

Water Hygiene Log Book and Policy Document

AQUA SMaSHER © – Start Up Instructions

The following start up instructions are intended to highlight the main areas you need to deal with within the first 2/3 weeks of receiving your new Water Hygiene Log Book and Policy Document AQUA SMaSHER ©. The log book is a vital tool to help you and your property comply with the new Approved Code of Practice and Guidance (L8) Legionnaire's' disease: The control of legionella bacteria in water systems. [ACOPS & Guidance (L8)]

A. Property Specific Information

The log book must be set up and tailored to be site specific and must be continually updated so that it is a current working document. To achieve this you must update the following sheets, which are found on the enclosed CD ROM, and insert into the log book whilst removing, and disposing of, the standard generic sheets.

1. Complete nominated persons in the ***Log Book Audit Form***, which should be at least 3 people including yourself.
2. Update ***Responsibility Structure in Section A2*** including contact names, numbers and emergency numbers.
3. Insert your previous ***Risk Assessments and Water System Schematics*** for the property ***into Section B1 and B2.*** (*Remember - even if they are no longer current they have to be kept on file for at least 2 years after that period.*)
4. Update the ***Training Records Section C1***, which should include your in house training and the maintenance contractors and/or specialist water treatment training information and certificates.
5. If applicable, transfer over your ***Cooling Tower Register Certificate*** ***into Section D1.*** (*Remember - this is a statutory duty under the Cooling Towers and Evaporature Condensers Regulations 1992.*)
6. Transfer over the previous ***Chlorination Certificates*** ***into Section D2.*** (*Remember - this information must be kept for a minimum of 5 years.*)
7. Transfer over the previous ***Water Quality Test Sheets and Certificates*** ***into Section D3.*** (*Remember - this information must be kept for a minimum of 5 years.*)
8. Transfer over all the previous ***Log and Action Schedules*** ***into Section E1,*** ***Maintenance Contractor Reports*** ***into Section E2,*** ***Water Treatment Specialist Reports*** ***into Section E3,*** ***General Water Hygiene correspondence*** ***into Section E4 and Action Summary Schedules*** ***into Section E5.*** (*Again, this information must be kept for a minimum of 5 years.*)
9. Should the all of the above information require a new folder then the sections should be suitably separated and a new folder set up. *The recommended procedure would be to label the folders Volume 1, Volume 2 etc. and to ensure that each volume cross-referenced to the others.* Additionally they must be stored in the same location so that they may be available for as a central point for the property's water hygiene information and to help facilitate the auditing of the documents.

B. Maintenance Contractor and Water Treatment Specialist Requirement

You must ensure the Maintenance Contractor and/or Water Treatment Specialist provides the following information and updates it, as necessary, to ensure that the logbook is a fully operational working document.

1. Insert their *Emergency Shutdown Procedure* into Section C1.
2. Insert their *Water Treatment Method Statements* into Section C2.
3. Insert their *Training Records and Relevant Certificates* into Section C3.
4. Insert their site specific *COSHH Data Sheets* into Section B3.

C. Continual Updating of Log Book

It is vitally important that the logbook is kept up to date, holds the correct information and covers all areas that have been identified in the water risk assessments for your property. To this end the onus should be put on the maintenance contractor to ensure that their method statements, including their specialist subcontractors, log sheets, graphs sheets, certificates and reports etc. are updated as necessary and in a timely manner, i.e during their normal routine maintenance activities.

The 'responsible person' for the property must carry out regular checks, as required, to see this is being carried out and that there are no outstanding action points that need to be addressed.

Additionally, a separate 6 monthly independent audit should be carried out on the log book to ensure that all the systems are in place and that the contractors / subcontractors are recording the correct information.

We trust this 'Start Up Instruction' sheet helps you set up the Water Hygiene Log Book and Policy Document AQUA SMAHER © in the first few weeks of receiving the document. Furthermore, in conjunction with your continued 'in house' training, you should be able to successfully manage and maintain the log book and contractors so as to help comply with the ACOPS & Guidance (L8) and reduce and control the potential water hygiene risks associated with your property's water systems and services.

Should you however, have any queries or require training information please contact:-

Melanie Tyrrell

Email: melanie.tyrrell@eu.joneslanglasalle.com

Tel: 020 7399 5986

Fax: 020 7399 5776

Post: Technical Services, Jones Lang LaSalle, 22 Hanover Square, London, W1A 2BN



DML
2 Holly Hill
London N21 1NP

Tel / Fax: 020 8364 3448
anna.damalis@btinternet.com

HSBC Bank Pension Trust Limited
c/o Jones Lang LaSalle
70 Gracechurch Street
London
EC3V 0AA

For the attention of Dennis Smith

1st November 2001

Dear Dennis,

77 Cornhill, London, EC3
AQUA SMASHER 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 SMASHER© 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

Anna Damalis

Anna Damalis
DML

+ invoice sent to 22 Hanover Square

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

Contents

CD ROM Disk
Copyright/ Reproduction Statements
Log Book Audit Form

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- D1 Cooling Tower Registration Certificate (SSI 2225) – where applicable
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- E5 Action Summary Schedule

Enclosed CD ROM 'Water Hygiene Log Book and Policy Document Aqua Smasher'

Whilst all reasonable care has been taken in the preparation of this software and the documents (graphs, log sheets, schedules, responsibility structure etc.), we advise you to carry out your own virus checks.

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Log Book Audit Form

Property Name: 77 CORNHILL EC3V 3QQ



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.

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:- 77 CORNHILL EC3V 3QQ

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.

Sign and date according:

**Note:- For any further
Technical Services
Jones Lang LaSalle
22 Hanover Square
London
W1A 2BN
Tel No. 020 7439 6040**

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 £2,000.....

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 £2,000.....

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 £2,000.....

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

77CORNHILL EC3V 3QQ

Lines of responsibility:-

— **Direct Responsibility**

..... **Advisory Role**

~~THE MCKENZIE LIMITED PARTNERSHIP.~~

Client Name: HSBC BANK PENSION FUND Ltd

Name: Tony Jones 020 7399 5210 ~~RICHARD ANDREW~~ ✓
Lead Director, Management Services
 Jones Lang LaSalle

Name: John Wallace
The Asset Manager
 Jones Lang LaSalle
 Direct Dial Number: 020 7399 5753

Name: Peter Carr
Regional Facilities Manager
 Jones Lang LaSalle
 Tel No: 020 7852 4860
 Emergency Tel No: 020 7747 013 021
 Fax No: 020 7399 5225

Independent Water Hygiene Specialist
 Urban Environments Ltd.
 Name: David Harper
 Tel No: 01732 351 161
 Emergency Contact No: 07951 727 394
 Fax No: 01732 770 264

Name: Martin Mallee ~~PETER MOUNTFIELD~~
Building/Facilities Manager
 Property Management Resources Ltd 020 7265 1435
 Tel No: 020 7726 0853 ~~0207 621 0996~~.
 Emergency Tel No: 07985 432914 07763 018739
 Fax No: 020 7726 4966 ~~0207 926 3630~~.
 020 7488 9841

~~TRACTORES LTD~~
M&E Contractor: ~~AAC~~ Building Services
 Responsible Individuals Name: Nick Tanti ~~Terry~~
 Position: Contracts Manager ~~CULL~~
 Tel No: 01252 525 525 0208 252 2929 (24HR).
 Emergency Tel No: 07958 546277 0208 252 2929.
 Fax No: 01252 376 789 0208 270 7371.
 1916/03

Water Treatment Specialist: Phase Technology
 Responsible Individuals Name: Dean Thomas
 Position: Consultant
 Tel No: 01962 736005
 Emergency Tel No: 07831 426083
 Fax No: 01962 736115

Environmental Health Department
Authority: Corporation of London - Guildhall
 Tel No: 020 7606 3030
 Emergency Tel No:
 Fax No: 020 73321623

A3

Approved Code Of Practice And Associated Guidance (L8)

Erratum

Legionnaires' Disease: The control of legionella bacteria in water systems. Approved Code of Practice.

L8 ISBN 0717617726

Please make the following correction to this publication:

Page v, Notice of Approval

The date on which the Health and Safety Commission approved the Code of Practice should read 6 November 2000 instead of 23 November 1999,

Please accept our apologies for any inconvenience, which this error may have caused.

HSE Books

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.

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, 2nd 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**.



B & V Water Hygiene Limited

*Daimler Close
Royal Oak Industrial Estate
Daventry
Northants. NN11 5QJ.
Telephone : 0327 71967 Fax : 0327 704322*

Survey and Risk Assessment

*of
75-77 Cornhill
London

for
How Engineering Services Ltd
West Bromwich*

*Carried out By
S L Rooney*

8th June 1994

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INTRODUCTION

The building was surveyed in accordance with the following guidelines.

1. HS(G)70 (Health & Safety Executive 1991).
2. British Standard BS 6700.
3. The Control of Legionella in Health Care Premises (DHSS 1988).
4. Technical Memorandum TM 13 (CIBSE).
5. Water Authority Bye-laws.
6. The Control Of Legionella - Proposals for Statutory Action (HSE November 1989).
7. B.A.C.S. Safe Operation Of Cooling Towers (British Association for Chemical Specialities June 1989).
8. EC Directive relating to the Quality of Water intended for Human Consumption (80/778/EEC).

The basic rationale for the survey and subsequent documents is as follows :-

1. The above guidelines tell us what we should be incorporating into site policy. HS(G)70 states that under the COSH regulations 1988 "risk assessments and the adoption of appropriate precautions are required to be made".
2. The buildings and equipment needed to be surveyed so that we can produce an asset register and risk assessment. This will also tell us if any equipment has design faults which need to be corrected.
3. The report is set out to give a brief description of the equipment and any remedial work needed to bring such up to standard. We have adopted a points system to allow prioritisation of remedial work.

Points System	Priority Rating
*	Classified as a high risk unless immediate remedial action is taken.
**	Requires attention in order to minimise the risk and avoid criticism should a problem occur.
***	More desirable than absolutely necessary.

4. Once a risk assessment survey has been carried out and any necessary remedial work performed an on-going package of inspections, testing and maintenance is recommended. This should be adopted as it forms part of the "appropriate precautions" which are required to be made under the COSH regulations.

2. BRIEF DESCRIPTION OF BUILDING

2.1 General

75-77 Cornhill is a new 7 storey office block which was completed 12 months ago and has remained unoccupied since that time.

3. COLD WATER STORAGE TANKS

3.1 General

There are 2 cold water storage tanks on site located in the sub-basement plantroom supplying the cold water down services CAL 1/2, chiller/central heating pressurisation unit and humidification unit servicing the A.H.U. (see Schematic 1).

3.2 Recommendations

Task	Asset No.	Description	Priority
(a)	CWS 1	Drain tank while building stands unused to prevent stagnation of a large volume of water.	**

3.3 Comment

If CWS 1 is subsequently brought back on line it should be chlorinated.

4. CALORIFIERS

4.1 General

There are 2 calorifiers on site supplying the hot water services. As the building is currently unoccupied, the heating is only switched on for 2 1/2 hours per day. This is allowing temperatures of 20-45°C to occur throughout the calorifiers and hot water distribution system and for these reasons we recommend the system is pasteurised on a weekly basis until the building is occupied. CALS 1/2 are located in the sub-basement plantroom (see schematic 1).

4.2 Recommendation

Task	Asset No.	Description	Priority
(a)	-	Draw water through every tap to achieve 50-55°C every week.	*

5. DOMESTIC WATER SERVICES

5.1 General

The hot and cold temperatures were taken from each location in the building. The hot temperatures were measured at 36°C throughout and the cold temperatures varied between 18°C and 23°C. It should be borne in mind that Legionella bacteria multiply between 20°C and 45°C, 37°C being the optimum temperature. As the temperatures were within the band, Legionella screenings were taken, at the time of survey.

5.2 Recommendations

Task	Asset No.	Description	Priority
(a)	-	Run cold water taps weekly whilst building is unoccupied to prevent stagnation of water in pipework and tank.	*

6. DRINKING WATER

6.1 General

The drinking fountain only is fed directly from the mains. All other cold water outlets are tank fed.

7. COOLING SYSTEMS

7.1 General

There is no evaporative cooling system on site, only closed system cooling circuits which do not pose a significant Legionella risk. A sample was taken from the chilled system for analysis (see report enclosed).

The air conditioning unit is fitted with a Vapac humidification unit, which has been installed to minimise the risk of Legionella occurring.

8. CENTRAL HEATING SYSTEM

8.1 General

The central heating system is a closed system, and does not pose a significant Legionella risk. A sample was taken for analysis (see report enclosed).

9. SPRINKLER SYSTEM

9.1 General

There is no sprinkler on this site.

10. ON-GOING INSPECTION & CHECKS

We recommend the following programme be instigated as precautionary measures.

- (a) Clean and chlorinate CWS2 and hot/cold water services according to E. Coli/TVC results and tank inspections performed on a 6 monthly basis.
- (b) Carry out an annual temperature survey of all taps.

- (c) Blowdown Cals 1/2 until water runs clear.
- (d) Take a Legionella screening from base of calorifiers every 12 months.

11. RISK ASSESSMENT

Attention should be given to addressing the remedial work which has been recommended in the report. Carrying out these remedial works will help to reduce the risk of these systems creating conditions conducive to the proliferation of Legionella.

Once the remedial works have been addressed the on-going package of inspections, testing and maintenance should be implemented.

The risk assessment SHOULD NOT DIVERT ATTENTION from addressing the remedial works which have been prioritised in this report or the package of on-going work.

We have assessed the systems surveyed on a 1-5 scale, where 1 is a high risk and 5 is a low risk.

System	Rating
CWS 1/2 supplying cold water down services	3
CAL 1/2 supplying hot water down services	1



Water Hygiene Limited

Cold Water Storage Tank Survey Sheet

Company :	How Engineering Ltd	Address :	75-77 Cornhill, London
Surveyed By :	S L Rooney	Date :	8th June 1994

C.W.S. Asset/ Tank No.	1	2			
Location	Basement Plantroom	Basement Plantroom			
Supply to	CWDS	CWDS			
Minimum Access W/H	74 x 200	74 x 200			
Clearance above tank (cm)	80	80			
Tank lagged/condition	Yes/Good	Yes/Good			
Makeup lagged/condition	Yes/Good	Yes/Good			
Outlet lagged/condition	Yes/Good	Yes/Good			
Make-up identified (labelled)	Yes	Yes			
Outlet identified (labelled)	Yes	Yes			
Construction material	GRP	GRP			
Construction/condition of lid	GRP / Good	GRP / Good			
Dimensions (cm) L/W/H	214 x 226 x 159	214 x 226 x 159			
Water capacity(m³)	5.17	5.17			
Size (cm)/position of tank drain	4cm / Sameside as Outlet	4cm / Sameside as Outlet			
Tank connected	Yes to CWS 2	Yes to CWS 1			
No of return lines	None	None			
No overflow pipes/size (cm)	1 11cm / 3cm	1 11cm / 3cm			
Overflow screen fitted	Yes	Yes			
Position of ballvalve/outlet	Opposite Sides	Opposite Sides			
Make-up temp. °C	16	16			
Tank temp. °C	16	16			
Corrosion level (0-5)	N/A	N/A			
Sediment level (0-5)	1	1			
Samples for analysis	No	No			
Water surface condition	Film On Surface	Good			
Ladder needed (mtrs)	No	No			
Distance to power supply (mtrs)	15	15			
Distance to drain point (mtrs)	3	3			

Corrosion Levels	0 - New tank or recently painted	1 - No sign of corrosion	2 - Slight corrosion visible - suggest painting	3 - Medium corrosion visible - requires painting	4 - Severe corrosion - requires painting	5 - Severe corrosion - requires replacement
Sediment Levels	0 - New tank or recently cleaned	1 - No sign of sediment	2 - Minimal sediment visible	3 - Medium sediment visible	4 - High sediment - requires cleaning	5 - Severe sediment - requires immediate attention
Condition Of Tank Room (Lighting, Tidy, Clean, Protection From Weather & Birds etc)						



Water Hygiene Limited

Calorifier Survey Form

Company : How Engineering Ltd

Address : 75-77 Cornhill, London

Surveyed By : S L Rooney

Date : 8th June 1994

Cal. Asset No.	1	2			
Location	Basement Plantroom	Basement Plantroom			
Supply to	HWS	HWS			
Calorifier lagged/condition	Yes/Good	Yes/Good			
Make-up lagged/condition	Yes/Good	Yes/Good			
Outlets lagged/condition	Yes/Good	Yes/Good			
Make-up identified (labelled)	Yes/Good	Yes/Good			
Outlets identified (labelled)	Yes	Yes			
Construction material	Copper	Copper			
Inspection hatch	No	No			
Dimensions (cms)	84D x H177	84D x H177			
Capacity (m³)	0.95	0.95			
Make-up softened	No	No			
Drain fitted	Yes	Yes			
Drain working	Yes	Yes			
Condition of initial drainage water	Good	Good			
Set temp °C	65	65			
Actual temp °C	37	37			
Furthest supply point temp °C	8-10.30 Mon-Fri	8-10.30 Mon-Fri			
Period of operation	2 1/2 Hrs	2 1/2 Hrs			
Normal method of heating	Gas Fired Closed Loop	Gas Fired Closed Loop			
Supplementary method of heating	No	No			
System pumped	Yes	Yes			
System circulated	Yes	Yes			
Samples for analysis	No	No			
Dist. to power supply (mtrs)	5	5			
Dist. to drain point (mtrs)	5	5			
Special equipment reqd.	No	No			


Water Hygiene Limited
Domestic Water Service

Company :	How Engineering Ltd	Address :	75-77 Cornhill, London
Surveyed By :	S L Rooney	Date :	8th June 1994

LOCATION	DESCRIPTION	Wash Hand Basins	Sinks	Showers	°C Hot Water	°C Cold Water	W.C's	Urinals	Vending Machines	Water Heaters	Drinking Fountains
7th Floor	Gents Toilets	1			36	18	1	1			
7th Floor	Ladies Toilets	1			36	18	1				
7th Floor	Shower Room			1	Mixer (Rose Disconnected)						
6th Floor	Gents Toilets	2			36	18	2	2			
6th Floor	Ladies Toilets	2			36	18	2				
6th Floor	Disabled Toilets	1			Mixer		1				
5th Floor	Gents Toilets	2			36	18	2	2			
5th Floor	Ladies Toilets	2			36	18	2				
5th Floor	Shower Room			1	Mixer (Rose Disconnected)						
4th Floor	Gents Toilets	2			36	18	2	2			
4th Floor	Ladies Toilets	2			36	18	2				
4th Floor	Disabled Toilets	1			Mixer		1				
3rd Floor	Gents Toilets	2			36	18	2	2			
3rd Floor	Ladies Toilets	2			36	18	2				
3rd Floor	Shower Room			1	Mixer (Rose Disconnected)						
2nd Floor	Gents Toilets	2			36	18	2	2			
2nd Floor	Ladies Toilets	2			36	18	2				
2nd Floor	Disabled Toilets	1			Mixer		1				
1st Floor	Gents Toilets	2			36	18	2	2			
1st Floor	Ladies Toilets	2			36	18	2				
1st Floor	Shower Room			1	Mixer (Rose Disconnected)						

