributed at no more than 20°C.

Cold water distributes from the cold water storage tank to serve the toilets, wash basins showers and sinks around the building.

Domestic hot water distributes from various local and multi-point electric water heaters to serve the wash hand basins and sinks around the building. The pipework from the multi-point units in the risers is trace heated to ensure immediate delivery of hot water.

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, the temperature of the cold water distribution was below 20°C in all areas, with the exception of the 6<sup>th</sup> floor south ladies disabled toilet. It is reported that these disabled cubicle toilets are infrequently used. The installation in the 5<sup>th</sup> floor north has been isolated because of this. It is recommended that all of these sinks be isolated in order to remove these deadlegs from the system. It should be checked that isolation of these installations does not leave excessive deadlegs behind the paneling.

At the time of the survey, the temperature of the hot water distribution varied between 39.1 degC and 60.6 degC (see individual assessments). L8 requires that hot water be delivered to all outlets at a minimum of 50 degC. It is therefore recommended that the individual water heaters be checked and adjusted accordingly.

Jones Lang Lasalle  
Exchequer Court  
33 St Mary's Axe  
London EC3A 8LL

March 2002

None of the cleaners cupboards are used. They are being subjected to a weekly flushing regime, which is recorded in the site records and this is satisfactory.

It would appear that the wash hand basin in the 5<sup>th</sup> floor north shower room is infrequently used, as will be the sink in the 1<sup>st</sup> aid room on the lower ground floor. It is recommended that the usage of these installations be checked, and if confirmed as low they should be included in the weekly flushing regime.

The below sink santon water heater in the 2<sup>nd</sup> floor north kitchen was not working at the time of survey. This will discourage usage of the sink and may allow the formation of a deadleg. It is recommended that this water heater be repaired or replaced at the earliest opportunity.

Not all of the drinking water outlets are labelled as such. Labels conforming to BS5378, (white lettering on a green background) should be fitted adjacent to all designated drinking water outlets.

All of the tap outlets inspected were free of any significant deposits of scale. It is understood that there is a regime of descaling in place, however there is no record of this. It is recommended that all such actions are recorded in the site logbook.

### **Record Keeping**

There is an "Aqua Smasher" logbook present on site. There are details of the management structure entered, but at present none of the records for works undertaken have been entered. All of the records for works carried out are kept in the AMEC site records.

The records being kept are generally satisfactory and up to date. It is recommended that all of the records kept are signed by the operative carrying out the works. It was noted that the showerhead cleaning records for the last three months were not present and these should be entered into the records along with the details of the weekly flushing, which are kept separately.

Laboratory analysis records and chlorination certificates were found to be up to date, and the microbiological results show satisfactory levels.

It is recommended that all of the records currently held in the AMEC log book be transferred into the new "Aqua Smasher".

It is reported that the AMEC supervisor who carries out all of the routine control measures has no deputy, thus there is no cover during his absence. It is recommended that a deputy be nominated in order to meet this requirement.

It is reported that none of the AMEC staff has any formal training in the control of Legionellosis. It is recommended that any staff involved be trained to a satisfactory level of competence, and that the relevant training certificates be entered into the site records.

## 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 proceeding observations section and Further Action Required.

<u>RECOMMENDATION</u>	<u>CATEGORY</u>
<b><u>Record Keeping</u></b>	
- Enter all records into "Aqua Smasher" log book	High
- Ensure all records are signed	High
- Appoint a deputy to provide cover during the supervisors absence	High
- Prepare schematic drawings of systems and description of operation.	Being Prepared
- Carry out competence training and certification of all staff involved in control measures	High
- Periodically audit the systems condition, control procedures and record keeping processes.	High

RECOMMENDATION

PRIORITY

**CWSTS**

Monitor levels of sediment and clean as required	Medium
Secure access hatches	Low
Remove local deadlegs	High
Fit screened warning pipes	Medium

**Domestic Water Distribution**

Increase flushing regime where required	High
Isolate disabled cubicle WHB's from service	Medium
Fit drinking water labels	Low
Ensure all water heaters adjusted to deliver water at 50-62 degC	High
Return santon POUH to service	Medium

**B2**

## **Site Specific Schematics**

# Site Specific Schematics

This Section must include site specific and up to date system schematics for all water systems within the building and contain full details of the various elements of each system.

Previous schematics shall be kept for the duration for which they remain current and for at least 2 years after that period in order to comply with the legal duties set out in the relevant ACOP documentation. In the event the schematics are superceded they shall be safely filed within the log book but shall be clearly marked across the whole schematic indicating that they are superceded.

Where there are any type of cooling towers at the site these systems should be recorded separately from the domestic services.

The following items must be included.

- ◆ Cooling towers and associated cisterns and systems.
- ◆ Water softeners.
- ◆ Distribution pipework and terminal units.
- ◆ Cold water storage tanks.
- ◆ Storage calorifiers.
- ◆ Domestic hot and cold outlets.
- ◆ Showers.
- ◆ Incoming main and water outlets.
- ◆ Showers.
- ◆ Incoming main and water meter.
- ◆ Isolation valves and stop cocks.
- ◆ Boilers and pumps.
- ◆ Water Booster Sets
- ◆ Sprinkler Systems
- ◆ Other water related items of equipment

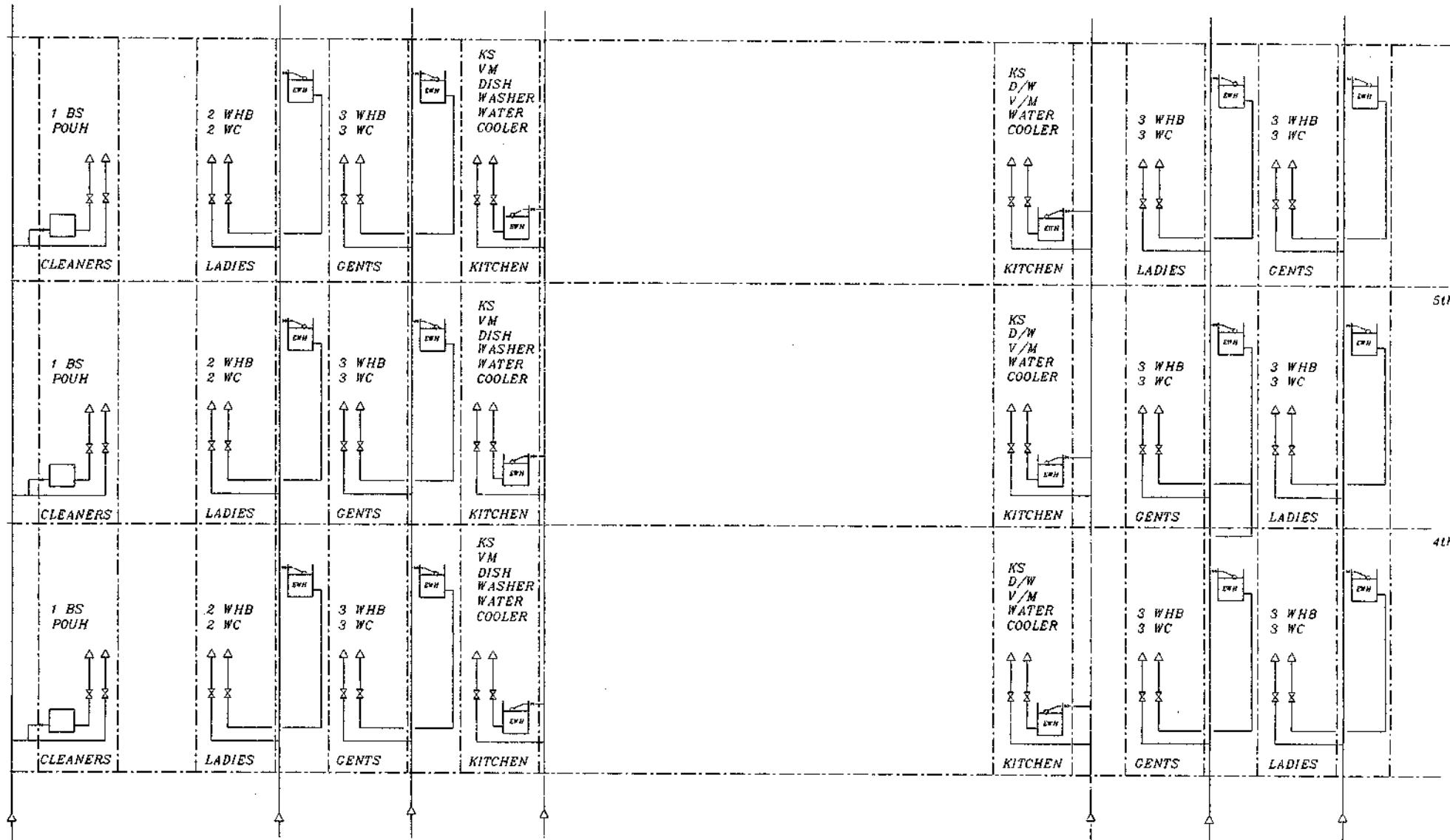
This section also includes example water services schematics which are for guidance only. Once the appropriate schematics have been undertaken the examples must be removed to avoid confusion.

Appropriate floor by floor layouts/diagrams should be held with the Building Facilities Manager.