ADDITIONAL NOTES



Water Hygiene Limited

Domestic Water Services

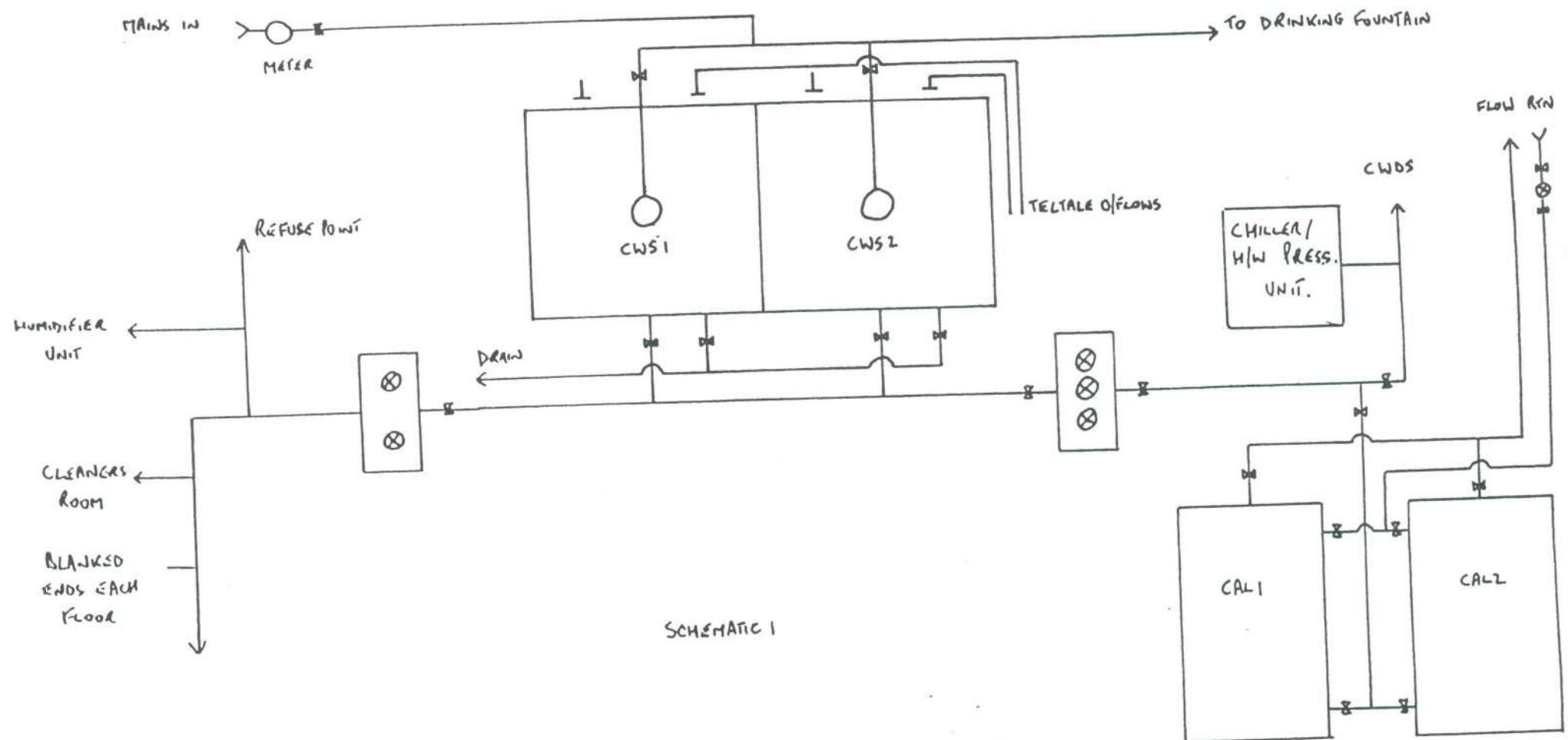
Company : How Engineering Ltd

Address : 75-77 Cornhill, London

Surveyed By : S L Rooney

Date : 8th June 1994

ADDITIONAL NOTES



While all possible care has been taken to compile this Risk Assessment, no responsibility for loss or damage incurred or any subsequent action by other parties or persons acting or refraining from action as a result of the information contained therein or any facts, opinions or recommendations included in or omitted from this Risk Assessment can be accepted by B & V Water Hygiene Ltd.

APPENDIX I

General Information

EXAMINEE

5.0 GENERAL INFORMATION

The hot and cold water services and systems must be operated and maintained in a correct and safe manner and adequate precautionary measures must be taken against the risk from Legionellosis.

The following General Recommendations should be read in conjunction with the Observations of Systems Conditions and specific recommendations sections and the advice and guidance should be followed where appropriate.

The available guidance regarding the design and maintenance of hot and cold water services systems is widely available and comprehensive.

Through all aspects of the available guidance it is good policy to fall back on four basic principles when assessing the requirements for system operation:

1. Maintain cold water at a sufficiently low temperature
2. Maintain hot water at a sufficiently high temperature
3. Keep water on the move
4. Keep the water and the storage and distribution systems clean

Water 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. The smaller particles can persist 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 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.

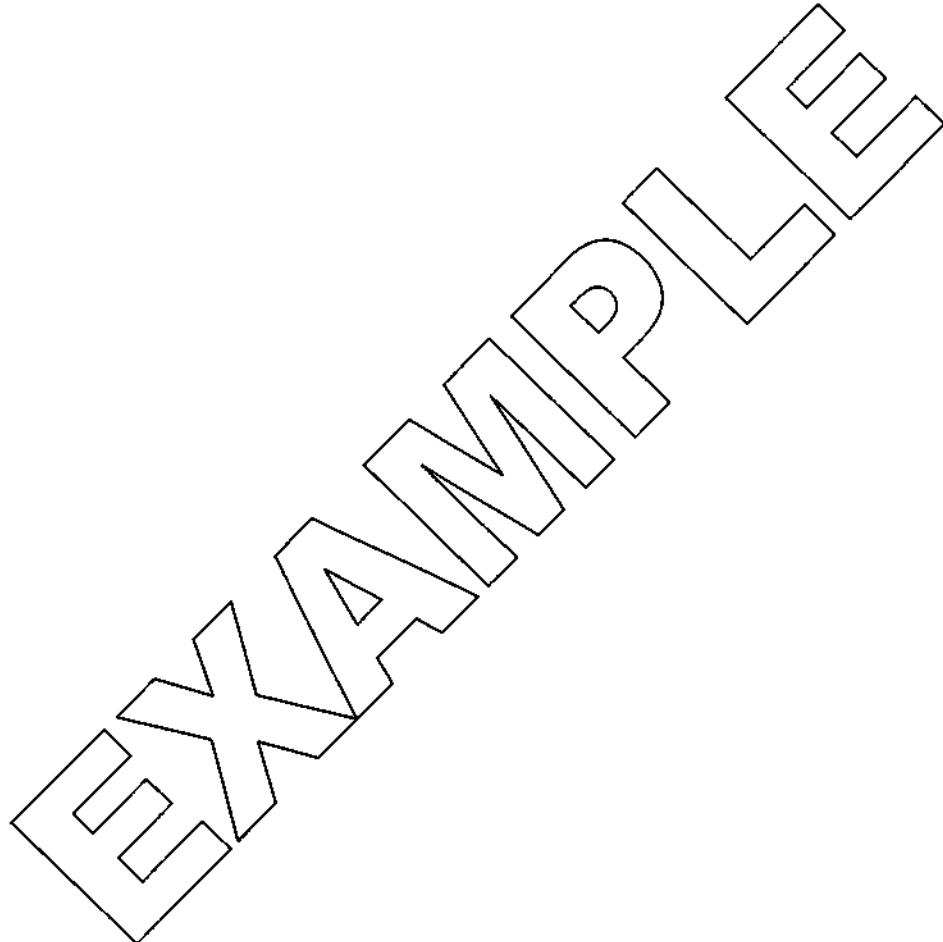
Once a risk has been identified and assessed, a scheme should be prepared for preventing or controlling it. The risk is heightened when conditions are not monitored and controlled and Legionella is allowed to proliferate.

The scheme should be implemented together with planned preventative maintenance in line with that contained within the general recommendations section of this report. This will meet the Relevant Approved Code of Practice & Guidance (L8), 'prepare a scheme for preventing or controlling the risk'.

Water Services System Deadlegs and Redundant Equipment

Described in the Approved Code of Practice & Guidance (L8) as 'Pipes leading to a fitting which water only passes when there is a draw off from the fitting'.

When deadlegs are identified or water equipment becomes redundant they should be removed, as soon as possible, to avoid water stagnation and the high risk of proliferation of bacteria and possibly legionella.



5.1 COLD WATER STORAGE

Location

The Water Regulations 1999 state that:

- A. Water storage cisterns shall be installed in a place or position such that the inside may be readily inspected and cleansed.
- B. Any float operated valve or other device used for controlling of the inflow of water may be readily installed, repaired, renewed or adjusted. To this end the storage tanks must be located for satisfactory access by maintenance personnel.

If the storage tank has more than 1,000 litres operating capacity the it should be provided with an access hatch so that maintenance can be carried out without having to remove the complete lid. The lid should also be fitted with a suitable vent which should be screened against ingress of insets etc. (Note. BS6700, Section 2).

Heat Gain

The normal location for cold water storage tanks in roof spaces and roof top plant rooms makes them liable to extraneous heat gain. In order to minimise heat gain the use of natural ventilation should be considered or mechanical ventilation under exceptional circumstances. If the storage tanks are installed in warm areas they should be fitted with adequate thermal insulation in order to reduce heat gain. (Note. BS6700, Section 2). To restrict micro-biological growth it is important that stored water is kept at the lowest practicable temperature and relevant Approved Code of Practice & Guidance (L8) specifies that cold water storage and distribution should be maintained at 20 °C or below.

Fittings

All cold water storage tanks must be provided with adequate lids with over-lapping edges which are secured to the tank. Lids should be adequately vented. All overflows from the tanks should be protected with fine mesh screens in order to prevent ingress of insects and other vermin. The drain valve fitted to the lowest part of the storage tank must provide a fast drainage facility for times when the tanks are cleaned.

Water Turnover

Cold water storage tanks should be sized so as to provide a good water turnover throughout the tank. A maximum of 24 hours storage capacity is recommended and the quality of the water stored must be carefully assessed in relation to the daily load requirements so that a reasonable rate of turnover can be achieved. Water quality will significantly deteriorate if stagnation is allowed to occur.

Turnover of stored water can be best checked by the isolation of the inlet serving the valve and by noting the rate by which the water level falls during a period of normal use, if this test indicates that low turnover is apparent then steps should be taken to improve the turnover. It may be possible where two tanks are installed providing a common service, for one of them to be left empty and blanked off with the pipe sections drained off. An alternative method would be to reduce the normal water level in the tank by adjusting the inlet of the water valve.



Multiple Installations

On occasions storage tanks are connected in multi sets or the have multi sections. With this arrangement it is very important to ensure that stagnation and stratification of the stored water does not occur and in order to achieve this the mains water inlets and series connections outlets must be positioned at a high and low level respectively and at the opposite side of the tank.

In some existing installations it would be a major modification to achieve this recommendation and consideration should be given to the installation of extended discharge pipes and the use of only one of the ball valves to control the water levels in the tanks.

The outlet on the ball valve may be piped into each of the tanks. In multiple or multi section installations, the valving arrangements must permit isolation of individual tanks or tank sections for cleaning treatment. These valves should be positions at points on the distribution which ensure that no dead leg areas can occur.

Inspection and Treatment

All cold water storage tanks must be regularly examined, under the relevant ACOP & GUIDANCE (L8) specifies that this should be annually or more frequently if there is a reason to suspect contamination. The inspections should indicate the presence of foreign objects, biological material, excessive corrosion and deterioration and also build up of debris.

Cold water storage tanks should be cleaned and disinfected when routine inspections shows it to be necessary, the cold water storage tank should be thoroughly cleaned and then disinfected to the standard required under BS6700. It is not necessary to charge the distribution with chlorine unless substantial work is being carried out or inspections and tests indicate a degrading water condition. For this purpose a total bacteria count can act a general indicator of microbiological contamination. The bacteria count will not provide any direct information on the presence of Legionella but it will give a guide to the extent of colonisation by other micro-organisms. The bacteria count can be used with other observations in order to determine the requirement for disinfection routines.

During the cleaning and treatment of water storage tanks the internal surfaces should normally be treated with protective coating. The coating must be listed and approved under the WRc directory of water fittings and materials as being suitable for application in situ. Prior to treatment with the protective coating, any pitting caused by corrosion must be thoroughly cleaned off and treated.



5.2 DOMESTIC HOT WATER STORAGE CALORIFIERS AND CYLINDERS

Fittings

For hot water storage calorifiers and cylinders the flow to the hot water distribution system is normally taken from the top vessel together with the open vent. The cold feed make-up is usually taken in towards the bottom of the vessel and the secondary hot water return is normally taken in approximately 1/3 of the height on more modern vessels and in older installations 1/3 from the top.

Storage calorifiers and cylinders must be suitably arranged for isolation and they should incorporate drain connections at the lowest points which are large enough to permit the removal of sludge and to drain the plant quickly. The drain valve size should ideally allow drainage within 30 minutes and for the large installations drain off should not take more than 1 hour. The drains must be positioned to ensure adequate access and this is particularly important in the case of vertical storage calorifiers.

Operating Temperature

Approved Code of Practice and Guidance (L8) requires that the operating temperatures for the hot water storage calorifiers and cylinders etc should be a minimum of 60 °C and that this temperature should be evident throughout the storage vessel. The temperature on the return should not be less than 50 °C.

Temperature Gauge

A suitable temperature gauge should be sited near to the calorifier/cylinder water supply outlet so that a quick visual indication can be made of the operating temperature. The temperature gauges should be checked and re-calibrated on a periodic basis.

Stratification and Stagnation

Stratification and stagnation must be reduced to a minimum. Stagnation in calorifiers may result from a number of causes, including the location of the cold feed and re-circulation tappings and possibly the capacity and general design. Stagnation can be minimised by modification of circulation arrangements within the calorifier. Stratification can occur in any calorifier or cylinder and there will be some temperature gradient across the vessel depending on the heat input and rate of draw.

To prevent stagnation where the cold feed and/or the return water connections are incorrectly sited, the modification of tappings or installation of sparge pipes can be employed.

Temperature stratification can be overcome by the use of small pump units which can circulate water from the top to the bottom of the calorifier. The direction of flow is important in order to prevent redistribution of sludge which may accumulate in the base sections. The pumps should be run from a timer at periods of low draw-off. The running time should be sufficient to eliminate the temperature gradient and frequency of operation and run time may be established from experience of the particular installation involved.

Another means of reducing possible stratification is by the repositioning of the hot water circulation return pipe to the base of the calorifier either by direct fitting or by use of an internal sparge pipe correctly sized and positioned. It may be possible to re-site the position of the cold feed also. By undertaking these measures they should ensure that during a significant period of the operating day, the total contents of the heating vessel will be raised to 60 °C.



5.3 HOT AND COLD WATER DISTRIBUTION SYSTEMS

Approved Code of Practice and Guidance (L8) states that water services should operate at temperatures that prevent the proliferation of Legionella. Hot water distribution should be maintained at a temperature of at least 50 ° C obtainable at the taps within 1 minute of running. Cold water storage and distribution should be at a temperature of 20 ° C or below.

Hot Water Distribution

The design of the hot water distribution systems should be such as to minimise the length of any dead leg. The hot water service return connection should be taken as close as is practical to any draw-off as stated under BS6700. Secondary circulation must extend to the service point from the supply.

Care should be taken when hot water services are run in the same service ducts and void as the cold water services. Heat transfer can occur and the cold services may be warmed up to an unacceptable level. Insulation must be adequate and maintained in good order.

Cold Water Distribution

All cold water distribution pipework, mains and cold water down feeds should be located as far as is practicable to minimise heat gains from the environment. All pipework should be insulated and arranged to eliminate or minimise dead legs. The cold water should be distributed at a temperature of 20 ° C, or below at the user outlet within 2 minutes of opening.

Routine Inspection and Maintenance

Approved Code of Practice and Guidance (L8) requires that the water services shall be routinely checked and inspected and that they should be well maintained.

Maintenance of the hot and cold water distribution system should indicate a regime of cleaning at the water outlets, ie, taps, showers, etc. in order to reduce any build-up of scale or any other contamination which may provide a nutrient for bacteria.

The temperatures of the distribution systems and temperatures at outlet positions must be checked on occasions in order to ensure that temperatures are correct. As a minimum precaution the temperature at all outlets should be checked at least once a year and a representative number, which would normally be the outlets nearest and furthest from the hot water or cold water source, should be checked on a more frequent, monthly basis.

Test may also be carried out on the cold water systems in order to determine the bacterial quality. This measure will assist in determining the requirement for cleaning and disinfection procedures for the storage and distribution services.

Cold Water Pressurisation Pumps

In some cases there may be duty or standby pump arrangements installed for pressuring systems. In order to prevent any danger of stagnation, the pumps should be changed over regularly to ensure that the back-up pump is regularly in service.

5.4 DIRECT FIRED DOMESTIC HOT WATER HEATERS

These units are in many cases replacing the traditional calorifier systems where a decentralised hot water service is developed. They are becoming increasingly utilised on sites where there are many individual outbuildings and where the running of pipework from a centralised source would be impracticable.

These heaters, such as the 'Andrews' or 'Lochinvar' are normally directly gas fired and the heat source is at the base of the unit. They do not have a large storage capacity and they normally have a good distribution of temperature throughout the water storage area.

The manufacturers of these water heaters provide guidance on the maintenance and operation and this guidance must be closely adhered to.

With regard to the risk from Legionellosis, the manufacturers guidance, with respect to the maintenance of the water side of the unit, must be strictly adhered to. On occasions the water side needs opening and cleaning in order to remove sludge and scale which can accumulate within the water ways and which can provide a nutrient for bacteria and harbourage for Legionella. The drain valves should also be purged on occasions.

Instantaneous Water Heaters for Single or Multi-Point Outlets

These devices such as the 'Santon', usually serve one or several draw-off and are either electrically or gas heated. BS6700, Section 2, details the general principal and limitations of use.

1. The hot water flow rate is limited and is dependant upon the heaters power rating.
2. Where restricted rates of delivery are acceptable the heater can deliver continuous hot water without requiring time to re-heat.
3. They are susceptible to scale formation in hard water areas, where they will require frequent maintenance.
4. This form of hot water heating should only be considered for smaller premises or where it is not economically viable to run hot water circulation to a remote outlet.

On these units the make-up of water is normally delivered through a water inlet ball valve to a small reservoir which is covered by a lid. When the outlets are opened, water transfers from the water reservoir to the heating section of the unit and then on to the tap outlets via distribution pipework. By the very nature of configuration, there will normally be a temperature rise from the water heating section through the cold water storage section and a rise in cold water storage temperature will result.

In order to maintain good hygiene conditions within the cold water storage section there must be a good water turnover and a programme of regular cleaning and disinfection must be introduced.

During the cleaning and disinfection process the water storage and the unit heater should be treated in a similar fashion to a cold water storage tank, ie, fill the system and add sodium hypochlorite to give a free residual chlorine concentration of 50 mg/l in the water, leave to stand for 1 hour and then draw-off water through each tap outlet until chlorine is present. Leave charged for a further 1 hour and then check chlorine concentration at tap furthest from the unit. If free residual chlorine is less than 30 mg/l, repeat the disinfection process.

The lids to the water storage section of the unit heaters must be close fitting in order to prevent ingress of contaminants to the storage facility.



5.5 THERMAL DISINFECTION AND CHLORINATION

Water services may be disinfected in two ways:

1. Using a chemical disinfectant. The most popular means being by chlorination. This is more commonly used when it is necessary to disinfect the whole system including storage tanks.
2. Thermal disinfection is the procedure whereby the water system is raised to a temperature at which Legionella cannot survive.

Chlorination

Chlorination should be carried out in accordance with BS6700 specification for the design, installation, testing and maintenance of services supplying water for domestic use and their curtilages.

Where a hot water system is to be disinfected by this procedure, the system must be allowed to cool prior to chlorination and the system must be vented adequately. For pressurised systems, specialist advice must be sought.

All visible dirt and debris shall be removed from the cistern. The cistern and distributing pipes shall be filled with clean water and then drained until empty of all water. The cistern shall then be filled with water again and the supply closed. A measured quantity of sodium hypochlorite solution of known strength shall be added to the water in the cistern to give a free residual chlorine concentration of 50 mg/l in the water. The cistern shall be left to stand for at least 1 hour. Then each draw-off fitting shall be opened and then closed when the water discharged begins to smell of chlorine. The cistern shall not be allowed to become empty during this operation. If necessary, it shall be refilled and chlorinated as above. The cistern and pipes shall then remain charged for a further 1 hour. The required concentration must be maintained in the cistern through the chlorination procedure.

The tap furthest from the cistern shall be opened and the level of free residual chlorine in the water discharge from the tap shall be measured. If the concentration of free residual chlorine is less than 30mg/l the disinfection process shall be repeated.

Thermal Disinfection (Pasteurisation)

There is no British Standard for pasteurisation and so the following is recommended as a means of pasteurising the system.

Having ensure that the calorifier is vented, increase the temperature in the calorifier so that it is above 70°C. Draw water through the drain cock at a pasteurising temperature of 55°C to 60°C for 2 minutes (preferably longer). Hold the calorifier at temperature for 2 hours then, starting with the furthest outlet away, draw hot water through each tap and appliance sequentially at a pasteurising temperature for 5 minutes. If the calorifier cannot produce water at the correct temperature, the procedure must be repeated.

If the hot water is at a pasteurising temperature initially, but recovery of the calorifier is insufficient to maintain the water temperature, the procedure must be stopped, the calorifier held above 60 ° C for a further 2 hours and the procedure re-started at the outlets which have not been pasteurised.

For the procedure to be effective, all parts of the system must reach full pasteurising temperature.

Both chlorination and pasteurisation should be carried out only when the building and all relevant systems are under full control of the operating contractor, who should ensure compliance with Health & Safety at Work Act etc and COSHH regulations. The treatments must be carried out by trained Personnel who should be closely supervised.

A Humidification

Humidification in an office complex is very important to the welfare and comfort of the employees.

If the humidification is low within building problems can arise with staff i.e. dry eyes, problems with contact lenses, dry throats etc.

If the humidity is too high this then can cause problems with the growth of mould and fungi on walls and on the building fabric.

The humidification, as laid down by the Chartered Institute of Building Services Engineers, recommend that the humidification in a general office complex should be between 40 – 60% Relative Humidity (RH). The building maintenance engineers try to achieve is approximately 50% Relative Humidity (RH).

Humidification can be introduced into the air conditioning system via a number of methods ie. spin disc humidifier (not widely used these days), water spray humidifier, steam humidifier and the most commonly used these days is the steam injection VAPAC units.

The steam is injected into the airflow, and therefore the relative humidity can be controlled by the injection unit control box, in conjunction with humidity thermostates around the building's complex. To include also an outside humidity thermostat to ensure correct control.

B Cooling coils / chiller coils

Cooling coils / chiller coils are used for cooling air down and are located within the air conditioning ductwork system.

These cooling coils can be chilled by various methods i.e. by refrigeration / chiller plant units or by using direct refrigerant.

The main concern of these chiller coils is when hot air passes across the chiller coil water condenses off the chill coil into the drain tray and through a glass 'U' trap and then to drain via a tundish with air break.

Chiller coils have been identified in outbreaks of Legionnaires' disease. It is important that the chiller coils are installed correctly and maintained to the maintenance / manufacturer's recommendations.

The chiller coils / cooling coils can, over a period of time, grow bioslime over the coils and fins. This should be removed. If sodium hypochlorite is used to remove the slime, it is paramount that a very good flushing regime takes place afterwards to remove any residue of chlorine. If a thorough flushing is not carried out this will exacerbate the corrosion of the aluminum fins in conjunction with the copper coils thus causing copper / aluminum sulphate.

C Water Fountains / Features

In a number of offices' designs there are water features. These water features must be maintained to the manufacturers' recommendations.

These water features may have to be treated chemically to control the microbial growth within the water system i.e. this is normally carried out by the use of bromine injected into the water system at a level of 1 – 2 mg/l of free residual bromine.

The water must not be allowed to become dirty and must be kept as clean as possible at all times. If the water becomes contaminated then water borne micro organisms including Legionella may proliferate within the water system.

Some of these water features are self-filling from the mains water; some are filled from water softeners, and some are filled directly from a hosepipe via the mains water. If this is the case, the water regulations must be adhered to so that backcross contamination or siphoning does not occur.

D Showers

Within a number of office complex's there are showers for Male / Female employees. These showers can be of two types. The first type is the mixer type shower where hot and cold water goes into a thermostatic mixing unit and water is emanated through the showerhead. In some areas if these showers are not being used regularly, then a flushing regime must be instigated so that the control of water borne micro organisms proliferation within the shower supply pipe and unit do not proliferate. Therefore this flushing must be carried out on a weekly basis and action taken recorded within the log book.

The above type of mixer showers have, in some cases, now been removed and replaced by a point of use electrical unit. These shower do not lend themselves to the above organism proliferation.

All showerheads and flexible hoses and similar, must be checked on a regular basis for calcium scale build up. The scale must be removed by using a descalant chemical, and the hose and head are to be thoroughly washed and disinfected in chlorine to a level of 50 mg per litre of free residual chlorine for the minimum of 1 hour, then rinsed off with plain water.

All action must be noted within the log book.

E Swimming Pools

In some properties swimming pools are part of the residential properties.

Swimming pools have to be maintained in conjunction with the requirements as laid down by the Health and Safety Executive, and the Swimming Pools Association.

Of paramount importance is that the water should be crystal clear. The pH of the water must be controlled to approximately 7.5 at all times and the temperature of the water and outside temperature should be monitored.

The swimming pool disinfection regime can be of various i.e. sodium hypochlorite (chlorine) or other alternatives i.e. silver, copper, chlorine dioxide. All of the disinfection procedures must be controlled and all actions monitored in the log book this to include the back washing of the sand filter and regular maintenance as laid down by the makers' / manufacturer's recommendations. Water samples must be taken for Total Viable Count to a UKAS Accredited Laboratory for analysis of the Total Bacteria count, coli forms, E.coli and other water organisms that may deemed necessary .

A separate log book must be kept up of the swimming pool and all actions must be recorded.

F Whirlpools

In some building complexes whirlpools have been installed for the employers i.e. in Health Clubs.

Whirlpools must be controlled i.e. the water temperature must be kept at 35 ° C; the pH 7.5; if disinfection is of bromine then this must be controlled and dosed as to the makers' / manufacturers' recommendation, which is normally 3 mg per litre of free residual bromine. The temperature of the water must be carefully controlled in conjunction with the outside air temperature.

A separate log book must be kept of each whirlpool and a disinfection regime for the whirl pool must take place on at least a minimum of once a week.

The backwash filter must be regularly maintained along with the strainers and in line strainers, and the bather load throughput must also be carefully controlled in conjunction with micro organisms contamination of the whirl pools water.

Water samples for Total Viable Count must be taken on at least a monthly basis and sent off to a UKAS Laboratory for analysis. If any results are outside the parameters as laid down by the laboratory action must be taken.

G Gas fired domestic hot water heaters

The more conventional way of supplying domestic hot water to tap outlets is via domestic hot water calorifiers. These come in various volume sizes and can range from 50 litres – 1000 litres water capacity. These domestic calorifiers are normally heated by primary heating sources either by steam or low pressure hot water.

The most commonly used is the gas fired hot water heaters. These gas fired heaters heat the water to the required temperature. These units can be supplied by mains potable water, with the appropriate pressure reducing valves or boosted cold water systems, supplying the cold water feed to the unit and, or they can be domestic hot water tank system fed. These units are popular, as they do not have the bulk of water where Legionella and other water borne micro organisms can proliferate.

H Plate Heat Exchangers

Domestic hot water calorifiers have been used for supplying domestic hot water to the building complex in the past.

A new method of supplying domestic hot water is by plate heat exchanger units.

The primary side of the plate heat exchanger is heated normally by low pressure hot water from, for instance, a gas fired boiler, and the heat transfer through the plate heat exchanger to the domestic hot water supply on the secondary side, is a new and a very successful method of heating water for domestic uses.

The plate heat exchangers are very efficient units. It must be ensured that the size of heater is in comparison with the size of the buildings water system for maximum efficiency.

APPENDIX II

Methodology of Assessment of Risk

EXAMPLE

5.6 METHODOLOGY OF RISK ASSESSMENT

The method of 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
1) <u>Formation of Droplets</u>		
• Still Water • Droplets • Aerosol	Low Medium High	10 20 30
2) <u>Water Condition</u>		
• Chemical Regime • Clean • Contaminated • Heavily Contaminated	Low Low/Medium Medium/High High	10 15 25 30
3) <u>Water Temperature</u>		
• Below 20 °C • 21 °C - 25 °C • 26 °C - 45 °C • 46 °C - 50 °C • Above 50 °C	Low Medium High Medium Low	10 20 30 20 10
4) <u>Water Turnover</u>		
• Stagnant • Low Turnover • Moderate Turnover • High Turnover	High Medium Medium/Low Low	30 20 15 10
5) <u>Susceptibility of Exposed Persons</u>		
• Average Population • Susceptible Population	Medium High	15 30
6) <u>Population Density of Exposed Persons</u>		
• Low density • Medium density • High density	Low Medium High	10 20 30

Legionella Positive Rating factor

For sourced sampled and found Legionella positive an additional weighting factor shall be applied to the assessment. The total numerical value for the infected source shall be multiplied by 2.

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.

Total Numerical Value

1 - 85
86 - 120
Over 120

Overall Risk Rating

Low
Medium
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 the factors highlighted in the Approved Code of Practice (L8), i.e. system breakdowns, abnormal operations, commissioning and other unusual circumstances.

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 water 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.

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.



Phase Technology



Certificate Number: Q1534

PHASE TECHNOLOGY LIMITED
UNIT 6 SHELF HOUSE
NEW FARM ROAD
ALRESFORD
HAMPSHIRE SO24 9QE

Tel: 01962 736005

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E-Mail: 100566.3672 @ COMPUSERVE.COM

MATERIAL SAFETY DATA SHEET

PHASECHEM 510

PRODUCT NAME PHASECHEM 510 **DATE** DECEMBER 2000

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

- 1.1 Commercial Name PHASECHEM 510
1.2 Chemical Identity:
Cas. No. 7632-00-0 & 1344-09-8
(active ingredient)
EINECS No. 215-555-9
(active ingredient)
1.3 Company Name PHASE TECHNOLOGY
Unit 6
Shelf House
New Farm Road
Alresford
Hants.
SO24 9QE
- 1.4 Emergency Contact Tel: 0962 736005

2. COMPOSITION

Alkaline solution based on Nitrite and Silicate

3. HAZARDS IDENTIFICATION

Irritating to skin
Harmful if swallowed

4. FIRST-AID MEASURES

- 4.1 Eye Contact Wash thoroughly with clean water for at least 10 minutes. Seek medical attention
4.2 Skin Contact Rinse immediately with plenty of water. Launder contaminated clothing before use.
4.3 Inhalation:
4.4 Ingestion Wash out mouth thoroughly and drink 200-300 mls of warm water. Seek medical attention.
If breathing is difficult give oxygen.



5. FIRE-FIGHTING MEASURES

- 5.1 Extinguishing Media: Not applicable
 Water Mist
 Foam
 CO₂
 Dry Powder
- 5.2 Special Exposure Hazards
- 5.3 Special Protective Equipment for fire-fighters

6. ACCIDENTAL RELEASE MEASURES

- 6.1 Personal Precautions: Avoid contact with skin, eyes and clothing.
- 6.2 Environmental Precautions: Minimise product flowing into drains or water courses.
- 6.3 Clean-up Methods: Absorb onto sand or inert material. Dispose of as solid waste. Small spills can be flushed to drain with plenty of water.

7. STORAGE AND HANDLING

- 7.1 Storage Store away from acids and combustible materials.
- 7.2 Handling Avoid contact with skin, eyes and clothing

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- 8.1 Equipment Design/Technical Protective Measures
 No special measures required.
- 8.2 Exposure Control Limits Not listed
- 8.3 Personal Protection
- 8.3.1 Respiratory Protection Not required
- 8.3.2 Hand Protection PVC/rubber gloves
- 8.3.3 Eye Protection Wear safety glasses
- 8.3.4 Skin Protection Overalls
- 8.3.5 Industrial Hygiene Work in accordance with good industrial practise of the chemical industry.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1	Appearance	Slightly hazy pale yellow liquid
9.2	Odour	None
9.3	pH value	11.0 - 12.5
9.4	Viscosity	
9.5	Freezing Point	Approx. 0oC
9.6	Boiling Point	Approx. 100oC
9.7	Melting Point	Not applicable
9.8	Flash Point	Not applicable
9.9	Auto Flammability	Not applicable
9.10	Explosivity	Not applicable
9.11	Vapour Pressure	
9.12	Specific Gravity 25oC	1.15 - 1.25
9.13	Solubility	Miscible in water
9.14	Partition Coefficient	
9.15	Other data	

10. STABILITY AND REACTIVITY

- 10.1 Conditions to avoid: contact with acids, amines, cyanides, ammonium compounds, reducing agents.
- 10.2 Materials to avoid:
- 10.3 Hazardous Decomposition Products

11. TOXICOLOGICAL INFORMATION

- 11.1 Acute Oral Toxicity (LD50) in Rats: 500 mg/kg
- 11.2 Eye Irritation Tested in Rabbits
- 11.3 Skin Irritation Tested in Rabbits
- 11.4 Other information

12. ECOLOGICAL INFORMATION

13. DISPOSAL CONSIDERATIONS



14. TRANSPORT INFORMATION

- | | | |
|------|-------------------|---------------|
| 14.1 | IMDG | |
| 14.2 | RID/ADR | |
| 14.3 | MARPOL | Non pollutant |
| 14.4 | UN No. | 1760 |
| 14.5 | IATA | |
| 14.6 | TREM CARD | Yes |
| 14.7 | Other information | |

15. REGULATORY INFORMATION

- | | | |
|------|--|---|
| 15.1 | Classification and labelling according to EC Directives 67/548 | |
| 15.2 | Risk Phrases: | R8: Contact with combustible material may cause fire.
R25: Avoid contact with eyes.
R31: Contact with acid liberates toxic gas. |
| 15.3 | Safety Phrases | S44: If feeling unwell, get medical advice |
| 15.4 | Product Contains | Alkaline sodium nitrite solution blended with phosphonate and azole. |

Recipients are reminded to refer also to national measures that may be relevant.

16. OTHER INFORMATION

Wash out containers with water prior to disposal

This product should be stored, handled and used in accordance with good industrial hygiene practices and in conformity with any legal regulation. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.





● **Phase Technology**



PHASE TECHNOLOGY LIMITED
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HAMPSHIRE SO24 9QE

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PRODUCT DATA

PHASECHEM 510

GENERAL PROPERTIES

PHASECHEM 510 is a synergistic blend of organic and inorganic inhibitors for closed systems.

PHYSICAL PROPERTIES

Appearance	:	pale yellow liquid
Specific gravity	:	1.15 - 1.25
pH as supplied	:	11.0 - 12.5
Flash point	:	non flammable

TECHNICAL INFORMATION

PHASECHEM 510 is dosed to maintain certain minimum concentrations within the system

A minimum fill up charge of 5 litres/m³ is recommended. The system water should be monitored to maintain a sodium nitrite concentration of 1250 ppm.

PHASECHEM 510 is dosed by means of dosage pot.

PACKAGING: PHASECHEM 510 is available in 25 litre (27 kg) and 200 litre (220 kg) containers.

TRANSPORTATION: Class 8 (corrosive)

This product is not for use in aluminium fabricated boilers.



HEALTH AND SAFETY INFORMATION

PHASECHEM 510 concentrate (as supplied)

POTENTIAL HAZARD

Irritating to skin and mucous membranes.

HANDLING AND STORAGE

Avoid extremes of temperature.

Store away from foodstuffs and combustibles.

Do not allow to dry out - replace cap securely after use.

Do not mix with acids.

Avoid contact with skin and eyes.

Recommended storage limit - 2 years.

PROTECTIVE EQUIPMENT

Wear protective overalls, gloves and eye/face protection.

SPILL PROCEDURES

Flush to drain with plenty of water. Observe local disposal regulations.

FIRST AID

EYES : Rinse immediately with plenty of water for at least 10 minutes and seek medical attention.

SKIN : Rinse immediately with plenty of water. Contaminated clothing should be laundered before use.

INGESTION : Wash out mouth thoroughly and drink plenty of water, do not induce vomiting.

OTHER INFORMATION

At the recommended in-use concentration PHASECHEM 510 is non-hazardous.





Certificate Number: Q1534

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PAGE 1

Phase Technology

MATERIAL SAFETY DATA SHEET

Hays Chemical Distribution Limited, Rawdon House, Green Lane, Yeadon.
Leeds. LS19 7XX. Tel: (0532) 505811. Fax: (0532) 500113.