SOUT

FOR CONTINUATION SEE DRAWING No. UEL/J/10

NORTH



FROM THIRD FLOOR

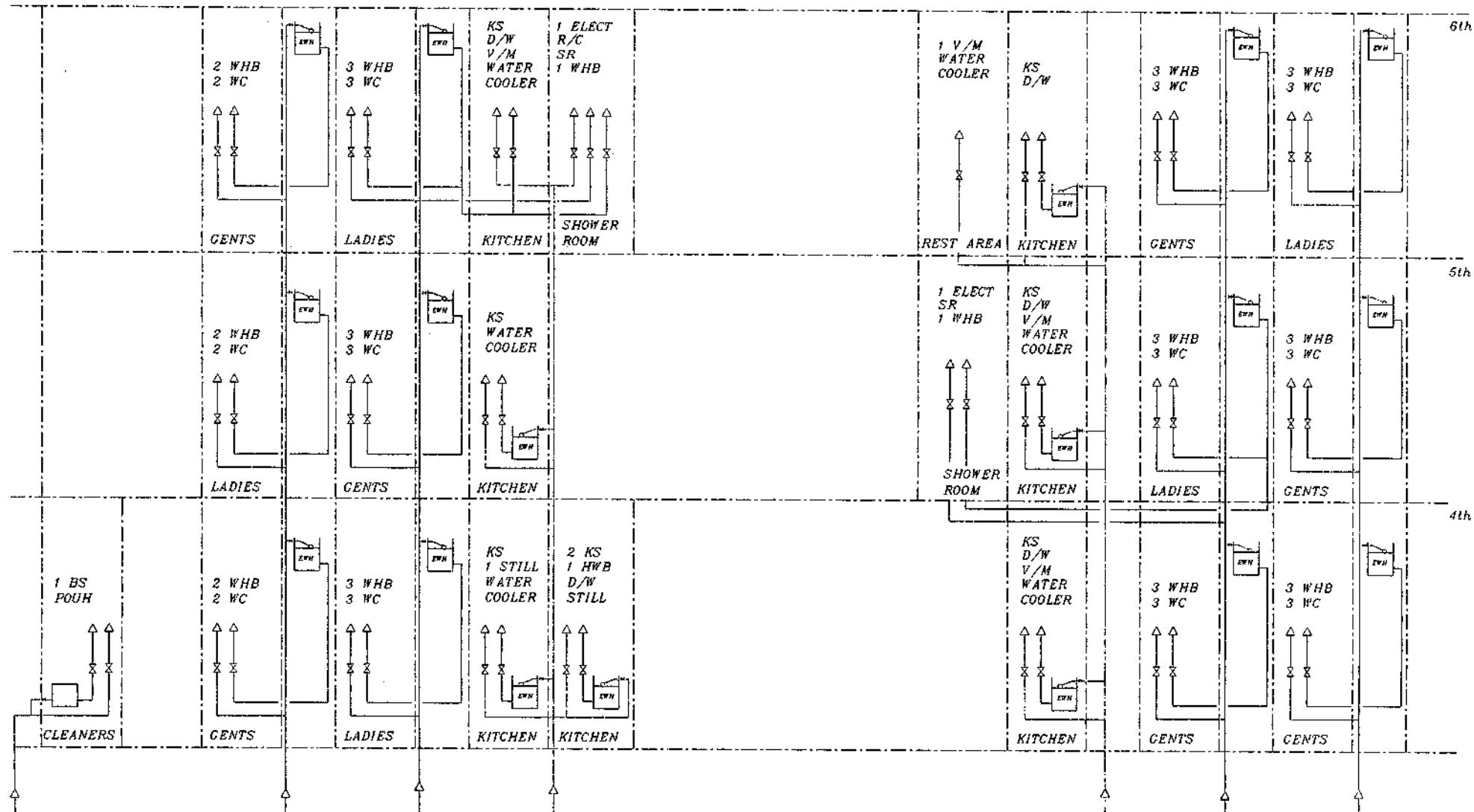
FOR CONTINUATION SEE DRAWING No. UEL/J/11

FROM THIRD FLOOR

Tolerances (unless otherwise specified)				X.X +/- 0.5mm	X.X.X +/- 0.2mm	Finish	Matt.
Issue	Description	Signed	Date	X.X.X +/- 0.1mm			
1	FIRST DRAWN					Title JONES LANG LASALLE EXCHEQUER COURT 33 ST MARY'S AXE LONDON	Scale N.T.S.      Drawn J.C.      App.d
							Drg. No. UEL/J/10

SOUTH

NORTH



FROM THIRD FLOOR

FOR CONTINUATION SEE DRAWING No. UEL/J/10

FROM THIRD FLOOR

Tolerances (unless otherwise specified)				X.X. +/- 0.5mm	X.X.X +/- 0.2mm	X.X.X.X +/- 0.1mm	Finish	Matl.		
Issue	Description	Signed	Date				Title JONES LANG LASALLE EXCHEQUER COURT 33 ST MARY'S AXE LONDON	Scale N.T.S.	Drawn J.C.	App'd
1	FIRST DRAWN									

Drg. No. UEL/J/09

# B3

## COSHH Data Sheets

# COSHH Data Sheets

In accordance with the Control of Substances Hazardous to Health (COSHH) Regulations 1999 appropriate product data and safety sheets are to be included in this section.

Further copies are to be displayed where the products are stored and at their point of use.

SECTION C

# C1

## Emergency Shutdown Procedures

# Emergency Action to be Taken in the Event of Legionella Contamination

## Legionella in Tanks/Calorifiers/Taps>Showers/Cooling Towers/ Pipework and associated plant and equipment

1. The Maintenance Contractor or Water Treatment Specialist must inform the Jones Lang LaSalle Building Facilities Manager of the Serotype and number of bacteria by phone and confirm by facsimile.

In the event the Building Facilities Manager cannot be contacted the Regional Facilities Manager should be contacted: refer to Responsibility Structure for full contact names, telephone and facsimile numbers that should be used on an escalating emergency basis.

2. The Jones Lang LaSalle manager will then instruct a qualified contractor to shut down the specific systems if appropriate, and/or to take further samples followed immediately by a clean and disinfection (or pasteurisation) of the affected systems.

**The site specific shutdown procedure must be provided by the Maintenance Contractor and included in this section giving method statements and location descriptions of all relevant fan, pumps, shut off valves and drain systems and other plant and equipment associated with the affected.**

**The Maintenance Contractor must ensure that an Emergency Shut Down Procedure is drawn up as soon as reasonably practicable ie. within 3 weeks of commencing the maintenance works. A typed version of this procedure is to be inserted into this section.**

3. The affected systems shall be retested for Legionella contamination 7 days following the clean and disinfection.

The routine maintenance regime and system design should be reassessed by a competent and independent person. A full report to be inserted into this Water Hygiene Log Book and Policy Document.

# Outbreak of Legionnaires Disease

1. In the event of an outbreak of Legionnaires Disease in the vicinity of the property the Maintenance Contractor or Water Treatment Specialist must inform, and confirm in writing, the Jones Lang LaSalle Building Facilities Manager of the possibility that the property's water system might be implicated. Should the Building Facilities Manager be uncontactable the Maintenance Contractor or Water Treatment Specialist must refer to the Responsibility Structure and inform the next available manager.
2. The Jones Lang LaSalle manager must liaise with the Environmental Health Officer/Health and Safety Executive and ask for their advice and assistance.

It is normal for them to send in a team to investigate. It is important for them to be able to trace where the infection came from. Therefore, do not drain down any systems until told to do so, but do isolate them from service. They may request water samples are taken prior to any emergency disinfections being instructed.

3. The Jones Lang LaSalle manager subject to 2. above will then instruct the Maintenance Contractor or Water Treatment Specialist to carry out appropriate analytical action and disinfect the systems in accordance with the emergency procedures in this document.
4. Do not speak to anyone about the problem other than the Jones Lang LaSalle Manager. Do not make any comments to the media.

**Note:-** An 'Outbreak of Legionnaires Disease' is defined by the Public Health Laboratory Service as 2 or more confirmed cases of Legionellosis occurring in the same locality within a 6 month period.

# Emergency Shutdown Procedure for:

**Property Name and Address:-**

---

*The Maintenance Contractor or Water Treatment Specialist must provide a written method statement (including emergency contact names and telephone numbers) to safely shutdown the water systems within the above mentioned property.*

*These procedures must be included in this section of the Water Log Book.*

---

## C2

# Water Treatment Method Statements

# Water Hygiene Operating Procedure for:

**Property Name and Address:-**

---

*The Maintenance Contractor or Water Treatment Specialist must provide a written scheme of the measures undertaken to monitor and control the risks highlighted in the site specific risk assessment. The written scheme is to include items of equipment, testing points, frequency of inspection/testing, chemicals used etc.*

*The written scheme must also include, or clearly refer to the location of the operation manual associated with the correct and safe operation of the water systems and associated control equipment.*

*These procedures must be included in this section of the Water Log Book.*

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# **Method Cleaning & Disinfection of Water Storage Tanks/ Calorifiers /Taps/Shower/Cooling Towers /Pipework and associated plant and equipment**

Appropriate notice and clearances should be obtained from the Local Water Authority and Environmental Agency before chlorination is commenced. The specification for design, installation, testing and maintenance of services supplying water for BS 6700 and Approved Code of Practice and Guidance (L8) of Practice & Guidance specification for cleaning and disinfection of tanks should be used.

Notices must be placed which warn all staff and visitors not to use the system whilst the disinfection process is being carried out.

**Note:-** Whenever possible, temporary plugs should be used to isolate a system; valves cannot always be relied upon to totally close.

# C3

## Training Records

# Training Records

This section will include copies of all certification and records of any training given to:  
M&E Contractors Personnel, Water Treatment Specialist Personnel, Authorised Person, Responsible Person in relation to Water Services Management.

## **Site Trained Personnel**

**Training Certificates are contained in this Section of the Manual.**

**Property Name & Address: Exchequer Court, 33 St Mary Axe,  
London. EC3A 8LL.**

SECTION D

**D1**

**Cooling Tower Registration  
Certificate (SSI 2225)**

# Cooling Tower Registration Certificate (SSI 2225)

Under the Notification of Cooling Towers and Evaporative Condensers Regulations 1992 the responsible person has a duty to notify the local authority in writing with details of 'notifiable devices' which include cooling towers and evaporative condensers (except when they contain water which is not exposed to the air and the water and electricity supply are not connected).

A copy of the form and its acknowledgement must be included in this section.

## **Cooling Tower Registration (Certificate (SI2225))**

All Cooling Towers must be registered with the local authority, environmental health office.

A copy of the form and its acknowledgement should be included in this section.

**Not Applicable as there are no cooling towers on site.**

# D2

## Chlorination Certificates

# Chlorination Certificates

Certificates and reports for any water system cleaning or chlorination works carried out on site must be filed in this section, in reverse date order.

All sheets must be countersigned by the appropriate Jones Lang LaSalle nominated person. If the sheets are not countersigned they will be classed as not valid and the work may have to be repeated at the maintenance contractors expense.



**Nation Water  
Treatments Ltd**

Unit1, Shawlands Court  
Newchapel Road,  
Lingfield  
Surrey. RH7 6BL

Phone Number: 01342 833693  
Fax Number: 01342 833787

### **CLEANING & DISINFECTION CERTIFICATE**

This is to confirm that the system detailed below was treated by Nation Water Treatments Ltd, strictly in accordance with L8 as detailed on our Site Visit Report.