Version No. 1 (27/01/1994)

MSDS Code No: MSHC145

Product Name: Sodium Hypochlorite Solution 14/15%
Chemical Name: Sodium Hypochlorite

Fire & Explosion Hazard Data

Flash Point: N/A Auto-Ignite Temperature: N/A
Hazardous Combustion Products: Oxygen /

Physical & Chemical Properties

Chemical Synonyms:	HYPO	BLEACH LIQUOR
Molecular Mass:	74.44	Lethal Dosage: 5g/kg (rat) 12.5%
Solubility In Water:	Complete	Specific Gravity @ 20oC: 1.245 Kg/l
Vapour Density:	>1, air=1	Vapour Pressure: N/A Decomposes.
Freezing Point Oc:	-25oC apx	Boiling Point oC: 107oC apx
Viscosity Approx.	3.45 cP at 20oC	pH: >pH 12

Hazard Classification Information

Risk Phrases:	31, 34	Secondary Risk:
Safety Phrases:	2, 28.	Conveyance Class: 8
Primary Risk:	CORROSIVE	EINECS No: 231-668-3
S.I. Number:	1791	IMDG Code (Page): 8186
ADR Class:	8, Corrosive	IMCO Class: 8, CORROSIVE
Tremcard No:	45/80G12	Packing Group: III
IATA Special Provisions:	A14	UK Customs Number: CUS 23350
UN Number:	1791	ADR HIN: 85
CAS Number:	7681-52-9	
Hazchem Code:	2R	

CPL Risk Phrases

Contact with acids liberates toxic gas.
Causes Burns.

CPL Safety Phrases

Keep out of reach of children
After contact with skin, wash immediately with plenty of water.

Composition/Information On Ingredients

Aqueous solution containing 14.7 - 15.5% by mass of sodium hypochlorite
Available chlorine 14 - 15% mass
Method of Test: BS4426: 1969



The Air and Water Specialists

REGISTERED IN ENGLAND NO. 2846944

MATERIAL SAFETY DATA SHEET

PAGE 2

Hays Chemical Distribution Limited, Rawdon House, Green Lane, Yeadon.
Leeds. LS19 7XX. Tel: (0532) 505811. Fax: (0532) 500113.

Product Name: Sodium Hypochlorite Solution 14/15%
Chemical Name: Sodium Hypochlorite

Hazards Identification: Physical and Environmental

Spillage will effect vegetation
Toxic to aquatic life.
See ecological information.

Hazards Identification: Adverse human health affects

Corrosive to eyes, skin and respiratory tract. Inhalation of vapour/fumes can cause severe breathing difficulties.

First Aid Measures: Inhalation

Remove from exposure. Keep warm and at rest. If there is respiratory distress give oxygen.
If respiration stops or shows signs of failing, apply artificial respiration. Do not use mouth to mouth ventilation.
Obtain medical attention urgently.

First Aid Measures: Skin Contact

Immediately wash with plenty of water, preferably under a shower if affected area is large enough to warrant this. Remove contaminated clothing and thoroughly clean and dry all clothes before re-use. Obtain medical attention if irritation persists or if blistering occurs.

First Aid Measures: Eye Contact

Irrigate eye thoroughly with water for at least 10 minutes, holding the eyelids apart if necessary. Obtain medical attention.

First Aid Measures: Ingestion

Wash out mouth with water and give plenty of water to drink. Obtain medical attention. Do not induce vomiting. Treatment maybe needed for shock or pain.

First Aid Measures: Medical Assistance

Lung oedema symptoms may usually develop several hours after exposure and is aggravated by physical exertion rest and hospitalisation is essential. As first aid, a doctor should consider administering a corticosteroid spray.

Fire-fighting Measures: Special Protective Equipment

Non-flammable. Decomposition may assist combustion of other flammable materials. When involved in fires, toxic fumes maybe evolved. Therefore fire-fighters should wear self-contained breathing apparatus and full body protective clothing (8).

Fire-fighting Measures: Suitable Extinguishing Media

Select extinguishing medium appropriate to other materials involved in and/or to the circumstances of the fire. Use fog equipment - in the absence of fog equipment a fine spray may be used (8). Keep stored drums cool by spraying water from a distance.



MATERIAL SAFETY DATA SHEET

PAGE 3

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Leeds. LS19 7XX. Tel: (0532) 505811. Fax: (0532) 500113.

Product Name: Sodium Hypochlorite Solution 14/15%
Chemical Name: Sodium Hypochlorite

Fire-fighting Measures: Special Exposure Hazards

Non-flammable. Decomposition may evolve oxygen and assist combustion of other flammable materials. When involved in fires, highly toxic fumes of chlorine may be evolved - see exposure disposal. Can be violent and explosively reactive when in contact with ammonia and oxidising agents-see stability and reactivity.

Accidental Release Measures: Methods For Cleaning Up

Small spillage's:- Dilute - may be washed to drain with large quantities of water (8). Neutralise with a suitable reagent and sweep aside to a safe place for subsequent disposal. Wash residual liquid to drain with copious amounts of water and possible detergent. Large spillage's - contain with sand or earth and transfer to suitable container for subsequent disposal by a licensed contractor. See disposal considerations and environmental precautions.

Accidental Release Measures: Personal Precautions

Avoid contact with the liquid. Ventilate the area to dispel toxic decomposition fumes - see stability and reactivity. Full body protective clothing with breathing apparatus should be worn when dealing with spillage (8) - see exposure control. Remove all sources of ignition.

Accidental Release Measures: Environmental Precautions

If size of spillage warrants and has contaminated water courses, drains or vegetation - advise appropriate authorities evacuate personnel from the area.

Storage and Handling: Storage

Store in a cool, dry, well ventilated area, away from incompatible chemicals or materials - see stability and reactivity. Avoid exposure to light, heat, below freezing temperatures and contamination by dusts or foreign bodies - see conditions to avoid. Storage tanks should be completely enclosed apart from vent and overflow connections. Store in externally reinforced PVC, high density polyethylene or carbon lined with a suitable grade or rubber. Steel tanks, lined with certain plastics, cement, ceramic tiles or glass, may be used. Do not store in stainless steel or any metal container (with the exception of titanium).

Storage and Handling: Handling

Exposure by inhalation or skin contact should be minimised by good industrial hygiene practice. Wear appropriate protective clothing - see exposure control. Safety showers and eyebaths should be available in areas where accidental exposure is possible. Avoid contact between other chemicals where the effect of mixing is unknown - see stability and reactivity. The product should be contained in a closed system away from oxidising agents and acids. Care should be taken when opening containers as pressure may have built up during storage. Ensure adequate ventilation. Smoking should be prohibited in storage areas.

Exposure Control/Personal Protection: Hand Protection

Wear suitable impervious gloves.



MATERIAL SAFETY DATA SHEET**PAGE 4**

Hays Chemical Distribution Limited, Rawdon House, Green Lane, Yeadon.
Leeds. LS19 7XX. Tel: (0532) 505811. Fax: (0532) 500113.

Product Name: Sodium Hypochlorite Solution 14/15%
Chemical Name: Sodium Hypochlorite

Exposure Control/Personal Protection: Skin Protection

Wear cotton overalls, headgear and rubber boots. Where significant exposure is possible (e.g. in dealing with spillage or fire) Wear PVC suit. Showers should be provided at places where accidental exposure may occur.

Exposure Control/Personal Protection: Eye Protection

Wear chemical goggles. Eyebaths should be provided at places where accidental exposure may be possible.

Physical and Chemical Properties: Appearance

Clear greenish-yellow liquid

Physical and Chemical Properties: Odour

Characteristic bleach odour.

Stability and Reactivity: Condition to avoid

The following factors increase the rate of decomposition:-

Exposure to light

Exposure to high temperatures

Exposure to dusts or foreign bodies

A fall in pH below 10.

Stability and Reactivity: Materials to avoid

Reacts with acids, primary amines, peroxides, alcohols, aldehydes, ketones, unsaturated hydro and halo carbons.

Decomposes in air on contact with fine dusts of iron, copper, nickel and their alloys, brass and stainless steel -

see storage. Dangerous reactions possible with organic materials. Explosive reactions are possible with

ammonia and ammonium compounds.

Stability and Reactivity: Hazardous Decomposition products

Reaction with acids liberates highly toxic chlorine gas - see toxicological information. Contact with oxidising agents liberates oxygen and may cause combustion of contaminated materials.

Toxicological Information**Acute Effects:**

Liquid and decomposition fumes cause severe irritation and corrosion to skin, eyes, respiratory and digestive tracts. Ingestion may cause nausea, vomiting and diarrhoea and can lead to drowsiness and unconsciousness. Exposure to high levels of decomposition fumes, may cause respiratory difficulties and pulmonary oedema.

Corrosive to the skin, causing ulceration and possibly dermatitis. Chronic effects:-

Causes temporary loss of vision and possible permanent tissue damage to eyes. High exposure to aspirated mists or vapours may lead to bronchitis and obstructive pulmonary oedema. Ingestion may cause haematemesis, oesophageal and gastric perforation.



MATERIAL SAFETY DATA SHEET

PAGE 5

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Leeds. LS19 7XX. Tel: (0532) 505811. Fax: (0532) 500113.

Product Name: Sodium Hypochlorite Solution 14/15%
Chemical Name: Sodium Hypochlorite

Ecological Information:

Slightly toxic to living resources - LC50 95hrs 10-100mg/l (40. Ecotoxicity:- 1ppm available chlorine toxic to all fish, 0.4ppm available chlorine toxic to game fish. No evidence of bioaccumulation or tainting of seafood.(4)

Disposal Considerations: Disposal Dangers

Treat as for spillage's. Wear appropriate protective clothing - see accidental release measures. Care should be taken to ensure accidental mixing with oxidising agents, in drains, is avoided. Do not attempt to neutralise with strong acids. Neutralisation generates much heat. See disposal methods.

Disposal Considerations: Disposal Methods

Treat as for spillage's - see accidental release measures. It is recommend to apply an antichlor or neutralising agent such as hydrogen peroxide or sodium bisulphite. Transfer slurry to suitable containers and flush surplus to drain with plenty of water. Dispose of any hazardous waste in accordance with waste disposal or water authority regulations.

Transport Information.

SI 1981/1059 Dangerous substances (conveyance by road in road tankers and tank containers) regulations.

SI 1984/1244 Classification, packaging and labelling of dangerous substances regulations.

SI 1986/1951 Road traffic (carriage of dangerous substances in packages etc.) regulations.

Regulatory Information

Classification, packaging and labelling of dangerous substances for supply and conveyance by road (3).

Supply: Corrosive

Conveyance: Corrosive substance

Phrases:-

Contact with acids liberates toxic gas.

Causes burns.

Keep out of reach for children.

After contact with skin, wash immediately with plenty of water.

Other information: Training Advice

The user should be trained to handle chemicals and be fully aware of the product's reaction/hazards. Read the label before opening the container. Avoid storage with or near reactive chemicals or incompatible materials.

See stability and reactivity. Below -60°C, crystallisation of the pentahydrate NaOCl.5H₂O is possible. Complete solidification occurs at -260°C eutectic.

Other information: Recommend uses and restrictions

Used for bleaching and sterilising in industry and as a bleach disinfectant in the household, when diluted. Used in waste water treatment swimming pools and for odour control. Avoid contact with ammonia, acids, nylon and wool textiles - see stability and reactivity.



MATERIAL SAFETY DATA SHEET

PAGE 6

Hays Chemical Distribution Limited, Rawdon House, Green Lane, Yeadon.
Leeds. LS19 7XX. Tel: (0532) 505811. Fax: (0532) 500113.

Product Name: Sodium Hypochlorite Solution 14/15%
Chemical Name: Sodium Hypochlorite

Other Information: Data Sources

1. HSE Guidance note EH 40 Occupational exposure limits (latest edition)
2. ACGIH (Threshold limit values and biological exposure indices) 1985-86
3. Classification, packaging and labelling of dangerous substances regulations 1984.
4. IMO reports and studies No.35 (The evaluation of hazards of harmful substances carried by ships) 1989.
5. IMDG code (international maritime dangerous goods codes) 1990.
6. Control of substances hazardous to health regulations. (SI 1988/1657).
7. Factories Act 1961
8. HAZCHEM List No.6 (Emergency action codes and supplementary information) 1990.

Quality assurance:- Hays Chemical Distribution Limited. Bulk Products Division are approved under B>S. 5750 I.S.O. 9002 for the manufacture, supply, sourcing and distribution of the product to agreed specifications, registered No.s FM1980/FS858.

The MSDS complies with EEC Commission Directive of 5.3.91 defining and laying down the detailed arrangements for the system of specific information relating to dangerous preparations in implementation of Article 10 of Directive 88/379/EEC and listed in Article 3 of Directive 91/155/EEC

E&OE





Phase Technology



Certificate Number: Q1534

77 CORNHILL SITE LOG

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RISK ASSESSMENT

1. Work Content

To carry out annual chlorination of Cold Water Storage Tanks and associated ancillary equipment to either BS 6700, or HS(G)70.

2. Risk Identified to Staff

RISK	YES/NO	REFER TO
Drowning	YES	4.A
Electric Shock	YES	4.B
Fall/Trip	YES	4.C
Poisoning	YES	4.D
Personal Injury	YES	4.E

3. Risk Identified to Others

Risk to any person drinking or washing from water points within building.

4. Precautions to be taken

- A) Tank to be fully drained & all inlet/balance valves to be isolated and labelled, prior to any person entering the cold water storage tanks.
- B) All electrical equipment to be double insulated and suitable for safe immersion onto water or 110 volt and not immersed into any water.
- C) Access ladder to be used at all times, and all personnel to be made aware of risks.
- D) Warning notices to be posted at all water outlets clearly indicating that the water is not to be used. Notices to also be positioned at every entrance to the building.
- E) Adequate lighting to be available at all times.
No one man to be left working in tank.
Personal safety equipment to be available to all and to be used.

5. COSHH Requirements

COSHH substance in use data sheets for SODIUM HYPOCHLORITE has been completed and is present for inspection. . .

COSHH Safety Data Sheets have been supplied and is present for inspection.

6. Method of Working

A method statement has been prepared and has been supplied.



The Air and Water Specialists

REGISTERED IN ENGLAND NO. 2846944

COSHH - ASSESSMENT RECORD

SUBSTANCE

What is being used? SODIUM HYPOCHLORITE SOLUTION
 14/15%

Has the suppliers data sheet been obtained? Yes

What quantity is being used? *Dependant on content of system, Minimum of 50 ppm chlorine in system water*

PROCESS

What is being done? *Annual chlorination of cold water storage tanks and associate ancillary equipment to BS6700 or HSG70*

Where? CARGO SERVICE CENTRE

How long will it take?

How often is it done? *Normally annually*

Is the duration of use within the stated occupancy exposure limits. Yes

WHAT CONTROL MEASURES ARE IN FORCE?

(Protective clothing, Good ventilation, etc.)

Personal Protective clothing. Additional lighting.

EFFECTS OF EXPOSURE TO OPERATIVES/OTHER PEOPLE?

Please see COSHH data sheet supplied and kept within the water treatment log book.

WHAT EMERGENCY ACTIONS WILL BE TAKEN?

- ~ First Aid: *Adequate training, COSHH data sheet information.*
- ~ Spillage's: *Hose pipe and fresh water supply available on site.*
- ~ Disposal: *All used chemical is flushed through the systems until limits are acceptable. Unused chemical will be removed from site.*

IMPROVEMENTS PROPOSED:

None

Date for next assessment: *Next chlorination*

Completed on behalf of
Phase Technology Limited

DATED:





COSHH - SUBSTANCE IN USE

SUBSTANCE

~ TRADE NAME SODIUM HYPOCHLORITE SOLUTION
14/15%

What is it used for? *The internal disinfection of cold water storage tanks and associated down services.*

Can a less hazardous substance be used? No, only another trade name

What quantity of the substance is held? *None. Substance transported to site then removed from site after usage.*

Where is it stored? *None stored on site.*

Has the storage location been checked for *No storage required.*
suitability and any remedial action taken.

TRAINING

Have all the people likely to be exposed to the substance been made aware of the potential hazards associated with the use of the substance? Yes

Have those people been given training in the safe storage, handling and use of the substance? Yes

Has this transfer of information and training been recorded and are records kept up to date? Yes

If the answer to any of the questions in this section is No, action must be taken to remedy this.



SUPPLIER

NAME AND ADDRESS OF SUPPLIER:

*Hays Chemical Distribution Limited.
Rawdon Road, Yeadon, Leeds, LS19 7XX*

HAS a supplier Data sheet been:

- | | |
|---|-----|
| ~ Requested | Yes |
| ~ Received | Yes |
| ~ Does it provide all
necessary information? | Yes |

SIGNED:
On behalf of Phase Technology

DATED:





● **Phase Technology**



Certificate Number: Q1534

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HEALTH AND SAFETY POLICY

As provided for in Section 2(3) of the Health and Safety at Work etc. Act 1974, the policy of Phase Technology with regard to health, safety and welfare at work is stated below.

- Phase Technology recognises and accepts its responsibility to provide a healthy and safe place of work and environment for employees and contractors.
- Phase Technology will take, so far as is reasonably practicable, all steps within its power to meet this responsibility, paying particular attention to:

All necessary information, equipment, instruction, training and supervision to enable all staff to avoid hazards and contribute to their own health and safety at work.

Providing a healthy working environment.

Periodic inspections of work areas to ensure safe conditions and systems of work.

Proper maintenance of premises, plant and equipment so as to ensure the health and safety of staff and a safe means of escape from each place of work.

The provision of arrangements and facilities to ensure prompt first aid/medical attention for all injuries and the prompt and thorough investigation of all accidents.



● **The Air and Water Specialists**

REGISTERED IN ENGLAND NO. 2846944

COMPLIANCE WITH STATUTORY ACT, REGULATIONS, CODES OF PRACTICES, ETC. AND ANY OTHER SPECIAL RULES APPLICABLE TO PREMISES OR WORKPLACES

- Phase Technology will comply fully with the requirements of Statutory Acts, Regulations, Codes of Practices, Guidance Notes, Company/Client's Safe Working Procedures, etc. which may be relevant to the works being undertaken.
- Phase Technology will observe and comply with any special safety rules, notices or procedures implemented by the "Client" including any verbal instructions given which have the sole purpose of ensuring the Health and Safety of Employee(s) and others at the workplace.
- Any person(s) found wilfully disregarding instruction or procedures as aforementioned will be reported to his/her manager who will be expected to take appropriate disciplinary action against the Employee(s) concerned.
- Failure by Employee(s) to comply with Health and Safety requirements will result in a written notice being issued highlighting areas/systems where non-compliance is occurring and immediate improvement is required.
- Repeated non-compliance will result in a written warning being given, a request for the removal of the individual from the work place, or termination of employment.

ENTRY INTO PREMISES OR WORKPLACES

- On initial arrival at premises or workplaces Phase Technology Employee(s) will report to the "Client" or his representative, the number of employees actually in the premises or workplace.
- Phase Technology s Employee(s) should understand the importance of this requirement which is intended to ensure the safety of personnel employed should an emergency evacuation of the premises or workplace be necessary.
- Vehicles owned by Phase Technology or their "contractors" must be parked only in areas defined by the "Client".
- Phase Technology s Employee(s) should request from the "Client" a permit to work within the premises.



HEALTH AND SAFETY ADVICE, ASSISTANCE AND CO-ORDINATION

- Phase Technology will ensure that suitably trained and competent persons are appointed for co-ordinating Health & Safety, these are normally employees of a supervisory grade.
- The names with details of training undertaken will be provided to "The Client" upon request prior to commencement of any works.