**SITE:** Exchequer Court  
London EC3

**CLIENT:** AMEC FACILITIES

**SYSTEM:** Domestic Water Services

**DATE:** 14/12/01

**Name:**

J. Harrison

**Signature:**

**Position:**

Operations Supervisor



**Nation Water  
Treatments Ltd**

Unit1, Shawlands Court  
Newchapel Road,  
Lingfield  
Surrey. RH7 6BL

Phone Number: 01342 833693  
Fax Number: 01342 833787

### **CLEANING & DISINFECTION CERTIFICATE**

This is to confirm that the system detailed below was treated by Nation Water Treatments Ltd, strictly in accordance with L8 as detailed on our Site Visit Report.

**SITE:** Exchequer Court  
London EC3

**CLIENT:** AMEC FACILITIES

**SYSTEM:** Drinking Water Tank

**DATE:** 15/12/01

**Name:**

J. Harrison

**Signature:**

**Position:**

Operations Supervisor



**Nation Water  
Treatments Ltd**

Unit1, Shawlands Court  
Newchapel Road,  
Lingfield  
Surrey. RH7 6BL

Phone Number: 01342 833693  
Fax Number: 01342 833787

E/10484/LM

### **CLEANING & DISINFECTION CERTIFICATE**

This is to confirm that the system detailed below was treated by Nation Water Treatments Ltd, strictly in accordance with L8 as detailed on our Site Visit Report.

**SITE:** Exchequer Court  
London EC3

**CLIENT:** AMEC FACILITIES

**SYSTEM:** Fire Hydrant tank

**DATE:** 15/12/01

**Name:**

J. Harrison

**Signature:**

**Position:**

Operations Supervisor



## Certificate

This is to certify that the following services at the referenced site  
were cleaned and chlorinated in accordance with

H S (G) 70

Cooling tower(s) (Number of )  
Condenser pipework  
Mains/vending point  
Hot system (full/part)  
Cold system (full/part)  
Tank(s) number of 3 )  
Cylinders/calorifiers  
Showers  
Spray humidifiers


Samples taken  
(Analysis report to follow)

Yes/No

Signed

R. J. Joyce

Position

E.C.E

Date carried out

9.12.00

Site location

ERIC THOMAS  
23 ST MARYS AVE

Service order number

# D3

## Laboratory Analysis (Water Quality) Test Sheets & Certificates

# Laboratories Analysis & Certificate

All test results and certificates relating to water quality are to be detailed in this section, in reverse date order.

All sheets must be countersigned by the appropriate Jones Lang LaSalle responsible person. If the sheets are not countersigned they will be classed as not valid and the work may have to be repeated at the contractors expense.

This section shall include a copy of the UKAS (United Kingdom Accreditation Service) approved certification of each testing laboratory used.

The laboratory used for legionella testing should take part in the Public Health Laboratory Service, Water Microbiology External Quality Assessment Scheme for the isolation of legionella from water.

# Water Quality Testing – Microbiological Sampling Specification

Jones Lang LaSalle require water samples to be taken in order to monitor the effectiveness of routine operation and maintenance. The aim of these samples is to prove that the regimes are effective in maintaining good water quality.

The tests carried out are as follows:-

## Total Viable Count (TVC) @ 37°C for 24 hours and @ 22°C for 72 hours

The minimum water volume for all these tests are 250ml.

The purpose of these tests is to show that the water is free from large numbers of normal non-pathogenic bacteria. Mains potable drinking water, as a guide would have less than 10 colony forming units (cfu's) per millilitre (ml) at 37°C and less than 100 colony forming units (cfu's) per millilitre (ml) at 22°C.

## Coliforms and E.Coli

The purpose of this test is to show if any pathogenic organisms are in the water. Coliform and E.Coli counts are to be less than 1 CFU per 100 ml.

## Legionella pneumophila

The purpose of this test is to show that the water systems are working correctly and the correct temperatures and good maintenance regimes are reducing Legionella bacteria proliferation and multiplication.

Legionella bacteria may exist in water supplies in very small numbers. It is particularly serogroup 1 which is responsible for the larger numbers of Legionnaires Disease cases, however, no strain of Legionella bacteria should be ignored, as the presence of one type means that the others may also be present.

## Total Dissolved Solids (TDS) – Conductivity micro siemens $\mu\text{S}$ per $\text{cm}^2$

When weekly checks on cooling towers takes place a method of issuing that the waters turbidity is not exceeding the parameters. Two methods of this turbidity can be used either by taking total dissolved solids, which is measured in mg/l or conductivity which is measured in  $\mu\text{S}$  per  $\text{cm}^2$  at 20 ° C.

The more commonly used is conductivity. The levels of conductivity must not exceed 3000  $\mu\text{S}$  per  $\text{cm}^2$ .

A conductivity probe records conductivity. The probe must be recalibrated each time it is used within the cooling towers water system i.e. the buffer solution must be used and it must be calibrated correctly as per the makers' / manufacturers' recommendation.

Taking London water, which is hard water in relation to calcium, there is a conversion factor to convert from micro siemens to mg/l and mg/l to  $\mu\text{S}$ , and this is indicated below:-

Example:      2000 mg/l convert to  $\mu\text{S}$   
 $2000 \div 0.7 = 2,857 \mu\text{S}$  -  
(rounded up 3000  $\mu\text{S}$ )

conversion factor from  $\mu\text{S}$  to mg/l is multiplied by 0.7  
conversion factor from mg/l to micro siemens is divided by 0.7

In the London area for cooling towers the conversion factor would be 2000 mg/l and for micro siemens 2,857 (3000 rounded up).

### Reddox Control Units

On some water systems, including that of cooling towers, there can be installed sophisticated Reddox probe control units.

The Reddox probe control the amount of free residual bromine concentration within the cooling towers water system, therefore the Reddox unit in conjunction with the electronic control box controls the concentration within the cooling towers water system. If bromine is used it is normally measured at between 1 and 2 mg per litre of free residual bromine, the maximum would not be any more than 3 mg per litre for free residual bromine.

The Reddox control unit must be maintained according to the makers' /manufacturers' recommendation, and any alterations made to the Reddox probes must be recorded within the log book.

# Method Statement For Taking Dip Slides

Dip slides are an approximate way of indicating the bacterial load within a water system. There are many different types of dip slides, which are made by various manufacturers but ones that may be used on site are for bacteria and/or fungi/yeast in water systems.

It is imperative that when dip slides are being identified and chosen for use on a particular site that they must be used thereafter. This is because the main aim of taking dip slides is to gain a base line or the trends of the water system.

## Inoculation for Fluids

The dip slide container must be inspected to see that there is no growth on either side of the agar. If contamination is present, the dip slide must be discarded. The container must be labelled with the time, date, place and area from which the dip slide has been taken. Remove the cap and withdraw the slide, being careful not to touch the agar. Holding the slide by the tab at the end, immerse the gel into the fluid or under the spray etc. Hold for approximately 10 seconds then remove it from the running liquid and allow the excess fluid to drain for a few seconds. Replace in tube and firmly seal. Incubate to the required temperature.

## Inoculation Surfaces

Label up the container to indicate the time, date, place and area from which the sample has been taken. Remove the cap and withdraw the combined tongue unit. Do not touch the culture agar. Holding the slide by the tab at each end, press one side of the agar against the surface under test. The ribbed portion above the agar will bend to allow full contact. Repeat with the second side on the area close to the first site. Replace the slide in the tube, seal firmly and incubate.

## Incubation

All dip slides must be incubated in a proper incubator. The incubator must be set at whatever the maker/manufacturer recommends for dip slides. The majority of dip slides are incubated at approximately 30°C. When this has been identified i.e. 30°C, this temperature **must not** be altered as this would alter the base line/trends. The temperature must be monitored with a small mercury in glass thermometer, which is normally supplied with the incubator.

## Interpretation

The dip slides must be incubated for 48 hours and, after this time, the dip slides must be read (see accompanying comparison chart). The chart provides readings for the results for fluids or surfaces, as appropriate. Note that very high levels of growth may merge into a solid mass and could appear as a nil result. Compare the slide to a sterile sample if this may be the case. Refer to the product description for the growth on selected agar.

## Disposal

Disposal of the dip slides must take place either by incineration or being autoclaved or, more probably, soaked in a disinfection solution at approximately 5-10 mg/l free residual chlorine for a minimum of one hour or overnight if possible. Disposal of the dip slides can then take place into a sealed plastic bag and discarded. **NB** The dip slide paddle should be removed from the outer container prior to being put into the disinfectant.

## Storage

When purchasing dip slides, they are normally dispatched in boxes of ten. They have a use by date on the box and it is paramount that not too many of the dip slides are ordered at any one time. They should be stored as per the make/manufacturer's recommendations. This is usually in a dry, dark area. However, some makers recommend that they should be kept in a fridge at approximately 5°C.

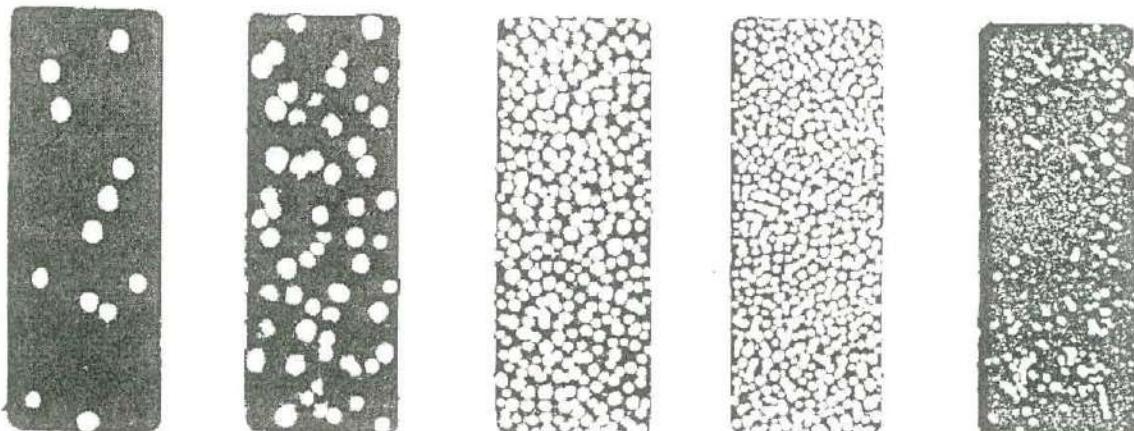
As can be seen from the table below, there are different types of dip slide which can incubate different types of bacteria and yeast/moulds. The Table is for guidance only and this will vary from manufacturer to manufacturer. The most common dip slide in use is reference Code BTM2 as highlighted in the following table.

Slide Incubation			Agar 1		Agar 2	
<u>Code</u>	<u>Temp</u>	<u>Hrs</u>	<u>Colour</u>	<u>Growth</u>	<u>Colour</u>	<u>Growth</u>
BT2	35°C	24-28	Straw	Total Count	Straw	Total Count
BTM2	30°C	24-120	Straw	Total Count	Brown	Yeasts & Moulds
PC2	35°C	24-28	Straw	Total Count	Straw	Total Count
PCV	35°C	24-28	Straw	Total Count	Violet	Enterobacteriaceae
PO	22°C	24-120	Straw	Total Count	Straw	Yeast & Moulds
RBS	30°C	24-120	Straw	Total Count	Pink	Yeast & Moulds
SC2	35°C	24-48	Straw	Total Count	Red	Coliforms
SCN	35°C	24-48	Straw	Total Count	Red	Coliforms
SCT	35°C	24-48	Straw	Total Count	Red	Coliforms
TV	35°C	24-48	Straw	Total Count	Red/Brown	Enterobacteriaceae
BV	35°C	24-48	Yellow	Staphylococci	Violet	Enterobacteriaceae
BRB2	30°C	24-120	Pink	Yeast & Moulds	Pink	Yeast & Moulds
TP	35°C	24-48	Straw	Total Count	Straw	Pseudomonas

The comparison chart for bacteria and yeast/moulds will vary from manufacturer to manufacturer. Again, the attached chart is for guidance only.

## Comparison Chart Bacteria/Yeasts

**Fluids**  
CFU/ml

 $10^3$  $10^4$  $\sim 10^5$  $10^6$  $10^7$ 

**Surfaces**  
CFU/cm<sup>2</sup>

2.5  
*Very Slight Growth*12  
*Slight Growth*40  
*Moderate Growth*100  
*Heavy Growth*250  
*Very Heavy Growth*

## Comparison Chart Moulds

**Fluids**  
CFU/ml

 $10^2$  $10^3$  $10^4$ 

**Surfaces**  
CFU/cm<sup>2</sup>

0.4  
*Slight Growth*1.6  
*Moderate Growth*4  
*Heavy Growth*

Certificate 0702/152462



SGS United Kingdom Ltd.  
Food and Laboratory Services

Gaw House  
Alperton Lane  
~~Alperton~~  
Wembley  
Middlesex HA0 1WU  
Tel: (020) 8998 2171  
Fax: (020) 8991 4843

Nation Water Treatments

Unit 1 Shawlands Court  
Newchapel Rd Lingfield  
Surrey  
RH7 6BL

Report of Analysis:

Job No:

Water

FDL 27467/02/01, WNS

Customer Code:

NAWRH7

Samples Received:

25th April 2001

Sample Tested

25th April 2001

Client code:

L7421

Exchequer Court

CWS tank2

Results:

Total viable count  
(72 hr/22°C) 6TP 012

19 cfu/ml

Total viable count  
(48 hr/37°C) 6TP 011

21 cfu/ml

Total coliforms  
(48 hr/37°C) 6TP 013

0 cfu/100ml

Legionella\*  
(10 days 37°C) 6TP 017

Not Detected in 1 Litre

NT = Not Tested

Comments:

Signed on 8th May 2001

S O'Keeffe

R P Maunders

Certificate 0702/152463



SGS United Kingdom Ltd.  
Food and Laboratory Services

Caw House  
Alperton Lane  
Alperton  
Wembley  
Middlesex HA0 1WU  
Tel: (020) 8998 2171  
Fax: (020) 8991 4843

Nation Water Treatments  
Unit 1 Shawlands Court  
Newchapel Rd Lingfield  
Surrey  
RH7 6BL

Report of Analysis:

Job No: FDL 27467/03/01, WNS  
Customer Code: NAWRHT  
Samples Received: 25th April 2001  
Sample Tested: 25th April 2001

Client code:

L7422  
Exchequer Court  
North cold

Results:

Total viable count  
(72 hr/22°C) 6TP 012

14 cfu/ml

Total viable count  
(48 hr/37°C) 6TP 012

14 cfu/ml

Total coliforms  
(48 hr/37°C) 6TP 013

0 cfu/100ml

Legionella\*  
(10 days 37°C) 6TP 017

Not Detected in 1 Litre

NT = Not Tested

Comments:

Signed on 8th May 2001

S O'Keeffe

R P Maunders



Member of the SGS Group (Société Générale de Surveillance)

The issuance of this certificate does not exonerate buyers or sellers from exercising all their rights and discharging all their liabilities under the contract of sale. Stipulations to the contrary are not binding on us. All business of the company is undertaken and all documents, reports and certificates are issued by the Company subject to the terms and conditions of business of the Company. Such terms and conditions of business are available free of charge and on request at the offices of the Company. The Company's terms and conditions are based upon the standard Conditions of Business of the International Federation of Inspection Agencies.



Certificate 0702/152461

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Food and Laboratory Services

Gaw House  
Alperton Lane  
Alperton  
Wembley  
Middlesex HA9 1WU  
Tel: (020) 8998 2171  
Fax: (020) 8991 4843

Nation Water Treatments  
Unit 1 Shawlands Court  
Newchapel Rd Lingfield  
Surrey  
RH7 6BL

### Report of Analysis:

## Water

Job No:

NAWRH7

Customer Code:

25th April 2001

Samples Receiv  
Sample Tested:

25th April 2001

## Client Reference

Client code:

L7420

## Exchequer Court

5th floor north shower

#### Results:

\* Legionella (10 days/37°C)

Not Detected in 1 Litre

Comments:

Signed on 8th May 2001

S.O'Keeffe  
S O'Keeffe

R P Maunders

Member of the SGS Group (Société Générale de Surveillance)

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Certificate 0702/152464



SGS United Kingdom Ltd.  
Food and Laboratory Services

Gaw House  
Alperton Lane  
Alperton  
Wembley  
Middlesex HA0 1WU  
Tel: (020) 8998 2171  
Fax: (020) 8991 4843

Nation Water Treatments  
Unit 1 Shawlands Court  
Newchapel Rd Lingfield  
Surrey  
RH7 6BL

Report of Analysis:

Water  
FDL 27467/04/01, WEL

Job No:

NAWRH7

Customer Code:

25th April 2001

Samples Received:

25th April 2001

Sample Tested:

Client Reference

Client code:

L7423  
Exchequer Court  
6th floor south shower

Results:

\* Legionella 6TP 017  
(10 days/37°C)

Not Detected in 1 Litre

Comments:

Signed on 8th May 2001

*S O'Keeffe*  
S O'Keeffe

R P Maunders

Member of the SGS Group (Société Générale de Surveillance)

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The test result(s) relate only to the item(s) tested.

Certificate 0702/151983



Caw House  
Alperton Lane  
Alperton  
Wembley  
Middlesex HA9 1WU  
Tel: (020) 8998 2171  
Fax: (020) 8991 4843

Nation Water Treatments  
Unit 1 Shawlands Court  
Newchapel Rd Lingfield  
Surrey  
RH7 6BL

Report of Analysis:

Water

FDL 27467/09/01, WET

Job No:

NAWRH7

Customer Code:

25th April 2001

Samples Received:

25th April 2001

Sample Tested:

Client Reference

Client code:

L7428  
Exchequer Court  
Drinking tank

Results:

Total viable count	6TP 012 (72 hr/22°C)	34	cfu/ml
Total viable count	6TP 012 (48 hr/37°C)	43	cfu/ml
Total coliforms	6TP 013 (48 hr/37°C)	0	cfu/100ml

Comments: NT = Not Tested

Signed on 30th April 2001

.....  
S O'Keeffe

R P Maunders

.....  
R P Maunders

ORIGINAL



Member of the SGS Group (Société Générale de Surveillance)

The issuance of this certificate does not exonerate buyers or sellers from exercising all their rights and discharging all their liabilities under the contract of sale. Stipulations to the contrary are not binding on us. All business of the company is undertaken and all documents, reports and certificates are issued by the Company subject to the terms and conditions of business of the Company. Such terms and conditions of business are available free of charge and on request at the offices of the Company. The Company's terms and conditions are based upon the standard Conditions of Business of the International Federation of Inspection Agencies.  
The test result(s) relate only to the item(s) tested.



**Certificate 0702/151984**

SGS United Kingdom Ltd.  
Food and Laboratory Services

Gaw House  
Alperton Lane  
Alperton  
Wembley  
Middlesex HA9 1WU  
Tel: (020) 8998 2171  
Fax: (020) 8991 4843

Nation Water Treatments  
Unit 1 Shawlands Court  
Newchapel Rd Lingfield  
Surrey  
RH7 6BL

Report of Analysis:  
Job No:  
Customer Code:  
Samples Received:  
Sample Tested:

Water  
FDL 27467/10/01, WET  
NAWRH7  
25th April 2001  
25th April 2001

## **Client Reference**

Client code:

L7429  
Exchequer Court  
Drinking water south

#### **Results:**

Total viable count 6TP 012  
(72 hr/22°C)

4 cfu/ml

Total viable count 6TP 012  
(48 hr/37°C)

10 cfu/ml

Total coliforms (48 hr/37°C) 6TP 013

0 cFU/100ml

Comments: NT = Not Tested

Signed on 30th April 2001

S O'Keeffe

R P Maunders

# ORIGINAL



Member of the SGS Group (Société Générale de Surveillance)

Member of the SGS Group (Societe Generale de Surveillance).  
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The test result(s) relate only to the item(s) tested.  
The report shall not be reproduced except in full without the written approval of the testing laboratory.

Certificate 0702/151980



SGS United Kingdom Ltd.  
Food and Laboratory Services

Gaw House  
Alperton Lane  
Alperton  
Wembley  
Middlesex HA0 1WU  
Tel: (020) 8998 2171  
Fax: (020) 8991 4843

Nation Water Treatments  
Unit 1 Shawlands Court  
Newchapel Rd Lingfield  
Surrey  
RH7 6BL

Report of Analysis:

Water

Job No: FDL 27467/06/01, WET

Customer Code: NAWRH7

Samples Received: 25th April 2001

Sample Tested: 25th April 2001

Client Reference

Client code:

L7425  
Exchequer Court  
3rd north drinking

Results:

Total viable count (72 hr/22°C)	6TP 012	35	cfu/ml
Total viable count (48 hr/37°C)	6TP 012	60	cfu/ml
Total coliforms (48 hr/37°C)	6TP 013	0	cfu/100ml

Comments: NT = Not Tested

Signed on 30th April 2001

S O'Keeffe

R P Maunders

ORIGINAL

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The test result(s) relate only to the item(s) tested.