AGREEMENT OF SAFE WORKING PROCEDURES

- Phase Technology will ensure, so far as is reasonably practicable, that any work undertaken will not constitute a hazard or risk to the Health & Safety of Employee(s) or others.
- This responsibility includes for example, that sufficient information, instruction and training has been provided to Employee(s) on the safe and proper use of any work equipment and that adequate levels of competent supervision is being provided.
- "The Client" has an overall responsibility to ensure that, as far as is reasonably practicable, the work activities undertaken by Phase Technology under their control are carried out safely.
- Phase Technology Employee(s) will agree safe working procedures with "The Client" and, if necessary with the premises occupant, before proceeding with any operations which are likely to place anyone at risk.
- Phase Technology Employee(s) will, before undertaking any working activities, ensure that potential hazards and risks have been properly evaluated and that written assessment records relating to hazardous conditions \ substances are available at the work place.
- Phase Technology Employee(s) will ensure that work areas are safe before commencing work. This includes safe access and egress.



IDENTIFICATION \ EVALUATION OF HAZARDS \ RISKS

- Phase Technology Employee(s) will undertake the necessary hazard / risk evaluation of work activities by means of Risk Assessments or substances used by COSHH Assessments and have the necessary written records readily available at the workplace which clearly defines the hazards \ risks and the control measures necessary for any potential hazard / risk identified.

PROVISION AND USE OF PERSONAL PROTECTIVE EQUIPMENT

- Phase Technology Employee(s) will be expected to have identified under their risk assessment/evaluation procedures the work activities\areas where personal protective clothing and equipment should be worn.
- Any personal protective equipment provided by the Phase Technology to his employee(s) will be properly maintained, and conform to the relevant British/European standards
- Phase Technology will ensure that their employees are provided with adequate information, instruction and training on the proper use and care of personal protective equipment and the arrangements which are in place for reporting defective/lost items and obtaining replacements.

HOUSEKEEPING

- Phase Technology Employee(s) are expected to carry out their work for or on behalf of "The Client" in a clean and orderly manner and will ensure that a safe environment is maintained at all times.
- Materials may not be stacked or stored in work areas they either impede access or egress or the safe working of other parties. On no account should any material be stacked or stored where it may become a fire risk.
- All waste material arising from the execution of the works will be cleared by Phase Technology on a daily basis to disposal points designated by "The Client" or the occupier of the premises.
- Where for reasons of safety, health and welfare, smoking is considered a hazard, a "NO SMOKING" rule will apply.



ELECTRICAL APPARATUS

- Only equipment which complies fully with the requirement of the Electricity at Work Regulation will be permitted to be used.
- Only 110 volt portable equipment may be used via a mains isolated transformer. Portable equipment above this voltage shall not be used without the written permission of Phase Technology management.
- Phase Technology will ensure that all electrical apparatus, in particular portable equipment is inspected at the recommended intervals, tested when necessary and records maintained so that such equipment remains safe.
- Phase Technology Employee(s) will ensure that they have assessed work activities involving the use of electricity so that all foreseeable risks can be identified and adequate precautions are taken to minimise any risk to persons.

FIRE PRECAUTIONS

- Phase Technology Employee(s) should familiarise themselves with the arrangements for means of escape in the event of an outbreak of fire.
- No welding, cutting or hot work will be carried out without prior permission Phase Technology management.
- "No Smoking" rules will apply in designated areas.





Certificate Number: Q1534

● **Phase Technology**

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Phase Technology Limited

LOG

DOCUMENT

**CONTROLLED
DOCUMENT**

HEALTH & SAFETY POLICY

NAME

LEE HALL

DATE

8 JAN 2001

SIGNED

AS RECEIVED THE ABOVE
CONTROLLED DOCUMENT



The Air and Water Specialists

REGISTERED IN ENGLAND NO. 2846944

SECTION C

C1

Emergency Shutdown Procedures

77 Cornhill

Emergency Shut Down Procedure for the Domestic Cold Water Down Service (Boosted)

1. Turn off electrical control panel isolator on 'cold water booster pump' set.
2. Isolate 2" gate valve PV11 (cold water feed to building).
3. Isolate 2" gate valve PV8 (cold water feed to calorifiers).

To Isolate Drinking Water Service (Boosted)

1. Turn off electrical control panel isolator on 'drinking water booster pump' set.
2. Isolate 1" gate valve PV19.

Emergency Shut Down Procedure for the Domestic Hot Water Service

1. Turn off local electric spur serving hot water circulating pump.
2. Isolate 2" gate valve PV13 (calorifier No. 1) sec. outlet.
3. Isolate 2" gate valve PV12 (calorifier No. 2) sec outlet.
4. Isolate 1" gate valve PV17 common sec. return.

To isolate individual calorifiers:

To isolate calorifier No. 1:

1. Isolate 2" gate valve PV10 cold feet.
2. Isolate 2" gate valve PV13 sec. outlet.
3. Isolate 1" gate valve PV15 sec. return.

To isolate calorifier No. 2:

1. Isolate 2" gate valve PV9 cold feet.
2. Isolate 2" gate valve PV12 sec. outlet.
3. Isolate 1" gate valve PV14 sec. return.

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.

● 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

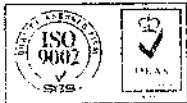
Training Records

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.



Phase Technology



Certificate Number: Q1534

PHASE TECHNOLOGY LIMITED
Unit 6 Shelf House
New Farm Road
Alresford
Hampshire SO24 9OE

Tel: 01962 736005

Fax: 01962 736115

E-Mail: info@phasetechnology.co.uk

Web Site: www.phasetechnology.co.uk

CERTIFICATE OF

TRAINING

THIS IS TO CERTIFY THAT

Mr T Didd

HAS ATTENDED THE PHASE TECHNOLOGY
INTRODUCTION COURSE ON BASIC WATER
TREATMENT HYGIENE PROCEDURES AND PHASE
SAFEWATER LS MONITORING

A PASS MARK OF GREATER THAN 85% HAS BEEN
ACHIEVED

DATE

21st October 2003

SIGNED

D. Thomas Managing Director



The Air and Water Specialists

REGISTERED IN ENGLAND No. 2846944



77 CORNHILL

CERTIFICATE OF COMPETENCY

THIS IS TO CERTIFY THAT

James Bougard

HAS RECEIVED TRAINING AND IS
COMPETENT IN WATER TREATMENT &
WATER HYGIENE PROCEDURES AND PHASE
SAFEWATER MONITORING

DATE

01/02/2002

SIGNED

A handwritten signature in black ink, appearing to read "D. J. HUNTER - DIRECTOR".



77 CORNHILL

CERTIFICATE OF COMPETENCY

THIS IS TO CERTIFY THAT

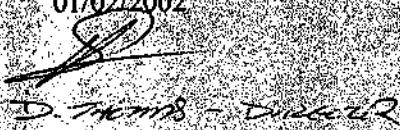
Lee Hall

HAS RECEIVED TRAINING AND IS
COMPETENT IN WATER TREATMENT &
WATER HYGIENE PROCEDURES AND PHASE
SAFEWATER MONITORING

DATE

01/02/2002

SIGNED



77 CORNHILL

CERTIFICATE OF
COMPETENCY

THIS IS TO CERTIFY THAT

Tony Johnson

HAS RECEIVED TRAINING AND IS
COMPETENT IN WATER TREATMENT &
WATER HYGIENE PROCEDURES AND PHASE
SAFEWATER MONITORING

DATE

01/02/2002

SIGNED



TONY JOHNSON - D126206





Phase Technology



Certificate Number: Q1534

PHASE TECHNOLOGY LIMITED
UNIT 6 SHELF HOUSE
NEW FARM ROAD
ALRESFORD
HAMPSHIRE SO24 9QE

Tel: 01962 736005

FAX: 01962 736115

E-Mail: info@phasetechnology.co.uk

Web Site: www.phasetechnology.co.uk

CERTIFICATE OF TRAINING

THIS IS TO CERTIFY THAT

Mr I Applebee

HAS ATTENDED THE PHASE TECHNOLOGY
INTRODUCTION COURSE ON BASIC WATER
TREATMENT HYGIENE PROCEDURES AND
PHASE SAFEWATER L8 MONITORING

DATE

SIGNED

[Handwritten signature]

[Small checkmark]



The Air and Water Specialists

REGISTERED IN ENGLAND NO. 2846944



Phase Technology



Certificate Number: O1534

PHASE TECHNOLOGY LIMITED
UNIT 6 SHELL HOUSE
NEW FARM ROAD
ALRESFORD
HAMPSHIRE SO24 9QE

Tel: 01962 736005

Fax: 01962 736115

E-Mail: info@phasetechnology.co.uk

Web Site: www.phasetechnology.co.uk

CERTIFICATE OF TRAINING

THIS IS TO CERTIFY THAT

Mr M Smith

HAS ATTENDED THE PHASE TECHNOLOGY
INTRODUCTION COURSE ON BASIC WATER
TREATMENT HYGIENE PROCEDURES AND
PHASE SAFEWATER L8 MONITORING

DATE *3/10/01*

SIGNED *[Signature]*



The Air and Water Specialists

REGISTERED IN ENGLAND NO. 2846944

Site Trained Personnel

- See Cover

Training Certificates are contained in this Section of the Manual.

Property Name & Address: 77 CORNHILL EC3V 3QQ

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.

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.

Westmead
Farnborough
Hampshire
GU14 7LP
Tel: 01252 525 599
Fax: 01252 701 150
Direct Dial: 01252
Email: @axima.eu.com

Peter Mountifield
Jones Lang Lasalle
77 Cornhill
London
EC3

30th April 2003

Dear Peter

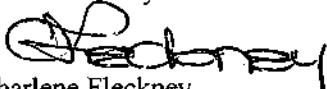
Re: Chlorination Works

Following the recent chlorination works undertaken, please find enclosed the relevant certification.

The levels recorded are within recognised limits

Should you require any further information please do not hesitate to contact the undersigned.

Yours sincerely


Charlene Fleckney
Helpdesk Administrator



Phase Technology

VISIT REPORT

REF: Elyo/
Cornhill 77 2603V

PHASE TECHNOLOGY LIMITED
UNIT 6 SHELF HOUSE
NEW FARM ROAD
ALRESFORD
HAMPSHIRE SO24 9QE
TEL: 01962 736005
FAX: 01962 736115
E.MAIL: info@phasetechnology.co.uk

SITE	77 Cornhill St
CUSTOMER	Elyo

DATE	1/3/03
CONTACT	

COMMENTS	
	L8 Clean & Chlorination of Basement & CWT's and associated Boosted Services.
	Chlorine Levels.
	Tanks 75 ppm & 80 ppm Farthest Outlet 75 ppm (CWWS) 65 ppm (HWS) Nearest Outlet 75 ppm (CWWS) 65 ppm (HWS)
	Thanks

NOTES

PHASE TECHNOLOGY LIMITED

CUSTOMER

The Air & Water Specialists



Phase Technology



Certificate Number: O1534

PHASE TECHNOLOGY LIMITED
Unit 6 Shelf House
New Farm Road
Airesford
Hampshire SO24 9OE

Tel: 01962 736005

FAX: 01962 736115

E-Mail: info@phasetechnology.co.uk

Web Site: www.phasetechnology.co.uk

CERTIFICATE OF CHLORINATION

CLIENT

Elvo Services Ltd
Westmead
Farnborough
Hampshire
GU14 7LP

SITE

77 Cornhill
London
EC3

DATE
01/03/2003

SPECIFICATION

PLANT/SERVICES

Clean and chlorination of Cold Water Storage Tanks with associated hot and cold water services.

Quality Assurance



Date

15/03/03

Signed

Date

25/03/03

REF: AXIMA|CORNHL77|90013214.CRT



The Air and Water Specialists

REGISTERED IN ENGLAND No. 2846944

Heatsave Limited
Unit 28, Mastmaker Road
London E14 9UB
Tel: 020 7537 1101/1225
Fax: 020 7536 1100

Dennis Smith Esq
Area Building Manager
Jones Laing LaSalle
55 Bishopsgate
London
EC2N 3AS

au/JC/1485
16th December 1999

Dear Dennis,

Re: Chlorination Certificate

Enclosed please find a copy of the recent chlorination certificate for 77 Cornhill for your records.

A further copy will be placed in the site log book.

Should you have any queries please do not hesitate to contact me.

Yours sincerely,

A. Uings
Contract Manager

Directors: R.C.C. Sandys, Chairman. B. Cochet, R.I. Derry, N.L. Gavin ACA, J.P. George, A.B. Strong,
Y. Thierry, R.M. Warner, T.A. Wright. Associate Directors: D. Archer, B. Hyde-Smith, K. Uings.

Incorporated in England. Head Office & Registered Office: 32-34 Wellington Street, London WC2E 7QZ
Tel: 020 7379 7255 Fax: 020 7240 1055. Company Registration No. 1382270

London Docklands: Tel: 020 7537 1101/1225 Fax: 020 7536 1100 Newbury: Tel: 01635 864333 Fax: 01635 873942
Derby: Tel: 01332 360738 Fax: 01332 342099 London: Tel: 01268 543102 Fax: 01268 542078
Birmingham: Tel: 0121 643 6448 Fax: 0121 643 7440



1738

HEATSAVE LIMITED

Chlorination Certificate

1738

Site address: 77 CORNHILL

Job No: 1485 *Date:* 20.11.99

Description of plant: C.W.S. & TANKS
..... D.H.W. SYSTEM

	<i>Time</i>	<i>Date</i>	<i>PPM</i>
<i>Start of Chlorination</i>	10.00	20.11.99	80
<i>Completion of Chlorination</i>	14.00	20.11.99	80

..... *a J* *Signature of Engineer*

..... *J* *Signature of Operations Manager*

HEATSAVE LIMITED

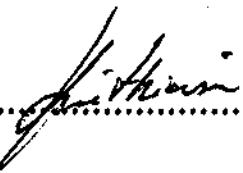
Chlorination Certificate

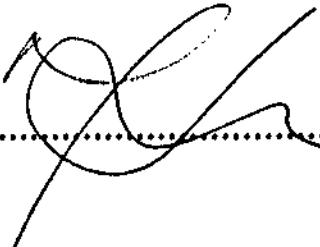
Site address: ..77..CORNHILL.....

Job No:1485..... *Date:*20.3.99.....

Description of plant:...COLD..WATER..TANK..NO..1..BASEMENT..LEVEL..2.....
.....

	Time	Date	PPM
<i>Start of Chlorination</i>08.0020.3.99.80.....
<i>Completion of Chlorination</i>17.3020.3.995.....

.....  *Signature of Engineer*

.....  *Signature of Operations Manager*

HEATSAVE LIMITED

Chlorination Certificate

Site address: ...77.. CORNHILL...LONDON..EC3.....

Job No:1485..... Date: ..14..NOVEMBER..1998.....

Description of plant:...HOT..WATER..SERVICES..AND..COLD..WATER..SERVICES

	Time	Date	PPM
Start of Chlorination	.08..00..AM	.14..11..98.	.89.....
Completion of Chlorination	.08..00..AM	.14..11..98.	.5.....

..... *J. H. Harris* Signature of Engineer

..... *J. H. Harris* Signature of Operations Manager

HEATSAVE LIMITED

Chlorination Certificate

Site address: 77 Cornhill

Job No: 1485 *Date:* 13.12.97.

CWS Tanks & System

Description of plant:
.....

	Time	Date	PPM
<i>Start of Chlorination</i>	11.00	13.12.97	75
<i>Completion of Chlorination</i>	15.00	13.12.97	7

..... *Signature of Engineer*

..... *Signature of Operations Manager*

D3

Laboratory Analysis (Water Quality) Test Sheets & Certificates

CLOSED QUARTERLY.
 WATER TIC - 6 MONTHLY.
 LP - ANNUAL.

REF: AXIMA/CORNHL77/90016257.LTR

? JAN 04 < JAN 03.
 ? DUE WEEK 11 (FEB 04).

PAGE 2

MICROBIOLOGICAL ANALYSIS REPORT

Customer: Elyo Services Ltd

Site: 77 Cornhill

Sample date: 23/06/2003

Sample point: Basement, Chilled Water

Sample No: PM3462

Total Counts at 37°C (Colony Forming Units per Millilitres)	38
Total Counts at 22°C (Colony Forming Units per Millilitres)	49
<i>Escherichia coli</i> (Colony Forming Units per 100ml)	<1
Total Coliforms (Colony Forming Units per 100ml)	<1
<i>Ps.aeruginosa</i> (Colony Forming Units per 100ml)	<10
<i>Pseudomonas</i> (Colony Forming Units per 100ml)	10
Ps.species	Putrefaciens
<i>Flavobacterium</i> (Colony Forming Units per 100ml)	<1
Microfungi (Colony Forming Units per 100ml)	2
<i>Bacillus</i> (Colony Forming Units per Millilitres)	<10
Nitrite oxidising bacteria	Negative
Denitrifying bacteria	Positive
Sulphate reducing bacteria	Negative

MICROBIOLOGICAL ANALYSIS REPORT

Customer: Elyo Services Ltd

Site: 77 Cornhill

Sample date: 23/06/2003

Sample point: Basement, Heating

Sample No: PM3463

Total Counts at 37°C (Colony Forming Units per Millilitres)	1
Total Counts at 22°C (Colony Forming Units per Millilitres)	7
<i>Escherichia coli</i> (Colony Forming Units per 100ml)	<1
Total Coliforms (Colony Forming Units per 100ml)	<1
<i>Ps.aeruginosa</i> (Colony Forming Units per 100ml)	<10
<i>Pseudomonas</i> (Colony Forming Units per 100ml)	<10
<i>Flavobacterium</i> (Colony Forming Units per 100ml)	<1
Microfungi (Colony Forming Units per 100ml)	<1
<i>Bacillus</i> (Colony Forming Units per Millilitres)	<10
Nitrite oxidising bacteria	Negative
Denitrifying bacteria	Negative
Sulphate reducing bacteria	Negative





Phase Technology



Certificate Number: Q1534

PHASE TECHNOLOGY LIMITED
UNIT 6 SHELF HOUSE
NEW FARM ROAD
ALRESFORD
HAMPSHIRE SO24 9OE

PAGE 2

TEL: 01962 736005

FAX: 01962 736115

E-Mail: info@phasetechnology.co.uk

Web Site: www.phasetechnology.co.uk

MICROBIOLOGICAL ANALYSIS REPORT

Customer: Axima Building Services
Site: Cornhill77
Sample date: 25th June 2002
Sample point: Basement Chilled

Sample No: PM2713

Total Counts at 22°C (Colony Forming Units per Millilitres)	1610
Total Counts at 37°C (Colony Forming Units per Millilitres)	176
Total Coliforms (Colony Forming Units per 100ml)	<1
Escherichia coli (Colony Forming Units per 100ml)	<1
Ps.aeruginosa (Colony Forming Units per 100ml)	<1
Pseudomonas (Colony Forming Units per 100ml)	74 acidovorans
Flavobacterium (Colony Forming Units per 100ml)	<1
Microfungi (Colony Forming Units per 100ml)	11
Bacillus (Colony Forming Units per Millilitres)	<10
Nitrite oxidising bacteria	Negative
Denitrifying bacteria	Positive
Sulphate reducing bacteria	Negative



The Air and Water Specialists

REGISTERED IN ENGLAND NO. 2846944



REF: AXIMA/COR

006950.