This document shall not be reproduced except in full without the written approval of the testing laboratory.

# Certificate 0702/151979



SGS United Kingdom Ltd.  
Food and Laboratory Services

Gaw House  
Alperton Lane  
Alperton  
Wembley  
Middlesex HA9 1WU  
Tel: (020) 8998 2171  
Fax: (020) 8991 4843

Nation Water Treatments  
Unit 1 Shawlands Court  
Newchapel Rd Lingfield  
Surrey  
RH7 6BL

## Report of Analysis:

Job No:

Water

FDL 27467/05/01, WET

Customer Code:

NAWRH7

Samples Received:

25th April 2001

Sample Tested:

25th April 2001

## Client Reference

## Client code:

L7424

Exchequer Court

6th floor gents south cold

## Results:

Total viable count 6TP 012 4 cfu/ml  
(72 hr/22°C)

Total viable count 6TP 012 33 cfu/ml  
(48 hr/37°C)

Total coliforms 6TP 013 0 cfu/100ml  
(48 hr/37°C)

Comments: NT = Not Tested

Signed on 30th April 2001

.....  
S O'Keeffe

R P Maunders



Member of the SGS Group (Société Générale de Surveillance)

The issuance of this certificate does not exonerate buyers or sellers from exercising all their rights and discharging all their liabilities under the contract of sale. Stipulations to the contrary are not binding on us. All business of the company is undertaken and all documents, reports and certificates are issued by the Company subject to the terms and conditions of business of the Company. Such terms and conditions of business are available free of charge and on request at the offices of the Company. The Company's terms and conditions are based upon the standard Conditions of Business of the International Federation of Inspection Agencies.

The test results relate only to the sample tested.

ORIGINAL

Certificate 0702/151981



SGS United Kingdom Ltd.  
Food and Laboratory Services

Gaw House  
Alperton Lane  
Alperton  
Wembley  
Middlesex HA0 1WU  
Tel: (020) 8998 2171  
Fax: (020) 8991 4843

Nation Water Treatments  
Unit 1 Shawlands Court  
Newchapel Rd Lingfield  
Surrey  
RH7 6BL

Report of Analysis:

Water

Job No:

FDL 27467/07/01, WET

Customer Code:

NAWRH7

Samples Received:

25th April 2001

Sample Tested:

25th April 2001

Client Reference

Client code:

L7426

Exchequer Court  
6th floor north cold gents

Results:

Total viable count	6TP 012	7	cfu/ml
(72 hr/22°C)			
Total viable count	6TP 012	18	cfu/ml
(48 hr/37°C)			
Total coliforms	6TP 013	0	cfu/100ml
(48 hr/37°C)			

Comments: NT = Not Tested

Signed on 30th April 2001

.....  
S O'Keeffe

R P Maunders

ORIGINAL

Member of the SGS Group (Société Générale de Surveillance)

The issuance of this certificate does not exonerate buyers or sellers from exercising all their rights and discharging all their liabilities under the contract of sale. Stipulations to the contrary are not binding on us. All business of the company is undertaken and all documents, reports and certificates are issued by the Company subject to the terms and conditions of business of the Company. Such terms and conditions of business are available free of charge and on request at the offices of the Company. The Company's terms and conditions are based upon the standard Conditions of Business of the International Federation of Inspection Agencies.

The test result(s) relate only to the item(s) tested.

The report shall not be reproduced except in full without the written approval of the testing laboratory.



Certificate 0702/151982



SGS United Kingdom Ltd.  
Food and Laboratory Services

Gaw House  
Alperton Lane  
Alperton  
Wembley  
Middlesex HA9 1WU  
Tel: (020) 8998 2171  
Fax: (020) 8991 4843

Nation Water Treatments  
Unit 1 Shawlands Court  
Newchapel Rd Lingfield  
Surrey  
RH7 6BL

Report of Analysis:

Job No:

Water

FDL 27467/08/01, WET

Customer Code:

NAWRH7

Samples Received:

25th April 2001

Sample Tested:

25th April 2001

Client Reference

Client code:

L7427

Exchequer Court

3rd floor gents south cold

Results:

Total viable count	6TP 012 (72 hr/22°C)	13	cfu/ml
Total viable count	6TP 012 (48 hr/37°C)	24	cfu/ml
Total coliforms	6TP 013 (48 hr/37°C)	0	cfu/100ml

Comments: NT = Not Tested

Signed on 30th April 2001

.....  
S O'Keeffe

.....  
R P Maunders

ORIGINAL

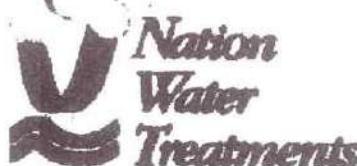


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## ANALYTICAL SERVICE REPORT

Exchequer Combe

OWNER: Amec

LOT: 1 DATE: 01/01/01

REF ORDER NO: 20062230/008

## REMARKS

(a) Heating and cooling system (b) remain in a satisfactory condition.

(c) inhibitor reservoir is being checked no change put or not.

AC3 + 400's taken for analysis

If this test result is incorrect, please contact the laboratory operator immediately, and return all relevant sample containers to the laboratory.

ANALYSIS	SAMPLE POINT		RECOMMENDED VALUES
	WTG	CH-20	
Total Hardness	590	90	220
Calcium Hardness	940	370	
Magnesium Hardness			
Phenolphthalein Alkalinity			
Methyl Orange Alkalinity			
Ceramic Alkalinity			
Sodium Alkalinity			
Carbonate Alkalinity			
Chlorides			
Dissolved solids, as such	1600	500	
Sulphate as NaSO <sub>4</sub>			
pH	10.9	10.1	7.9
Iron (Ferric)	620	-	600
Chloride:concentrate ratio			
Calcium:concentrate ratio	1.74	.5	
Nitrogen as			
HNO <sub>3</sub>	58		25/40

Results shown in parts per million (p.p.m.) in terms of CaCO<sub>3</sub> unless otherwise stated.

## MEASUREMENTS

Feed Temp °C

Conductivity Setting

Meter &amp; Up- Water Meter Reading (m³)

1/2 Lite (sec)

Sheet Flow (m<sup>3</sup>/hr)

Bruminator Flow (L/sec)

CHEMICALS	Present Dose Rate	Frequency	Pump Settings	Change To	Stock
HCC-2	As required by meter.				
HCC-3					

Customer's signature

Representative's signature



Ref: AM/99/210L  
Issue No. 1

UH

Biodeterioration Centre  
Director: Dr. R. N. Smith  
Direct line 01707 284545  
Laboratory 01707 284522  
Fax 01707 284514

Mr C. Elliott  
Amec Facilities Ltd.  
200 Great Dover St  
London SE1 4YR

Ref: AM/99/210L

11th November 1999

RECEIVED  
13 NOV 1999  
RECORDED

University of  
Hertfordshire

Hatfield Campus  
College Lane  
Hatfield Herts  
AL10 9AB  
UK

Switchboard (01707) 284000  
Minicom (01707) 284000  
Fax (01707) 284115

Vice-Chancellor  
Professor Neil K Buxton

33 St. Mary's

### CONFIRMATION OF NEGATIVE LEGIONELLA RESULTS

Log No: 1283  
Order No:  
Task No:  
Contract No:  
Operator: 2218

The following water samples were taken on 29-10-99 and received on 29-10-99:

Sample No.	Site	Test	Temp C
1. 4292	CWS, CW break tank	TVC/D	17
2. 4293	D/W, D/W break tank	TVC/D	17
3. 4294	D/W, D/W outlet minus 1, kitchen south	TVC/D	16
4. 4295	D/W, D/W outlet, 3rd floor kitchen south	TVC/D	16
5. 4296	CWS, CW outlet minus 1, south gents LHS	TVC/D	17
6. 4297	CWS, CW outlet 3rd floor south gents	TVC/D	17
7. 4298	Shower, 6th floor south	LP/A	39
8. 4299	Shower, 5th floor north	LP/A	38
9. 4300	CWS, 6th floor south gents LHS	LP/TVC/D	17
10. 4301	CWS, 6th north gents LHS	LP/TVC/D	17

Samples 4292 to 4297 and 4300 to 4301 were tested for total viable count (WQT 1.2) and for presumptive coliform count (WQT 2.1) on 29-10-99.

Samples 4298 to 4301 were sterile filtered on 1-11-99 and tested for *Legionella* (WQT 6.1) as set out in BS 6068-4.12 (1998).

\*\*Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Tests marked 'Not UKAS accredited' in this report are not included in the UKAS Accreditation Schedule for our Laboratory



**Results:**

Legionnaires disease bacteria are detected as colony forming units (cfu's) per litre.

Sample	Sites	<i>Legionella</i> cfu per litre	Limit of detection* cfu per litre
7. 4298	Shower, 6th floor south	Not detected	200
8. 4299	Shower, 5th floor north	Not detected	200
9. 4300	CWS, 6th floor south gents LHS	Not detected	180
10. 4301	CWS, 6th north gents LHS	Not detected	180

**Comments\*\***

No strains of *Legionella* were isolated from samples 4298 to 4301.

\*The quoted limit of detection is theoretical, based on the filtered volume of sample.

A handwritten signature in black ink, appearing to read 'N. Smith'.

Dr. N. SMITH

11-Nov-1999

DATE

TECHNICAL MANAGER

\*\*Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.  
Tests marked 'Not UKAS accredited' in this report are not included in the UKAS Accreditation Schedule for our Laboratory.

AM/99/210

## WATER QUALITY REPORT

BIODETERIORATION CENTRE, UNIVERSITY OF HERTFORDSHIRE.