Certificate Number: Q1534

PHASE TECHNOLOGY LIMITED

UNIT 6 SHELF HOUSE

NEW FARM ROAD

Alresford

PAGE 3 HAMPSHIRE SO24 9OE

Tel: 01962 736009

FAX: 01962 736115

E-Mail: info@phasetechnology.co.uk

Web Site: www.phasetechnology.co.uk

Phase Technology

Sample point:

Basement Heating

Sample No:

PM2714

Total Counts at 22°C (Colony Forming Units per Millilitre)	1920
Total Counts at 37°C (Colony Forming Units per Millilitre)	3480
Total Coliforms (Colony Forming Units per 100ml)	<1
Escherichia coli (Colony Forming Units per 100ml)	<1
Ps.aeruginosa (Colony Forming Units per 100ml)	<1
Pseudomonas (Colony Forming Units per 100ml)	>1000 stutzeri
Flavobacterium (Colony Forming Units per 100ml)	<1
Microfungi (Colony Forming Units per 100ml)	6
Bacillus (Colony Forming Units per Millilitre)	<10
Nitrite oxidising bacteria	Negative
Denitrifying bacteria	Positive
Sulphate reducing bacteria	Negative

**The Air and Water Specialists**

REGISTERED IN ENGLAND NO. 2846944

MICROBIOLOGICAL ANALYSIS REPORT

Customer: Axima Building Services
Site: 77 Cornhill
Sample date: 21st January 2002
Sample point: Chilled water system
Sample No: PM2396

Total Counts at 22°C (Colony Forming Units per Millilitres)	1
Total Counts at 37°C (Colony Forming Units per Millilitres)	<1
Total Coliforms (Colony Forming Units per 100ml)	<1
<i>Escherichia coli</i> (Colony Forming Units per 100ml)	<1
<i>Ps.aeruginosa</i> (Colony Forming Units per 100ml)	<1
<i>Pseudomonas</i> (Colony Forming Units per 100ml)	<1
<i>Flavobacterium</i> (Colony Forming Units per 100ml)	<1
Microfungi (Colony Forming Units per 100ml)	<1
Bacillus (Colony Forming Units per Millilitres)	<10
Nitrite oxidising bacteria	Negative
Denitrifying bacteria	Negative
Sulphate reducing bacteria	Negative

Sample date: 21st January 2002
Sample point: Heating System

Sample No: PM2347

Total Counts at 22°C (Colony Forming Units per Millilitres)	536
Total Counts at 37°C (Colony Forming Units per Millilitres)	200
Total Coliforms (Colony Forming Units per 100ml)	<1
<i>Escherichia coli</i> (Colony Forming Units per 100ml)	<1
<i>Pseudomonas</i> (Colony Forming Units per 100ml)	<1
<i>Flavobacterium</i> (Colony Forming Units per 100ml)	<1
Microfungi (Colony Forming Units per 100ml)	<1
Bacillus (Colony Forming Units per Millilitres)	<10
Nitrite oxidising bacteria	Negative
Denitrifying bacteria	Negative
Sulphate reducing bacteria	Negative

Mark Mall
06/03/02.



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.



Certificate Number: Q1534

Phase Technology

REF: SULZER/CORNHL77/42574.QTE

Sulzer Infra Service Division
Westmead
Farnborough
Hampshire
GU14 7LP

PHASE TECHNOLOGY LIMITED
UNIT 6 SHELF HOUSE
NEW FARM ROAD
ALRESFORD
HAMPSHIRE SO24 9QE

Tel: 01962 736005

Fax: 01962 736115

E-Mail: 100566.3672 @ COMPUSERVE.COM

SULZ	TRA SERVICE
CCN	JWKG
23 MAR 2001	
FER	VED

20 March, 2001

For the attention of Mr. N. Tanti

Dear Sirs

Re: 75-77 Cornhill

Following our recent visit to the above site, please find enclosed the report of the results now received and our analytical report ref. 13400R.

As can be seen, the results for both the primary LPHW system show negligible bacterial activity in the samples tested. However, the results from the chilled water system show the presence of denitrifying bacteria. These can effect the nitrite inhibitor reserves and reduce its effectiveness which may cause corrosion.

We recommend, therefore, that this system is dosed with Phasechem 586 biocide which is proven to be effective against these bacteria. We also recommend that the heating system should be dosed as a precaution.

The heating system should also be topped-up with Phasechem 510 to a minimum level of 1000ppm. After two weeks the chilled water system should be re-sampled to ensure the biocide has been effective.

Please do not hesitate to contact the undersigned at any time should there be any queries or if further information is required.

Yours sincerely

Lee Hall



The Air and Water Specialists

REGISTERED IN ENGLAND NO. 2846944

Tractebel Elyo

**Westmead
Farnborough
Hampshire
GU14 7LP
Tel: 01252 525 599
Fax: 01252 701 150
Direct Dial: 01252
Email: @axima.eu.com**

Peter Mountifield
Jones Lang Lasalle
77 Cornhill
London
EC3

30th April 2003

Dear Peter

Re: Legionella analyses

Following the recent Legionella analyses undertaken, please find enclosed the relevant certification.

The levels recorded are within recognised limits

Should you require any further information please do not hesitate to contact the undersigned.

Yours sincerely



Charlene Fleckney



Phase Technology



Certificate Number: Q1534

PHASE TECHNOLOGY LIMITED
UNIT 6 SHELF HOUSE
NEW FARM ROAD
ALRESFORD
HAMPSHIRE SO24 9OE

TEL: 01962 736005

FAX: 01962 736115

E-Mail: info@phasetechnology.co.uk

Web Site: www.phasetechnology.co.uk

LEGIONELLA ANALYSIS CERTIFICATE

CLIENT

Elyc Services Ltd
Manor House
London Road
Blackwater
Cambridge
Surrey
GU17 0AA

SITE

77 Cornhill
London
EC3

SAMPLE DATE
16/12/2003

Samples analysed according to methods described in DD 202/1992
Methods for the detection and enumeration of Legionella Organisms in
water and related materials

PL	LOCATION	SAMPLE	LEGIONELLA-RESULT CFU/L	
20077	Basement	Calorifier No 1	Stored Water	NOT DETECTED
20078	Basement	Calorifier No 2	Stored Water	NOT DETECTED

Quality Assurance

Date

Signed

Date

REF: ELYOFARNICORNHL77/90020793.LPS



The Air and Water Specialists

REGISTERED IN ENGLAND NO. 2846944



Phase Technology



Certificate Number: O1534

PHASE TECHNOLOGY LIMITED
 UNIT 6 SHELF HOUSE
 NEW FARM ROAD
 AIRESFORD
 HAMPSHIRE SO24 9QE

Tel: 01962 736005

FAX: 01962 736115

E-Mail: info@phasetechnology.co.uk

Web Site: www.phasetechnology.co.uk

LEGIONELLA ANALYSIS CERTIFICATE

CLIENT

Elyo Services Ltd
 Westmead
 Farnborough
 Hampshire
 GU14 7EP

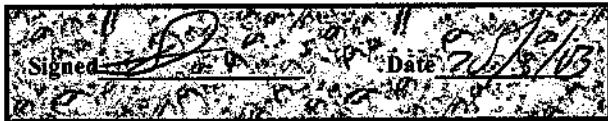
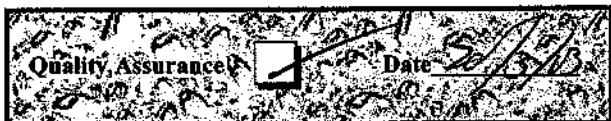
SITE

77 Cornhill
 London
 EC3

SAMPLE DATE
 01/03/2003

*Samples analysed according to methods described in DD 213/1992
 Methods for the detection and enumeration of Legionella Organisms in
 water and related materials.*

PL	LOCATION	SAMPLE	LEGIONELLA RESULT c/wL	
17175	Roof Plant Room	Calorifier No 1	Stored Water	NOT DETECTED
17176	Roof Plant Room	Calorifier No 2	Stored Water	NOT DETECTED
17177	7th Floor	Ladies	HWS	NOT DETECTED



REF: AXIMA/CORNHL77/90013204.LPS



The Air and Water Specialists

REGISTERED IN ENGLAND NO. 2846944



Phase Technology



Certificate Number: Q1534

PHASE TECHNOLOGY LIMITED
UNIT 6 SHELF HOUSE
NEW FARM ROAD
ALRESFORD
HAMPSHIRE SO24 9OE

Tel: 01962 736005
Fax: 01962 736115
E-Mail: 100566.3672 @ COMPUSERVE.COM

REF: SULZERICORNHL7741525.LTR

Sulzer Infra Service Division
Westmead
Farnborough
Hampshire
GU14 7LP

SULZER INFRA SERVICE	
	WKG
30 JAN 2001	
RECEIVED	

26 January, 2001

For the attention of Mr. A. Donnell

Dear Sirs

Re: 77 Cornhill

Following the recent Legionella analyses undertaken by Phase Technology Limited please find enclosed the relevant certification. No immediate action is required but regular sampling should continue to ensure acceptable conditions are maintained.

Please do not hesitate to contact the undersigned at any time should there be any queries or if further information is required.

Yours sincerely

Dean Thomas FIBMS

ENC: REF: SULZERICORNHL7741524



The Air and Water Specialists

REGISTERED IN ENGLAND NO. 2846944



Phase Technology



Certificate Number: Q1534

PHASE TECHNOLOGY LIMITED
 Unit 6 Shelf House
 New Farm Road
 Alresford
 Hampshire SO24 9OE

Tel: 01962 736005

Fax: 01962 736115

E-Mail: info@phasetechnology.co.uk

Web Site: www.phasetechnology.co.uk

LEGIONELLA ANALYSIS CERTIFICATE

CLIENT

Axima Building Services Ltd.
Westmead
Fareborough
Hampshire
GU14 7LP

SITE

77 Cornhill
London
EC3

SAMPLE DATE
20/10/2002

Samples analysed according to methods described in DD 211/1992 Methods for the detection and enumeration of Legionella Organisms in water and related materials.
--

PL	LOCATION	SAMPLE	LEGIONELLA RESULT
16144	Basement	Calorifier 1	HWS
16145	Basement	Calorifier 2	HWS

Quality Assurance	<input checked="" type="checkbox"/>	Date 5/11/02
-------------------	-------------------------------------	--------------

Signed	Date 5/11/02
--------	--------------

REF: AXIMA/CORNHL/77190009734.LPS



The Air and Water Specialists

REGISTERED IN ENGLAND NO. 2846944



Phase Technology



Certificate Number: Q1534

PHASE TECHNOLOGY LIMITED
UNIT 6 SHELF HOUSE
NEW FARM ROAD
ALRESFORD
HAMPSHIRE SO24 9OE

TEL: 01962 736005

FAX: 01962 736115

E.MAIL: 100566.3672 @ COMPUSERVE.COM

LEGIONELLA ANALYSIS CERTIFICATE

CLIENT

Sulzer Infra-Service Division
Westmead
Farnborough
Hampshire
GU14 7LP

SITE

77 Cornhill
London
EC3

SAMPLE DATE
11/01/2001

*Samples analysed according to methods described in DD 211:1992,
Methods for the detection and enumeration of Legionella Organisms in
water and related materials.*

PL	LOCATION	SAMPLE	LEGIONELLA RESULT CFU/L
11036	7th Floor Gents	HWS	NOT DETECTED
11037	Basement CWST No.2	HWS	NOT DETECTED

Quality Assurance	<input checked="" type="checkbox"/>	Date 26/1/01
-------------------	-------------------------------------	--------------

Signed		Date 26/1/01
--------	--	--------------

REF: SULZERCORNHL77/41524.LPS



The Air and Water Specialists

REGISTERED IN ENGLAND NO. 2846944

LEGIONELLA ANALYSIS CERTIFICATE

CLIENT

Axima Building Services Ltd
Westmead
Farnborough
Hampshire
GU14 7LP

SITE

77 Cornhill
London
EC3

SAMPLE DATE
19/11/2001

*Samples analysed according to methods described in DD 241 1992
Methods for the detection and enumeration of Legionella Organisms in
water and related materials*

PL	LOCATION	SAMPLE	LEGIONELLA RESULT cfu/L
12959	Basement	Calorifier No.1	Stored Water
12960	Basement	Calorifier No.2	Stored Water
12961	6th Floor	Gents	HWS

Quality Assurance Date _____

Signed _____ Date _____

REF: AXIMA\CORNL77190002197.LPS



● **Phase Technology**



PHASE TECHNOLOGY LIMITED
UNIT 6 SHELF HOUSE
NEW FARM ROAD
ALRESFORD
HAMPSHIRE SO24 9QE

Tel: 01962 736005

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REF: SULZER\CORNL77\39943.LTR

Sulzer Infra Service Division
Westmead
Farnborough
Hampshire
GU14 7LP

SULZER INFRA SERVICE	
CON	KG
13 NOV 2000	
RECEIVED	

8 November, 2000

For the attention of Mr. A. Donnell

Dear Sirs

Re: 77 Cornhill

Following the recent Legionella analyses undertaken by Phase Technology Limited please find enclosed the relevant certification. No immediate action is required but regular sampling should continue to ensure acceptable conditions are maintained.

Please do not hesitate to contact the undersigned at any time should there be any queries or if further information is required.

Yours sincerely

Dean Thomas FIBMS

ENC: REF: SULZER\CORNL77\39942.LPS



The Air and Water Specialists

REGISTERED IN ENGLAND NO. 2846944



Certificate Number: Q1534

TEL: 01962 736005
 FAX: 01962 736115
 E MAIL: 100966.3672 @ COMPUSERVE.COM

LEGIONELLA ANALYSIS CERTIFICATE

CLIENT

Sulzer Infra Service Division
 Westmead
 Farnborough
 Hampshire
 GU14 7LP

SITE

77 Cornhill
 London
 EC3

SAMPLE DATE
 20/10/2000

Samples analysed according to methods described in DD 211:1992,
*Methods for the detection and enumeration of Legionella Organisms in
 water and related materials.*

PL	LOCATION	SAMPLE	LEGIONELLA RESULT cfu/L	
10432	Basement	Calorifier No.1	HWS	NOT DETECTED
10433	Basement	Calorifier No.2	HWS	NOT DETECTED
10434	7th Floor	Gents	HWS	NOT DETECTED

Quality Assurance	<input type="checkbox"/>	Date	20/10/00
-------------------	--------------------------	------	----------

Signed		Date	20/10/00
--------	--	------	----------

REF: SULZER\CORNLH77\39942.LPS



MICROBIOLOGICAL ANALYSIS REPORT

Customer Sulzer Infra Service
Site: 75-77 Cornhill
Sample date: 18/09/2000
Sample point: Heating Water

Sample No: PM1845

Total Counts at 22°C (Colony Forming Units per Millilitres)	<1
Total Counts at 37°C (Colony Forming Units per Millilitres)	<1
Total Coliforms (Colony Forming Units per 100ml)	<1
<i>Escherichia coli</i> (Colony Forming Units per 100ml)	<1
Pseudomonas (Colony Forming Units per 100ml)	<1
Flavobacterium (Colony Forming Units per 100ml)	<1
Microfungi (Colony Forming Units per 100ml)	1
Bacillus (Colony Forming Units per Millilitres)	<10
Nitrite oxidising bacteria	Negative
Denitrifying bacteria	Negative
Sulphate reducing bacteria	Negative



MICROBIOLOGICAL ANALYSIS REPORT

Customer Sulzer Infra Service
Site: 75-77 Cornhill
Sample date: 18/09/2000
Sample point: Chilled Water System

Sample No: PM1846

Total Counts at 22°C (Colony Forming Units per Millilitres)	15
Total Counts at 37°C (Colony Forming Units per Millilitres)	<1
Total Coliforms (Colony Forming Units per 100ml)	<1
<i>Escherichia coli</i> (Colony Forming Units per 100ml)	<1
Pseudomonas (Colony Forming Units per 100ml)	<1
Flavobacterium (Colony Forming Units per 100ml)	<1
Microfungi (Colony Forming Units per 100ml)	18
Bacillus (Colony Forming Units per Millilitres)	<10
Nitrite oxidising bacteria	Negative
Denitrifying bacteria	Positive
Sulphate reducing bacteria	Negative



RECYCLED PAPER



NAMAS
TESTING
No. 1206

Page 1 of 1



Medical & Environmental
Microbiological Services

BACTERIOLOGY TEST REPORT

(PERFORMED TO METHODS DOCUMENTED IN
"THE MICROBIOLOGY OF WATER 1994 PART I- DRINKING WATER" [REPORT 71])

7-9 William Road, London NW1 3ER

Telephone 020 7388 7320

Fax 020 7388 7324

e-mail info@grmicro.co.uk

web www.grmicro.co.uk

TEST REPORT NUMBER 54301-03

CLIENT: Heatsave Ltd
Unit 28
Mastmaker Road
London
E14 9UB

SITE: 77 Cornhill

REPRESENTATIVE: P. Jones ORDER NUMBER: Not Stated

DATE SAMPLED: 17.03.00 DATE RECEIVED: 17.03.00 DATE TESTED: 17.03.00

A UKAS Accredited Testing
Laboratory No 1206

RESULTS

Laboratory Reference	Sample Point	Total Viable Counts (colony forming units per millilitre)		Total Coliforms and <i>Escherichia coli</i> (colony forming units per 100 millilitres)	
		22°C	37°C	Total Coliforms	<i>E. coli</i>
54301	Basement, Calorifier	630*	400*	ND	ND
54302	Basement, CWST	6	10	ND	ND
54303	Ground Floor, Gents HWS	2	6	ND	ND

Note: ND = Not Detected

EEC Directive 80/778/EEC relating to the quality of potable water:- Guide levels
10 cfu per ml at 37°C.

100 cfu per ml at 22°C.

Total Coliforms and *E. coli* Not Detected in 100mls.

Total Viable Count limit of detection 1 cfu/ml
Total Coliforms and *E. coli* limit of detection 1 cfu/100ml
[cfu = colony forming unit]

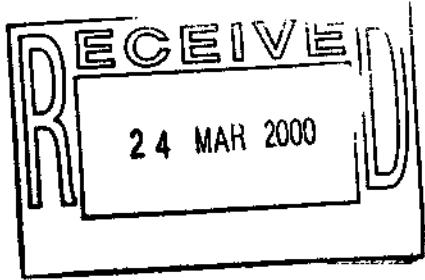
Comments:

* The total viable count exceeds the EEC Directive 80/778/EEC guide levels relating to the quality of water intended for human consumption.

SIGNED:

DATE: 23.03.00

Mark Hichens
Environmental Services Manager



HEATSAVE

Heatsave Limited
Unit 28, Mastmaker Road
London E14 9UB
Tel: 020 7537 1101/1225
Fax: 020 7536 1100

Dennis Smith Esq
Area Building Manager
Jones Laing LaSalle
55 Bishopsgate
London
EC2N 3AS

AU/jc/1485
13 March 2000

Dear Dennis,

Re: Water Analysis Reports - Legionella - 77 Cornhill London

I write enclosing the results of recent legionella water samples taken from the above premises. You will note that legionella was not detected. Therefore no further action is required.

I hope this meets with you approval, should you have any queries please do not hesitate to contact me.

Yours sincerely,



Andy Uings
Area Supervisor

Directors: R.C.C. Sandys, Chairman, B. Cochet, R.I. Derry, N.L. Gavin ACA, J.P. George, A.B. Strong,
Y. Thierry, R.M. Warner, T.A. Wright. Associate Directors: D. Archer, B. Hyde-Smith, K. Uings.

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London Docklands: Tel: 020 7537 1101/1225 Fax: 020 7536 1100 Newbury: Tel: 01635 864333 Fax: 01635 873942
Derby: Tel: 01332 360738 Fax: 01332 342099 Laindon: Tel: 01268 543102 Fax: 01268 542078
Birmingham: Tel: 0121 643 6448 Fax: 0121 643 7440



Cert. No. FS 21616 BS EN ISO 9002



TESTING
No. 1206

1485

Page 1 of 1



Medical & Environmental
Microbiological Services

7-9 William Road, London NW1 3ER
Telephone 020 7388 7320
Fax 020 7388 7324
e-mail info@grmicro.co.uk
web www.grmicro.co.uk

A UKAS Accredited Testing
Laboratory No 1206

TEST REPORT NUMBER

52974-77

MS✓
AU✓

CLIENT:

Heatsave Ltd
Unit 28
Mastmaker Road
London
E14 9UB

SITE: 77 Cornhill

REPRESENTATIVE:

Pat Jones

ORDER NUMBER: 11540/9100WT

DATE SAMPLED: 22.02.00

DATE OF RECEIPT: 22.02.00

DATE TESTED: 22.02.00

RESULTS

Laboratory Reference	Sample Point	Culture Result	Serogroup	Number isolated (colony forming units per litre)
52974	Basement, CWST	<i>Legionella</i> not isolated		
52975	Calorifier	<i>Legionella</i> not isolated		
52976	Gents, CWS	<i>Legionella</i> not isolated		
52977	Gents, HWS	<i>Legionella</i> not isolated		

SIGNED:

DATE: 03.03.00

Simon Webster
Senior Scientific Officer



NAMAS
TESTING
No. 1206

MSV
AU

1485.

Page 1 of 1



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Microbiological Services

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e-mail info@grmicro.co.uk
web www.grmicro.co.uk

A UKAS Accredited Testing
Laboratory No 1206

LEGIONELLA TEST REPORT

(PERFORMED TO DOCUMENTED IN-HOUSE PROCEDURE ENV015)

TEST REPORT NUMBER 51976-79

CLIENT: Heatsave Ltd
Unit 28
Mastmaker Road
London
E14 9UB

SITE: 77 Cornhill

REPRESENTATIVE: M. Smith ORDER NUMBER: Not Stated

DATE SAMPLED: 03.02.00 DATE OF RECEIPT: 04.02.00 DATE TESTED: 04.02.00

RESULTS

Laboratory Reference	Sample Point	Culture Result	Serogroup	Number isolated (colony forming units per litre)
51976	Basement, Calorifier	<i>Legionella</i> not isolated		
51977	Basement, CWST	<i>Legionella</i> not isolated		
51978	Gents, CWS	<i>Legionella</i> not isolated		
51979	Gents, HWS	<i>Legionella</i> not isolated		

SIGNED:

DATE: 14.02.00

Mark Hichens
Environmental Services Manager



TESTING
No. 1206

Page 1 of 1



Medical & Environmental
Microbiological Services

7-9 William Road, London NW1 3ER
Telephone 020 7388 7320
Fax 020 7388 7324
e-mail info@grmicro.co.uk
web www.grmicro.co.uk

LEGIONELLA TEST REPORT
(PERFORMED TO DOCUMENTED IN-HOUSE PROCEDURE ENV015)

TEST REPORT NUMBER 46426-29

CLIENT:
Heatsave Ltd
Unit 28
Mastmaker Road
London
E14 9UB

SITE: 77 Corn Hill London, EC3 3QQ

REPRESENTATIVE: M. Smith **ORDER NUMBER:** 109307/1485

DATE SAMPLED: 28.10.99 **DATE OF RECEIPT:** 28.10.99 **DATE TESTED:** 28.10.99

RESULTS

Laboratory Reference	Sample Point	Culture Result	Serogroup	Number isolated (colony forming units per litre)
46426	1 st Floor, Shower No.14	Legionella not isolated		
46427	3 rd Floor, Shower No.24	Legionella not isolated		
46428	5 th Floor, Shower No.34	Legionella not isolated		
46429	7 th Floor, Shower No.42	Legionella not isolated		

SIGNED:

Mark Hichens
Environmental Services Manager

DATE: 08.11.99

RECEIVED
11/11/99
MS 11/11
AU 12/11 copy sent
1485



CPA LABORATORIES

A member of the Eurofins Scientific Group
318 Worple Road, LONDON SW20 8QU
Tel: 0181 946 8621 Fax: 0181 947 1206

RECEIVED

1116189

08/06/99

Heatsave Limited
Unit 28
Mastmaker Road
London
E14 9UB

Mr.
ku.

For the attention of: Mr M Smith

CERTIFICATE OF ANALYSIS

Date Received: 20/05/99

Site: 77 Cornhill Job No 1485

Date Analysed: 20/05/99

Certificate No: C199905M0401

Sample Nos	Client Ref	Total Viable Count 24 hrs @ 37°C cfu/ml	Total Viable Count 72hrs @ 22°C cfu/ml	Presumptive Coliforms cfu/100ml	*Legionella /Litre	E coli cfu/100ml
905M21501	Cold Water Tap Gents 6th Floor WQ	02 Estimated	2,900	<1	N/A	<1
905M21502	Basement near End WQ Tan	18	3,200	<1	N/A	<1
905M21503	1st Floor Shower	N/A	N/A	N/A	ND	N/A
905M21504	Basement Calorifier No 1	N/A	N/A	N/A	ND	N/A

ND = None Detected

Methods: In House Documented (Microbiology Methods Manual Section 2)

Signed: T Baker

T Baker

P M Champion

on behalf of CPA Laboratories

Page 1 of 1

*Methods marked with an asterisk are not within the scope of UKAS Accreditation
COMMENT: Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation

EUROFINS SCIENTIFIC LTD trading as CPA LABORATORIES

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C P A

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6040

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FAX: 0181-947 1206



CPA LABORATORIES ■ CONSULTING SCIENTISTS & ANALYSTS ■ 318 WORPLE ROAD LONDON SW20 8QU

25 September 1998

Heatsave Ltd
Unit 28 Mastmaker Road
London E14 9UB

FOR THE ATTENTION OF MR M SMITH

RECEIVED

28/9/98		
TO	INITIALS	DATE
MS	TS	28/9/98
CC	CC	28/9/98
FILE: 1485		

CERTIFICATE OF ANALYSIS

REPORT NUMBER: 8.9U.0493/CB

ORDER NUMBER: 1485

DATE RECEIVED/ANALYSED: 16 September 1998

SITE: 77 Cornhill

ANALYST: J Tully

Sample Number	Sample Specification	Total Viable Count 24hrs @ 37°C (cfu per ml)	Total Viable Count 72hrs @ 22°C (cfu per ml)	Total Coliforms (/100ml)	E.coli (/100ml)	Legionella pneumophila (cfu/l)
89M1703	Far end tank basement	4E	4E	<1	<1	NA
89M1704	7 th floor gents wc cold water tap	<1	<1	<1	<1	NA
89M1705	Basement No 1 Calorifier	NA	NA	NA	NA	ND
89M1706	7 th floor shower	NA	NA	NA	NA	ND

ND = None Detected NA = Not Analysed E = Estimated

METHOD USED: In-House Method Nos 2.01, 2.02/03 and 2.08

COMMENT: (Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation)

SIGNED.....
Akhushal
A KHUSAL
On Behalf of CPA Laboratories

Page 1 of 1

A subsidiary of Eurofins Laboratories Ltd

DIRECTORS: G G MARTIN PhD Chairman M LEES PhD R SWINBURNE MBA

C J REEVES S J HOLLINGTON BA (Hons) P M CHAMPION MSc A J MILLS BSc (Hons)

ASSOCIATE: J P DAVIES PhD GRSC MSFHT CONSULTANTS: D P FELIX BSc LRSC CBiol MIBiol MIFST KRISTIE MARLEY ARD MSc

CPA LABORATORIES LIMITED REGD OFFICE: 318 WORPLE ROAD LONDON SW20 8QU

REGD IN ENGLAND NO: 1403618 VAT NO: 317 8960 27

C P A

TEL: 0181-946 8621
FAX: 0181-947 1206



CPA LABORATORIES □ CONSULTING SCIENTISTS & ANALYSTS □ 318 WORPLE ROAD LONDON SW20 8QU

16 March 1998

Heatsave Ltd
Unit 28 Mastmaker Road
London E14 9UB

FOR THE ATTENTION OF MR M SMITH

CERTIFICATE OF MICROBIOLOGICAL ANALYSIS

REPORT NUMBER: 8.3.0594/TLK

SITE NUMBER: 1485

DATE RECEIVED/ANALYSED: 3 March 1998

SITE: 77 Cornhill

ANALYST: M Vines-Forman

Sample Number	Sample Specification	Total Viable Count 24hrs @ 37°C (cfu per ml)	Total Viable Count 72hrs @ 22°C (cfu per ml)	Total Coliforms (/100ml)	E.coli (/100ml)	Legionella pneumophila (cfu/l)
83M133	3rd Floor Shower	NA	NA	NA	NA	ND
83M134	HWS Calorifier No 1 Basement	NA	NA	NA	NA	ND
83M135	Basement Incoming Mains	10	6	<1	<1	NA
83M136	Basement Tank Far End	6	3	<1	<1	NA

ND = None Detected NA = Not Analysed

METHOD USED: In-House Method Nos 2.01, 2.02/03 and 2.08

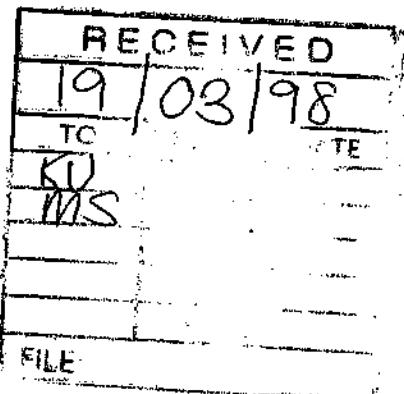
* = Methods marked with an asterisk are not within the scope of UKAS Accreditation.

COMMENT: (TO PHLS REPORT NO 71/EC 80.778/EEC and BS1 DD211 1992)

(Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation)

SIGNED.....
V KING
On Behalf of CPA Laboratories

Page 1 of 1



DIRECTORS: C J REEVES Chairman A S KENNEDY REEVES BSc MA S J HOLLINGTON BA (Hons)
P M CHAMPION MSc A I MILLS BSc (Hons)

ASSOCIATE: J P DAVIES PhD GRSC MSFHT CONSULTANT: D P FELIX BSc LRSC CBiol MIBiol MIFST

CPA LABORATORIES LIMITED REGD OFFICE: 318 WORPLE ROAD LONDON SW20 8QU

REGD IN ENGLAND NO: 1403648 VAT NO: 317 8960 27



TEL: 0181-946 8621
FAX: 0181-947 1206



CPA LABORATORIES ■ CONSULTING SCIENTISTS & ANALYSTS ■ 318 WORPLE ROAD LONDON SW20 8QU

6 October 1997

Heatsave Ltd
Unit 28 Mastmaker Road
London E14 9UB

FOR THE ATTENTION OF MR M SMITH

CERTIFICATE OF MICROBIOLOGICAL ANALYSIS

REPORT NUMBER: 7.10.0125C/MAW

SITE NUMBER: 1485

DATE RECEIVED/ANALYSED: 18 September 1997

SITE: 77 Cornhill

ANALYST: S Gould

Sample Number	Sample Specification	Total Viable Count 24hrs @ 37°C (cfu per ml)	Total Viable Count 72hrs @ 22°C (cfu per ml)	Total Coliforms (/100ml)	E.coli (/100ml)	Legionella pneumophila (cfu/l)
79M1598	1 st Floor Shower	NA	NA	NA	NA	ND
79M1599	HWS Calorifier No 1 Basement	NA	NA	NA	NA	ND
79M1767	3 rd Floor Kitchen CWS Tap	2.9×10^2	1.2×10^3	<1	<1	NA
79M1768	Basement CWS Tank	80	1.0×10^2	<1	<1	NA

ND = None Detected NA = Not Analysed

METHOD USED: In-House Method Nos 2.01, 2.02/03 and 2.08

* = Methods marked with an asterisk are not within the scope of UKAS Accreditation.

COMMENT: (TO PHLS REPORT NO 71/EC 80.778/EEC and BS1 DD211 1992)

(Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation)

SIGNED.....

V KING
On Behalf of CPA Laboratories

Page 1 of 1

DIRECTORS: C J REEVES Chairman A S KENNEDY REEVES BSc MA S J HOLLINGTON BA (Hons)
P M CHAMPION MSc A I MILLS BSc (Hons)

ASSOCIATE: J P DAVIES PhD GRSC MSFHT CONSULTANT: D P FELIX BSc LRSC CBiol MIBiol MIFST
CPA LABORATORIES LIMITED REGD OFFICE: 318 WORPLE ROAD LONDON SW20 8QU
REGD IN ENGLAND NO: 1403648 VAT NO: 317 8960 27



TEL: 0181-946 8621
FAX: 0181-947 1206



CPA LABORATORIES ■ CONSULTING SCIENTISTS & ANALYSTS ■ 318 WORPLE ROAD LONDON SW20 8QU
14 April 1997

Heatsave Ltd
Unit 28 Mastmaker Road
London E14 9UB

FOR THE ATTENTION OF MR M SMITH

CERTIFICATE OF MICROBIOLOGICAL ANALYSIS

REPORT NUMBER: 7.4.0349/RF

ORDER NO: 169397/1485

DATE RECEIVED/ANALYSED: 25 March 1997 **SITE:** 77 Cornhill EC3

ANALYST: S Jalalpour

Sample Number	Sample Specification	Total Viable Count 24hrs @ 37°C (cfu per ml)	Total Viable Count 72hrs @ 22°C (cfu per ml)	Coliforms (per 100ml)	E.coli (per 100ml)	Legionella pneumophila (cfu per litre)
73M2315	Basement No 1 Drinking Fountain	12	12	<1	<1	NA
73M2316	Cold Water Tank	6	17	<1	<1	NA
73M2317	HWS Calorifier No 1	NA	NA	NA	NA	ND
73M2318	7th Floor Shower	NA	NA	NA	NA	ND

ND = None Detected

NA = Not Analysed

METHOD USED: In-House Method Nos 2.01, 2.02/03 and 2.08

* = Methods marked with an asterisk are not within the scope of NAMAS Accreditation.

COMMENT: (TO PHLS REPORT NO 71/EC 80.778/EEC and BS1 DD211 1992)
(Opinions and interpretations expressed herein are outside the scope of NAMAS Accreditation)

SIGNEDV.King.....
V KING
On Behalf of CPA Laboratories

RECEIPT	16-4-97
TO	Mr S
1485	

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 μS per 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 μS per cm^2 at 20 ° C.

The more commonly used is conductivity. The levels of conductivity must not exceed 3000 μS per 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 μS , and this is indicated below:-

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

conversion factor from μS 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.

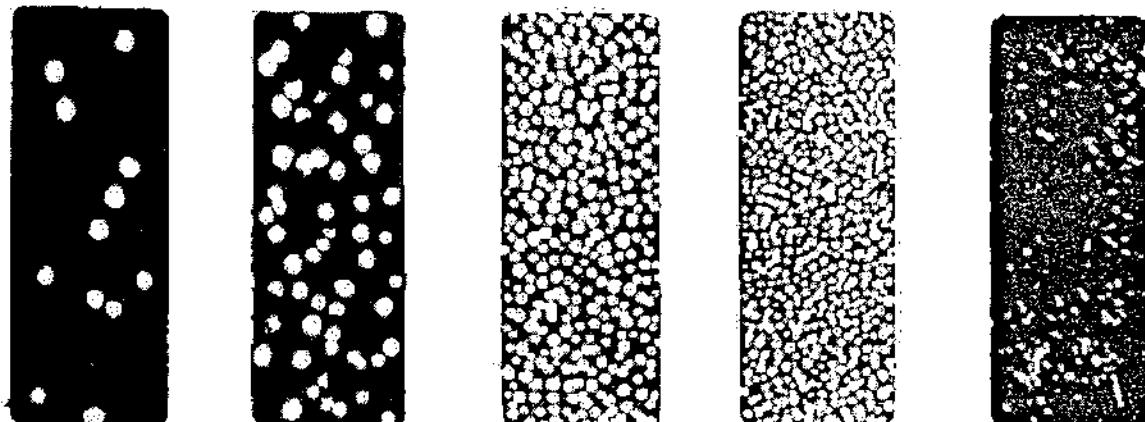
As can be seen from the table below, there are different types of dip slide which can incubate different types of bacteria and yeast/moulds. The Table is for guidance only and this will vary from manufacturer to manufacturer. The most common dip slide in use is reference Code BTM2 as highlighted in the 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 10^5 10^6 10^7 

Surfaces
CFU/cm²

2.5
*Very
Slight
Growth*

12
*Slight
Growth*

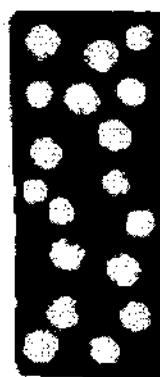
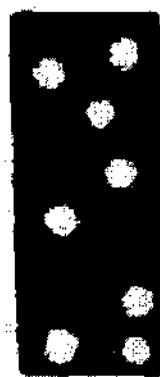
40
*Moderate
Growth*

100
*Heavy
Growth*

250
*Very
Heavy
Growth*

Comparison Chart Moulds

Fluids
CFU/ml

 10^2 10^3 10^4 

Surfaces
CFU/cm²

0.4
*Slight
Growth*

1.6
*Moderate
Growth*

4
*Heavy
Growth*

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 10^7 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.**