Date: 11-Nov-99 Issue No. 1 HATFIELD HERTS AL10 9AB. Tel: 01707 284545

REF: AM/99/210

Date received 29/10/99

Order No 0

Task No 0

Log 1283

Date taken 29/10/99

C. code 0

Operator 2218

Sample No	Site	Test	Temp C	TVC/ml	TVC/ml	TVC/ml	Coliforms	E.coli	Pseud. aeruginosa	SRB	LDB	COMMENTS*
				22 C	37 C	30 C	1 ml	100 ml	1 ml	100 ml	1 ml	
4292	CWS, CW break tank	TVC/D	17	0	10		<1		<1			TVC acceptable
4293	D/W, D/W break tank	TVC/D	17	0	0		<1		<1			TVC good
4294	D/W, D/W outlet minus 1, kitchen south	TVC/D	16	0	0		<1		<1			TVC good
4295	D/W, D/W outlet, 3rd floor kitchen south	TVC/D	16	0	0		<1		<1			TVC good
4296	CWS, CW outlet minus 1, south gents LHS	TVC/D	17	0	5		<1		<1			TVC satisfactory
4297	CWS, CW outlet 3rd floor south gents	TVC/D	17	0	5		<1		<1			TVC satisfactory
4298	Shower, 6th floor south	LP/A	39							Not detected	Legionella not detected	
4299	Shower, 5th floor north	LP/A	38							Not detected	Legionella not detected	
4300	CWS, 6th floor south gents LHS	LP/TVC/D	17	0	15		<1		<1	Not detected	Legionella not detected TVC acceptable	

AM/99/210

## WATER QUALITY REPORT

Date: 11-Nov-99

Issue No. 1

REF: AM/99/210

Date received 29/10/99

Log 1283

Date taken 29/10/99

BIODETERIORATION CENTRE, UNIVERSITY OF HERTFORDSHIRE.

HATFIELD HERTS AL10 9AB. Tel: 01707 284545

Order No 0

Task No 0

C. code 0

Operator 2218

Sample No	Site	Test	Temp C	TVC/ml	TVC/ml	TVC/ml	Coliforms	E.coli	Pseud. aeruginosa	SRB	LDB	COMMENTS*
				22 C	37 C	30 C	1 ml	100 ml	1 ml	100 ml	100 ml	
4301	CWS, 6th north gents LHS	LP/TVC/D	17	0	0		<1		<1			Not detected Legionella not detected, TVC good

11 NOV 1999

Dr. N SMITH TECHNICAL MANAGER

\*Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

SAMPLES

4298/4299

SHOWER TEMPERATURE SITEMAN 8.5 42°C +/- 2°C



Ref: MH/98/242L  
Issue No. 2



University of  
Hertfordshire

Biodeterioration Centre  
Director: Dr. R. N. Smith  
Direct line 01707 284545  
Laboratory 01707 284522  
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22812

33 ST MARY AVE

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Vice-Chancellor  
Professor Neil K Buxton

Mr C. Elliott  
Armc Facilities Ltd.  
200 Great Dover St  
London SE1 4YR

Ref: MH/98/242L

8th December 1998

### MICROBIOLOGICAL REPORT

Log No: 1429  
Order No:  
Task No:  
Contract No:  
Operator:

The following water samples were taken on 24-11-98 and received on 24-11-98:

Sample No.	Site	Test	Temp C
1. 2986	Drinking water ball valve to drinking break tank	TVC/D/PS	12.4
2. 2987	Drinking water, drinking water tank	TVC/D/PS	10.3
3. 2988	CWS domestic tank No. 1 (small)	TVC/D/PS	8.7
4. 2989	CWS domestic tank No. 2 (middle)	TVC/D/PS	11.2
5. 2990	CWS domestic tank No. 3 (large)	TVC/D/PS	16.2
6. 2991	Drinking water kitchnette 4th floor north tap	TVC/D/PS	16

Samples 2986 to 2991 were tested for total viable count, for presumptive coliform count and for *Pseudomonas sp.* on 24-11-98.

  
Dr. N. SMITH

8-12-98

DATE

TECHNICAL MANAGER

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.  
Tests marked "Not UKAS accredited" in this report are not included in the UKAS Accreditation Schedule for our Laboratory.

<b>WATER QUALITY REPORT</b>			<b>BIODETERIORATION CENTRE, UNIVERSITY OF HERTFORDSHIRE.</b>										
Date:	8-Dec-98	Issue No. 2	HATFIELD HERTS AL10 9AB. Tel: 01707 284545										
REF: MH	98/242	Date received	24/11/98	Order No		0	Task No		0				
Log	1429	Date taken	24/11/98	C. code	0			Operator	0				
Sample No	Site	Test	Temp C	TVC/ml 22 C	TVC/ml 37 C	TVC/ml 30 C	Coliforms 1 ml	E.coli 1 ml	E.coli 100 ml	Pseud. sp. 1 ml	SRB 1 ml	LDB 1 litre	COMMENTS
2986	Drinking water ball valve to drinking break tank	TVC/D/PS	12.4	0	0		<1		<1	0			TVC good
2987	Drinking water, drinking water tank	TVC/D/PS	10.3	5	0		<1		<1	0			TVC good
2988	CWS domestic tank No. 1 (small)	TVC/D/PS	8.7	0	0		<1		<1	0			TVC good
2989	CWS domestic tank No. 2 (middle)	TVC/D/PS	11.2	0	5		<1		<1	0			TVC good
2990	CWS domestic tank No. 3 (large)	TVC/D/PS	16.2	0	0		<1		<1	0			TVC good
2991	Drinking water kitchenette 4th fl. north tap	TVC/D/PS	16	15	0		<1		<1	0			TVC satisfactory
R.N. SMITH, TECHNICAL MANAGER <i>R.N. Smith</i>													

SECTION E.

# **E1**

## **Log and Action Schedules**

# On Site Test Log-Explanatory Notes & Actions for Non-Conforming Results

## 1 Dip Slide

**Reason for Test:** The result gives a guideline on microbiological activity. Results show a proliferation of bacteria, they may indicate a breakdown in the biocide regime on water quality.

Cooling Tower results on or above  $10^4$  coliform forming units (CFU) must require further investigation and immediate actioning. For Potable Water results on or above  $10^3$  CFU must require further investigation and immediate actioning.

## 2 Calcium Hardness

**Reason for Test:** Carried out to monitor the effectiveness of the softener. High results could mean scaling is occurring. Scale provides an environment for Legionella bacteria to hide from biocide regimes therefore this test has an impact on the risk from Legionellosis.

## 3 Total Dissolved Solids

**Reason for Test:** Monitors effectiveness of bleed control. High results could mean a sludge deposit forming. This provides an environment for Legionella bacteria to hide from biocide regimes therefore this test has an impact on the risk from Legionellosis.

Results of conductivity tests over  $3000\mu\text{S}$  for cooling tower must require further investigation to ensure acceptable levels are maintained.

## 4 pH

**Reason for Test:** Result above control level could indicate overdosing of inhibitor or insufficient bleed. The high pH could lessen the effect of the bromine dosing, which is more effective at lower pH.

## 5 Bromine Control

**Reason for Test:** There must be a bromine reserve present at all times in order to keep bacteria to a minimum level, thereby reducing the risk of Legionellosis.

This should be within parameters (residual free bromine levels should range from 1 to 2 mg/l), or microbiological control could be lost.

## 6 Water Consumption

**Reason for Test:** To monitor whether water losses are being properly controlled to lessen environmental impact of water wastage and chemical deposits going to drain. Particularly high losses may result in the biocide not being sufficiently effective because its holding time within the system is insufficient.

## 7 Secondary Biocide consumption

**Reason for Test:** To ensure regular dosing has occurred. This is part of the biocide program and if dosing is not carried out the effectiveness of the program may be compromised.

# Log & Action Schedules

This section details relevant log schedules which can be used as the basis for monitoring the water treatment regimes for the property. This section also has monitoring graphs which may be used to help monitor the effectiveness of the water treatment regime for the property.

The maintenance contractor may have their own systems which they would like to utilise but these must be no less than the sheets shown here.

A full copy of all the graphs are included on the CD ROM located on the inside of the front cover of this log book.

An Action Schedule is also included and this should be completed whenever further investigations or work is required.

**ALL ACTIONS, TEST RESULTS AND MEASUREMENT TO BE  
RECORDED WITHIN THE LOG BOOK FOR AUDIT PURPOSES.**

**Records of the following log sheets, graphs, reports, test certificates  
etc. must be retained for at least 5 years.**

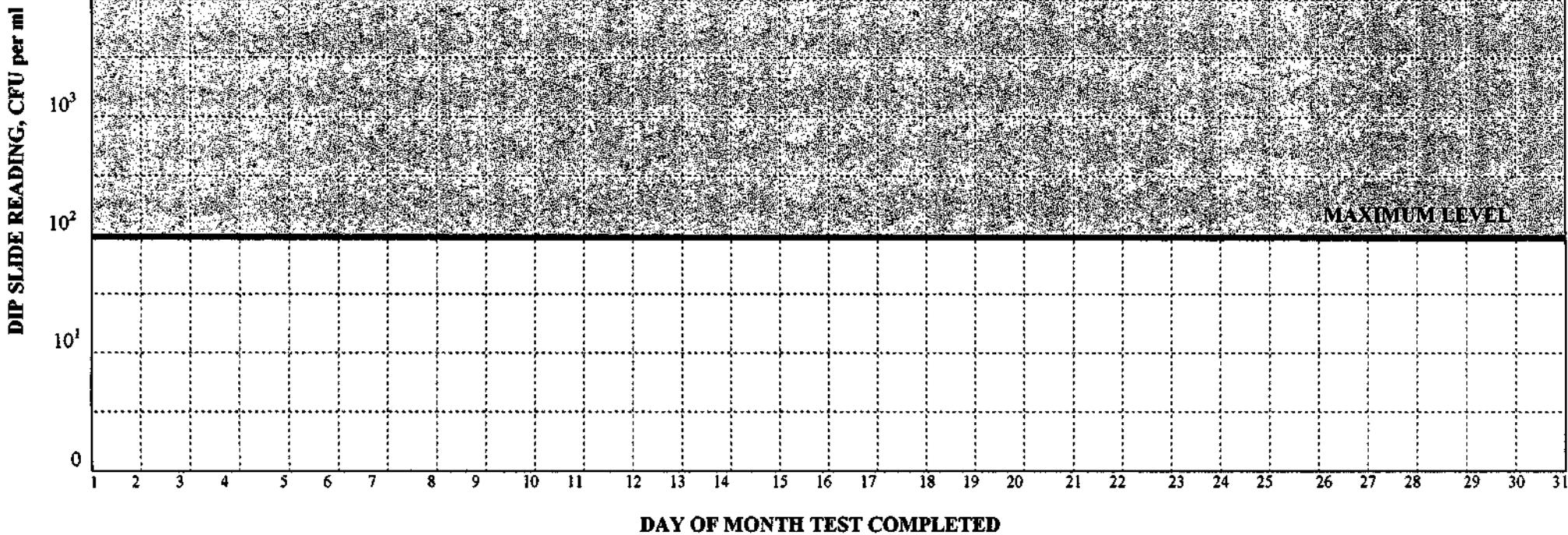
# Monitoring Graphs

Graph No.	Description	
<b>COOLING TOWER EQUIPMENT</b>		
1	Dip Slide Result for Cooling Tower No	(Day of Month)
2	Dip Slide Result for Cooling Tower No	(Week of Year)
3	Calcium Hardness Level for Cooling Tower No	(Day of Month)
4	Calcium Hardness Level for Cooling Tower No	(Week of Year)
5	Total Dissolved Solids (TDS) Level for Cooling Tower No	(Day of Month)
6	Total Dissolved Solids (TDS) Level for Cooling Tower No	(Week of Year)
7	pH Level for Cooling Tower No	(Day of Month)
8	pH Level for Cooling Tower No	(Week of Year)
9	Bromine (pH corrected) Level in Cooling Tower No	(Day of Month)
10	Bromine (pH corrected) Level in Cooling Tower No	(Week of Year)
11	Water Consumption Reading for Cooling Tower No	(Day of Month)
12	Water Consumption Reading for Cooling Tower No	(Week of Year)
13	Biocide Consumption Reading for Cooling Tower No	(Day of Week)
14	Biocide Consumption Reading for Cooling Tower No	(Week of Year)
<b>POTABLE AND INCOMING SUPPLY CONSUMPTION</b>		
15	Dip Slide Result for Potable Water	(Day of Month)
16	Dip Slide Result for Potable Water	(Week of Year)
17	Water Consumption Reading of Incoming Supply	(Day of Week)
18	Water Consumption Reading of Incoming Supply	(Week of Year)

DIP SLIDE RESULT FOR POTABLE WATER LOCATION NO:

DATE OF TESTING : (Month) \_\_\_\_\_ (Year) 20\_\_\_\_\_

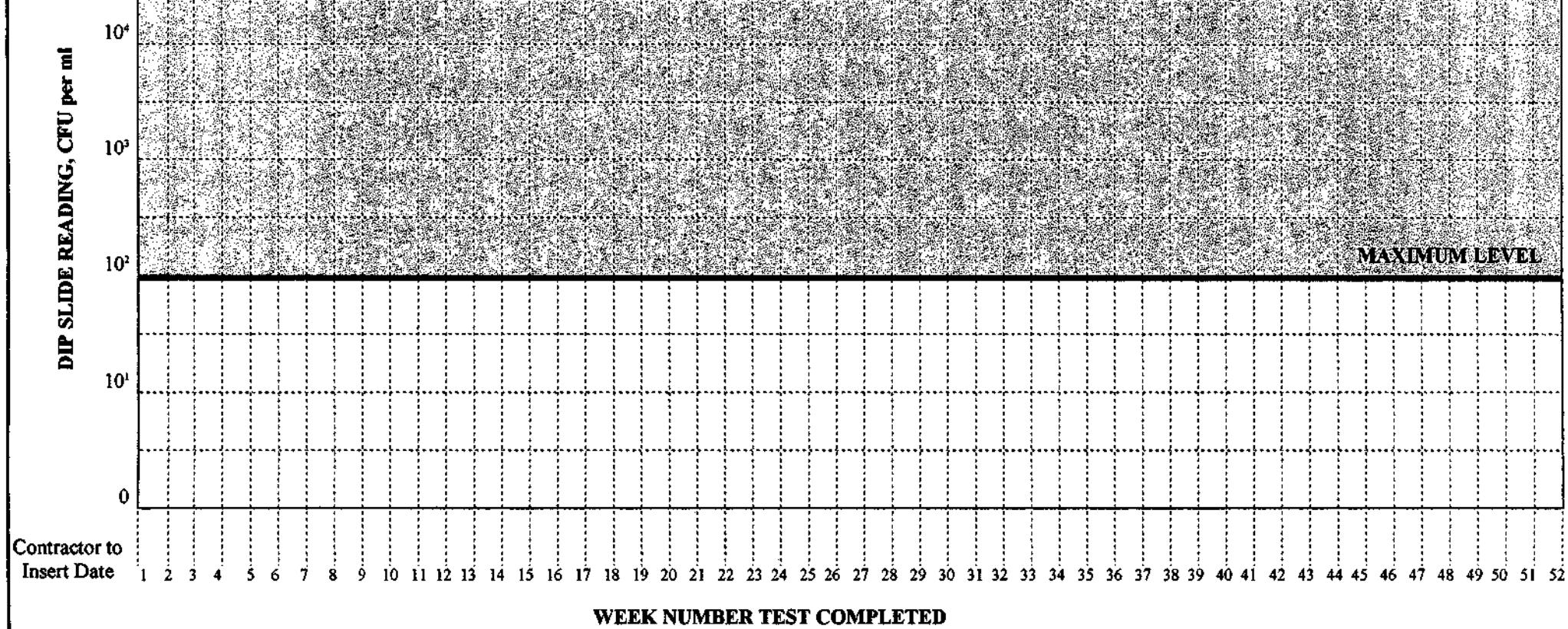
FURTHER ACTION REQUIRED IF RESULT IS ABOVE  $10^2$  BACTERIA CFU per ml



DIP SLIDE RESULT FOR POTABLE WATER LOCATION NO: \_\_\_\_\_

WEEKLY TEST RESULTS (Year) 20 \_\_\_\_\_

FURTHER ACTION REQUIRED IF RESULT IS ABOVE  $10^2$  BACTERIA, CFU per ml

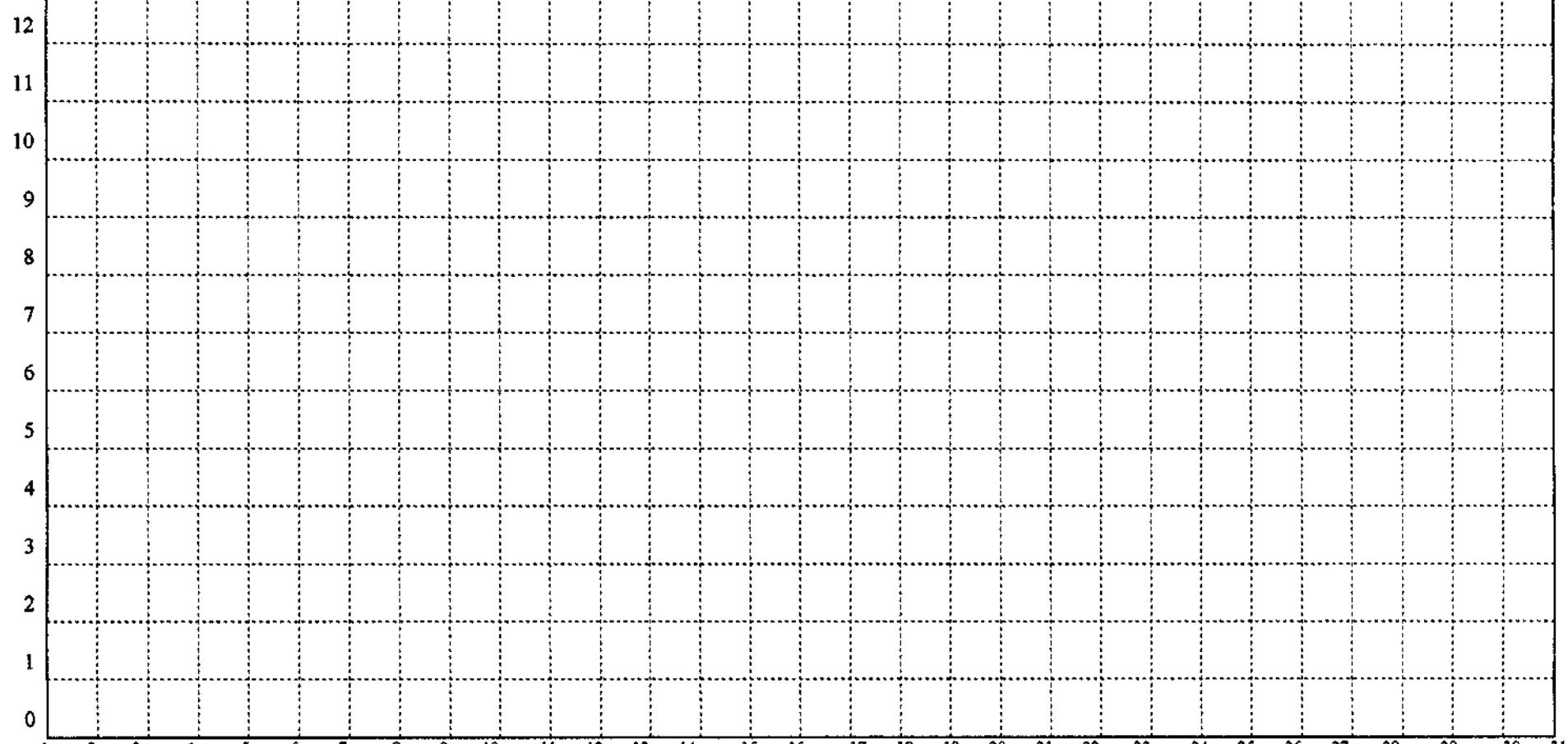


WATER CONSUMPTION AT INCOMING SUPPLY:

DATE OF READING : (Month) \_\_\_\_\_ (Year) 20 \_\_\_\_

NOTE: MAINTENANCE CONTRACTOR TO SPECIFY SCALE m<sup>3</sup>

WATER CONSUMPTION, m<sup>3</sup>



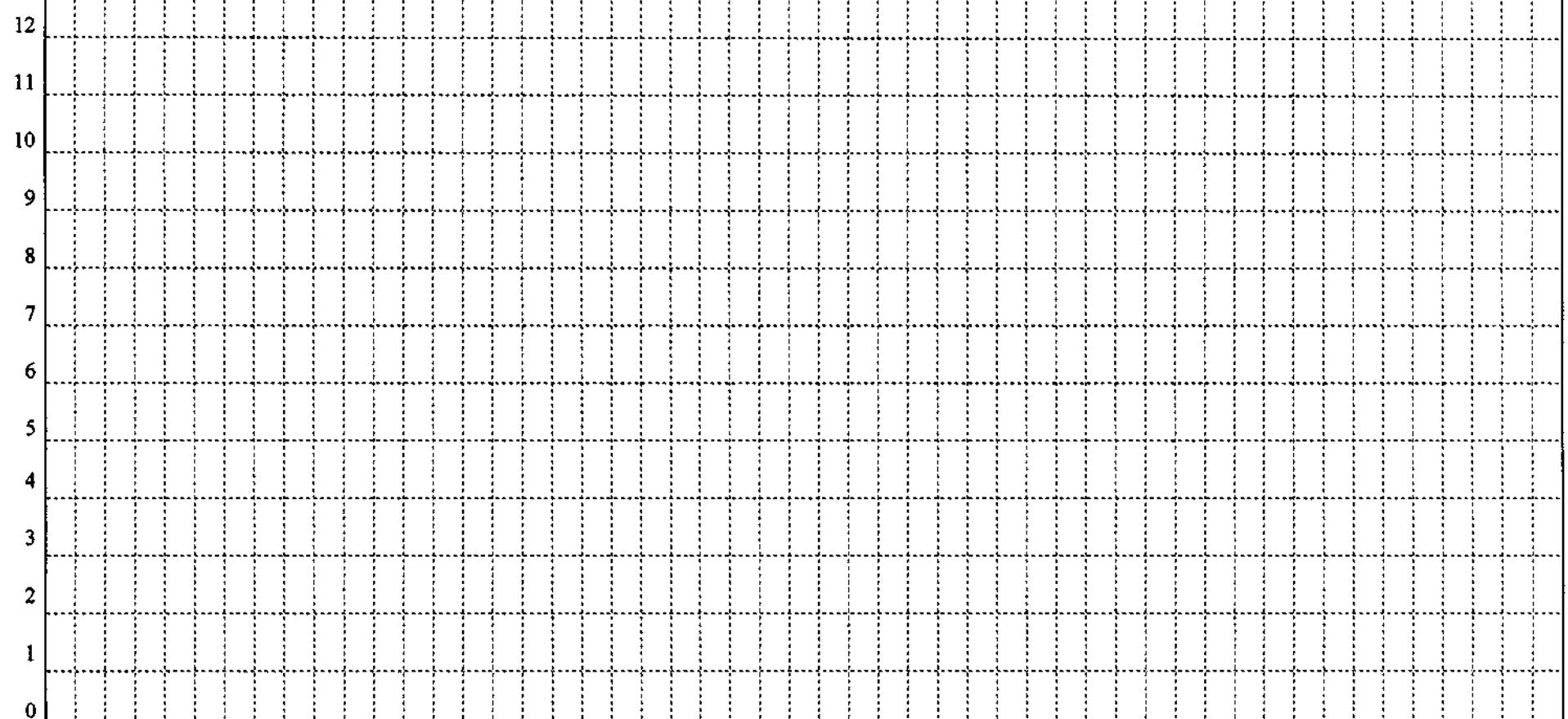
DAY OF MONTH READING COMPLETED

WATER CONSUMPTION AT INCOMING SUPPLY NO: \_\_\_\_\_

WEEKLY READINGS (Year) 20 \_\_\_\_\_

NOTE: MAINTENANCE CONTRACTOR TO SPECIFY SCALE m<sup>3</sup>

WATER CONSUMPTION m<sup>3</sup>



Contractor to  
Insert Date 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52

WEEK NUMBER READING COMPLETED



PROPERTY NAME: Exchequer Court, EC3A 8LL...

GRAPH 18

# Monitoring Log Sheets

Log Sheet No.	Description
1	<b>SUMMARY OF MONITORING</b>
	<b>COOLING TOWER EQUIPMENT</b>
2	Cooling Tower Log Sheet
3	Bacteriological Sampling of Cooling Tower
	<b>HEATING SERVICES</b>
4	Central System Calorifier Hot Water Temperature
5	Local Hot Water Storage Tank (including F&E Tanks) & Calorifier Inspections
	<b>DOMESTIC WATER SERVICES</b>
6	Hot Water Services Outlet Temperatures
7	Cold Water Services Outlet Temperatures
8	Cold Water Storage Tank Inspection
9	Shower Head Inspection/Disinfection
10	Water Softener
11	Water Services System
	<b>OTHER WATER SERVICES</b>
12	Water Fountains/Features
13	Sprinkler and Hose Reel Systems
14	Spray Humidifiers
15	Whirlpool
16	Swimming Pool

# SUMMARY OF MONITORING

Initial and date relevant box when tasks are completed and relevant forms have been updated in the Water Log Book.

YEAR 2002

Log Sheet No.		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	Summary of Monitoring												
2	Cooling Tower Log Sheet	N/A											
3	Bacteriological Sampling of Cooling Tower	N/A											
4	Central System Calorifier Hot Water Temps	N/A											
5	Storage Tank & Calorifier Inspect/F&E Tanks	N/A											
6	Hot Water Services Outlet Temperatures												
7	Cold Water Services Outlet Temperatures												
8	Cold Water Storage Tank Inspection												
9	Shower Head Inspection/Disinfection												
10	Water Softener	N/A											
11	Water Services System												
12	Water Fountains/Features	N/A											
13	Sprinkler & Hose Reel Systems												
14	Spray Humidifiers	N/A											
15	Whirlpool	N/A											
16	Swimming Pool	N/A											
<b>NAME</b>													
<b>COMPANY</b>													
<b>DATE</b>													
<b>SIGNATURE</b>													

## COOLING TOWER LOG SHEET

**Property Name:- Exchequer Court, 33 St Mary Axe, London. EC3A 8LL**

## **NO COOLING TOWERS ON SITE.**

Details of all works or inspections to the cooling tower are to be recorded in the above log sheet eg. Chlorinations, cleaning, repairs to fans etc. inspections and commissioning tests.

Note: A separate log sheet should be used for each cooling tower.

## HOT WATER SERVICES OUTLET TEMPERATURES

**Property Name:** Exchequer Court, EC3A 8LL

**THE TEMPERATURE OF THE WATER AT EACH OUTLET MUST BE CHECKED AT LEAST EVERY 12 MONTHS.**

WATER TEMPERATURE RECORDED AT EACH OUTLET AFTER ONE MINUTE RUNNING SHOULD BE BETWEEN 50°C AND 60°C

## COLD WATER SERVICES OUTLET TEMPERATURES

**Property Name:** Exchequer Court, EC3A 8LL

**THE TEMPERATURE OF THE WATER AT EACH OUTLET MUST BE CHECKED AT LEAST EVERY 12 MONTHS.**

WATER TEMPERATURE RECORDED AT EACH OUTLET AFTER TWO MINUTES RUNNING SHOULD BE BELOW 20°C

**COLD WATER STORAGE TANK INSPECTION****Property Name: Exchequer Court, EC3A 8LL**

6 MONTHLY: TO BE CARRIED OUT TO METHOD DESCRIBED IN THE MAINTENANCE AND OPERATING PROCEDURES SECTION OF THIS LOG BOOK.

DATE	LOCATION/REFERENCE	WATER TEMPERATURE	BACTERIOLOGICAL TESTS	DESCRIBE ACTION TAKEN/COMMENTS	SIGNATURE

## **SHOWER HEAD INSPECTION / DISINFECTION**

**Property Name:** Exchequer Court, EC3A 8LL

QUARTERLY : DISINFECTION TO BE CARRIED OUT TO METHOD DESCRIBED IN THE MAINTENANCE AND OPERATING PROCEDURES OF THE WATER LOG BOOK

## **WATER SERVICES SYSTEM**

**Property Name:** Exchequer Court, EC3A 8LL

**AS REQUIRED**

**SPRINKLER AND HOSE REEL SYSTEMS**

**E2**

## **Maintenance Contractor Reports**

# Maintenance Contractor Reports

All maintenance contractor reports relating to the water services need to be included in reverse date order in this section.

All sheets must be countersigned by the appropriate Jones Lang LaSalle responsible person. If the sheets are not countersigned they will be classed as not valid and the work may have to be repeated at the maintenance contractor's expense.

**E3**

**Water Treatment Specialist Reports**

# Water Treatment Specialist Reports

The water treatment specialist **must** include in this section their own site specific method statement detailing:-

- I. The chemical treatment programme.
- II. Copies of relevant manufacturers data sheets.
- III. Calculation of quantities of chemicals used in systems.
- IV. Measurement methods used, test frequencies, sampling locations.
- V. Remedial measures to be undertaken in event of control limits exceeded.
- VI. Cleaning and disinfection procedures.

All water treatment specialist reports need to be included in reverse date order in this section.

All sheets must be countersigned by the appropriate Jones Lang LaSalle responsible person. If the sheets are not countersigned they may be classed as not valid and the work will have to be repeated at the water treatment specialists expense.

**E4**

**General Water Hygiene Correspondence**

## General Water Hygiene Correspondence

All documentation relating to the water services but not specifically mentioned previously in this log book should be placed in this section.

This should include information, any modifications or additions to the water systems and could include relevant correspondence from the maintenance contract or water treatment contractor, tenants, landlord, management consultancy, etc.



DML  
2 Holly Hill  
London N21 1NP

Tel / Fax: 020 8364 3448  
[anna.damalis@btinternet.com](mailto:anna.damalis@btinternet.com)

Clerical Medical Investment Group Limited  
c/o Jones Lang LaSalle  
Exchequer Court  
33 St Mary Axe  
London  
EC3A 8LL

For the attention of Dick Dorey

8<sup>th</sup> November 2001

Dear Dick,

**Exchequer Court, 33 St Mary Axe,  
London, EC3A 8LL  
AQUA SMAHER Water Hygiene Log Book and Policy Document**

Thank you for your instruction sent to Jones Lang LaSalle's Technical Services to obtain the above document.

We are pleased to enclose for your attention: -

- 1 no. AQUA SMAHER© Log Book Document including compact disk.
- 1 no. Start Up Instructions
- 1 no. Invoice for the sum of £285.00 plus VAT

Should you have any queries in respect of the above please do not hesitate to contact me.

Yours sincerely

A handwritten signature in black ink that reads "Anna Damalis".

**Anna Damalis  
DML**

## **E5**

# **Action Summary Schedule**

## Action Summary Schedule

**Exchequer Court, 33 St Mary Axe,  
London. EC3A 8LL**

(Must be completed whenever action is required)