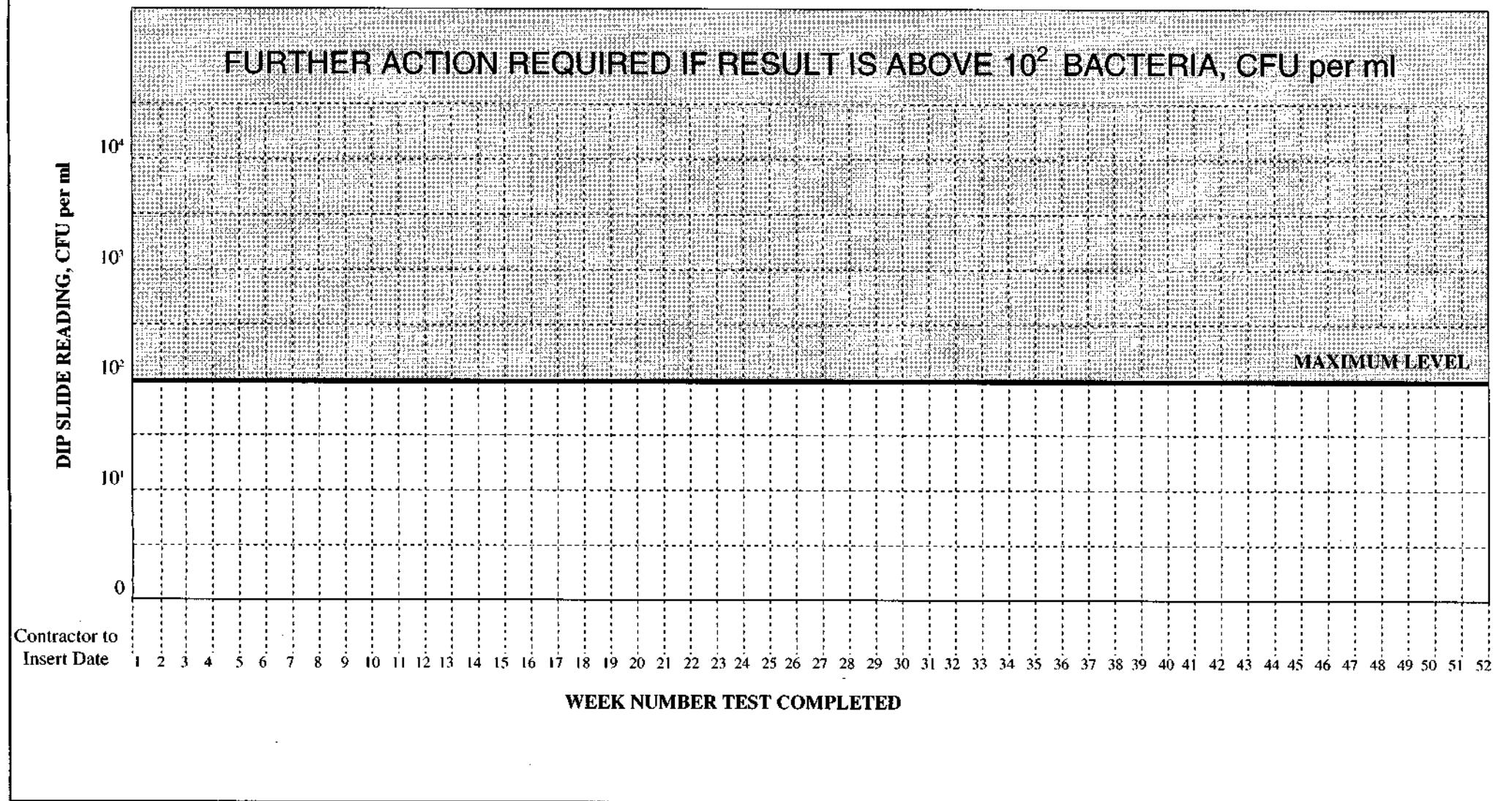
**Records of the following log sheets, graphs, reports, test certificates
etc. must be retained for at least 5 years.**

Monitoring Graphs

Graph No.	Description	
COOLING TOWER EQUIPMENT		
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)
POTABLE AND INCOMING SUPPLY CONSUMPTION		
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

WEEKLY TEST RESULTS (Year) 2012



JONES LANG
LA SALLE

PROPERTY NAME: 77 CORNHILL

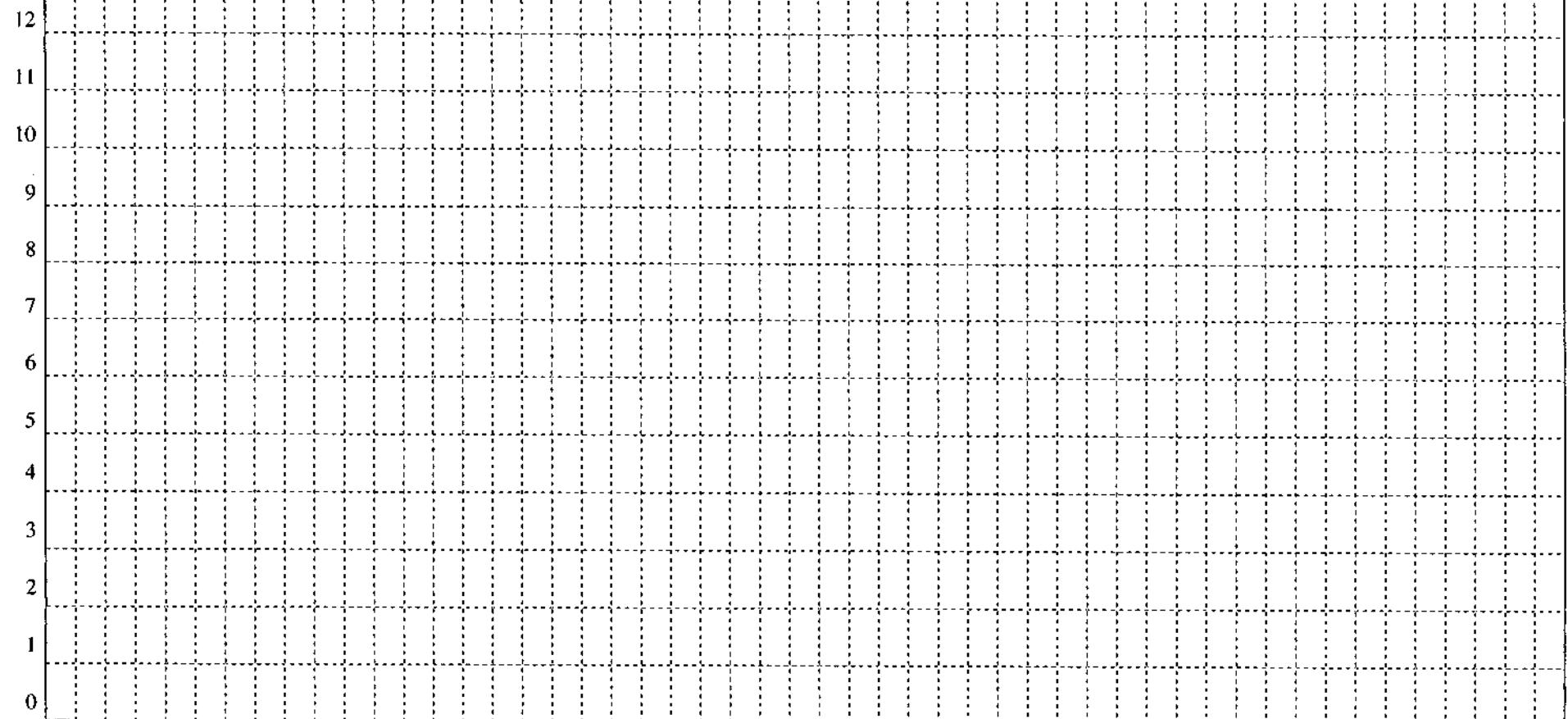
GRAPH 16

WATER CONSUMPTION AT INCOMING SUPPLY NO:

WEEKLY READINGS (Year) 2002

NOTE: MAINTENANCE CONTRACTOR TO SPECIFY SCALE m³

WATER CONSUMPTION m³



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: 77 CORNHILL.....

1 SUMMARY OF MONITORING

2 CALORIFIER INSPECTION AND HOT WATER TEMPS.

3 TVC AND LEGIONELLA CHECKS

4 HOT/COLD WATER OUTLET TEMPERATURES

5 COLD WATER STORAGE TANK INSPECTIONS

6 SHOWER HEAD INSPECTION/DISINFECTION

7 WATER SERVICES SYSTEM/CHLORINATIONS

8 SPECIALISTS REPORTS SERVICE SHEETS

9 GENERAL WATER HYGIENE CORRESPONDENCE

10 ACTION SUMMARY SCHEDULE

Concord
Classic Colour
A4 1-10
00401/CS4



5 014108 004018>
Made in London

Monitoring Log Sheets

Log Sheet No.	Description
1	SUMMARY OF MONITORING
	COOLING TOWER EQUIPMENT
2	Cooling Tower Log Sheet
3	Bacteriological Sampling of Cooling Tower
	HEATING SERVICES
4	Central System Calorifier Hot Water Temperature
5	Local Hot Water Storage Tank (including F&E Tanks) & Calorifier Inspections
	DOMESTIC WATER SERVICES
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
	OTHER WATER SERVICES
12	Water Fountains/Features
13	Sprinkler and Hose Reel Systems
14	Spray Humidifiers
15	Whirlpool
16	Swimming Pool

TAP SCHEDULE

WATER TEMPERATURE CHECKS

MONTH 1 BASEMENT AND 3RD FLOOR
 LADIES AND GENTS TOILET HOT AND COLD TAP

MONTH 2 GROUND AND 4TH FLOOR
 LADIES AND GENTS TOILET HOT AND COLD TAPS

MONTH 3 1ST AND 5TH FLOOR
 LADIES AND GENTS TOILET HOT AND COLD TAPS

MONTH 4 2ND AND 6TH FLOOR
 LADIES AND GENTS TOILET HOT AND COLD TAPS

MONTH 5 3RD AND 7TH FLOOR
 LADIES AND GENTS TOILET AND HOT AND COLD TAPS

- REVERT BACK TO MONTH 1

SUMMARY OF MONITORING

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

YEAR 2002/2003

Log Sheet No.		JAN 2003	FEB 2003	MAR 2003	APR 2003	JUN 2003	JUL 2003	AUG 2003	SEP 2002	OCT 2002	NOV 2002	DEC 2002	
1	Summary of Monitoring	✓			AAmm	AAmm	AAadd	AAadd	AAadd	29.02	4/10/02	11/11/02	11/12/02
2	Cooling Tower Log Sheet				-	-	-	-	-	-	-	-	
3	Bacteriological Sampling of Cooling Tower				-	-	-	-	-	-	-	-	
4	Central System Calorifier Hot Water Temps	✓			AAmm	AAmm	AAadd	AAadd	AAadd	29.02	4/10/02	11/11/02	11/12/02
5	TVC and Legionella: Sample analysis	✓			AAmm	AAmm	AAmm	AAadd	AAadd	AAadd	AAadd	AAadd	16/12/02
6	Hot Water Services Outlet Temperatures	✓			AAmm	AAmm	AAadd	AAadd	AAadd	29.02	4/10/02	11/11/02	11/12/02
7	Cold Water Services Outlet Temperatures	✓			AAmm	AAmm	AAadd	AAadd	AAadd	29.02	4/10/02	11/11/02	11/12/02
8	Cold Water Storage Tank Inspection	✓			AAmm	AAmm	AAadd	AAadd	AAadd	AAadd	AAadd	AAadd	16/12/02
9	Shower Head Inspection/Disinfection	✓			AAmm	AAmm	AAadd	AAadd	AAadd	AAadd	AAadd	AAadd	16/12/02
10	Water Softener									-	-	-	
11	Water Services System	✓			AAmm	AAmm	AAadd	AAadd	AAadd	AAadd	AAadd	AAadd	
12	Chlorination	✓			AAmm	AAmm	AAadd	AAadd	AAadd	AAadd	AAadd	AAadd	
13	Hose Reel Systems												
14	Spray Humidifiers												
15	Whirlpool												
16	Swimming Pool												

NAME *Anny Hannon*

COMPANY *Avant Building Services*

DATE

SIGNATURE *[Signature]*

JUNE TO SEPTEMBER TO BE COMPLETED

11/29/03

2

2

CENTRAL SYSTEM CALORIFIER HOT WATER TEMPERATURE

Property Name: 77 CORNHILL EC3

MONTHLY: INSPECTIONS TO BE CARRIED OUT TO LOG THE HOT WATER STORAGE TEMPERATURE

DATE	CALORIFIER REFERENCE	TEMP BELOW 60°C	TEMP ABOVE 60°C	DESCRIBE ACTION TAKEN	SIGNATURE
2/04/02	CAL NO 1		60 °C	ALL OK	<i>[Signature]</i>
2/04/02	CAL NO 2.		60 °C	ALL OK	<i>[Signature]</i>
7/5/02	CAL NO 1	55 °C	 	ALL OK EARLY MORNING	J.J
7/5/02	CAL NO 2	59 °C	 	ALL OK u u	J.J.
10/6/02	CAL NO 1	59 °C		ALL OK	<i>[Signature]</i>
10/6/02	CAL NO 2	59 °C		ALL OK	<i>[Signature]</i>
8/7/02	CAL NO 1	60 °C		ALL OK	<i>[Signature]</i>
8/7/02	CAL NO 2.	60 °C		ALL OK	<i>[Signature]</i>
5/8/02	CAL NO 1		60 °C	ALL OK	<i>[Signature]</i>
5/8/02	CAL NO 2		60 °C	ALL OK	<i>[Signature]</i>
2/9/02	CAL NO 1		60 °C	ALL OK	<i>[Signature]</i>
2/9/02	CAL NO 2		60 °C	ALL OK	<i>[Signature]</i>
14/10/02	CAL NO 1	58 °C		ALL OK	<i>[Signature]</i>
14/10/02	CAL NO 2	59 °C		ALL OK	<i>[Signature]</i>

CENTRAL SYSTEM CALORIFIER HOT WATER TEMPERATURE

Property Name: 77 CORNHILL EC3

MONTHLY: INSPECTIONS TO BE CARRIED OUT TO LOG THE HOT WATER STORAGE TEMPERATURE

DATE	CALORIFIER REFERENCE	TEMP BELOW 60°C	TEMP ABOVE 60°C	DESCRIBE ACTION TAKEN	SIGNATURE
11/11/02	CAL No 2.	—	60°C	None	<i>JLAmor</i>
11/11/02	CAL No 1	—	62°C	None	<i>JLAmor</i>
16/12/02	CAL No 1	—	60°C	None	<i>JLAmor</i>
16/12/02	CAL No 2.	—	60°C	None	<i>JLAmor</i>
6/1/03	CAL No 1	—	60°C	None	<i>JLAmor</i>
6/1/03	CAL No 2.	—	60°C	None	<i>JLAmor</i>
3/02/03	CAL No 1	—	60°C	None	<i>JLAmor</i>
3/02/03	CAL No 2.	—	60°C	None	<i>JLAmor</i>
3/3/03	CAL No 1	—	60°C	None	<i>JLAmor</i>
3/3/03	CAL No 2.	—	60°C	None	<i>JLAmor</i>
14/4/03	CAL No 1	—	60°C	None	<i>JLAmor</i>
14/4/03	CAL No 2.	—	60°C	None	<i>JLAmor</i>
14/5/03	CAL No 1	—	60°C	None	<i>JLAmor</i>
14/5/03	CAL No 2	—	60°C	None	<i>JLAmor</i>
NO RECORDS MAY TO AUGUST 2003.		<i>29/9/03</i>			

3

3

TVC AND LEGIONELLA : SAMPLE ANALYSIS

Property Name: 77 CORNHILL EC3

As required

TVC AND LEGIONELLA : SAMPLE ANALYSIS

Property Name: 77 CORNHILL EC3

As required

TVC AND LEGIONELLA : SAMPLE ANALYSIS

Property Name: 77 CORNHILL EC3

As required

4

4

HOT WATER SERVICES OUTLET TEMPERATURES

Property Name: 77 CORNHILL EC3

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

DATE	OUTLET REF/ROOM No.	TEMPERATURE °C	DESCRIBE ACTION TAKEN/COMMENT	SIGNATURE
7/5/02	Basement Gents	52°C	All OK	J.J
7/5/02	3rd fl Gents	53°C	All OK	J. J.
10/6/02	Basement Ladies	52°C	All OK	Amor
10/6/02	7th LADIES	55°C	All OK	Amor.
8/7/02	Basement Ladies	55°C	All OK	Amor.
8/7/02	6th Gents	55°C	All OK	Amor.
5/8/02	Basement Toilet Gents	55°C	All OK.	Amor
5/8/02	3rd Ladies	55°C	All OK	APL
2/9/02	1st floor Ladies	56°C	All OK	
2/9/02	5th floor Gents	56°C	All OK	
4/10/02	4th Floor Gents	53.8°C	All OK.	Amor
11/10/02	2ND FLOOR LADIES	53.1°C	All OK	Amor
11/11/02	3RD FLOOR GENTS	59°C	All OK	Amor
16/12/02	4TH FLOOR LADIES.	57°C	All OK	Amor
16/12/02				

HOT WATER SERVICES OUTLET TEMPERATURES

Property Name: 77 CORNHILL EC3

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

DATE	OUTLET REF/ROOM No.	TEMPERATURE °C	DESCRIBE ACTION TAKEN/COMMENT	SIGNATURE
6/1/03	5th Floor Gents	57°C	ALL OK	ABAmw
3/2/03	5th Floor LADIES	56°C	ALL OK	ABAmw
3/3/03	6th Floor LADIES	56°C	ALL OK	ABAmw
3/4/03	7th Floor LADIES	56°C	ALL OK	ABAmw
24/4/03	7th Floor Gents	56°C	ALL OK	ABAmw
15/5/03	Basement Gents	55°C	ALL OK	ABAmw
11-8-03	1st FLOOR GENTS	59°C	ALL O.K	ARabel
11-8-03	3rd FLOOR LADIES	54°C	ALL O.K	ARabel
15-9-03	6th FLOOR GENTS	58.4°C	ALL O.K	ARabel
15-9-03	2nd FLOOR LADIES	59.0°C	ALL O.K	ARabel
27-10-03	1st floor LADIES	55.0°C	ALL OK	ARabel
27-10-03	-1 LADIES	56.5°C	ALL O.K	ARabel
24-11-03	5th floor GENTS	57.8°C	ALL O.K	ARabel
24-11-03	5th floor LADIES	56°C	ALL O.K	ARabel

COLD WATER SERVICES OUTLET TEMPERATURES

Property Name: 77 CORNHILL EC3

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

DATE	OUTLET REF/ROOM No.	TEMPERATURE °C	DESCRIBE ACTION TAKEN/COMMENTS	SIGNATURE
2/9/02	1st floor Ladies	17°C	All ok	<i>[Signature]</i>
2/9/02	5th floor Gents	17°C	All ok	<i>[Signature]</i>
11-8-03	1st FLOOR GENTS	23.8°C	Informed office	<i>[Signature]</i>
11-8-03	3rd FLOOR LADIES	23.5°C	" "	<i>[Signature]</i>
15-9-03	6th FLOOR GENTS	22.5°C	" "	<i>[Signature]</i>
15-9-03	2nd FLOOR LADIES	21.5°C	" "	<i>[Signature]</i>
27-10-03	1st FLOOR LADIES	15°C	ALL O.K	<i>[Signature]</i>

COLD WATER SERVICES OUTLET TEMPERATURES

Property Name: 77 CORNHILL EC3

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 SERVICES OUTLET TEMPERATURES

Property Name: 77 CORNHILL EC3

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.

5

5

COLD WATER STORAGE TANK INSPECTION

Property Name: 77 CORNHILL EC3

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

COLD WATER STORAGE TANK INSPECTION

Property Name: 77 CORNHILL EC3

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

6

6

SHOWER HEAD INSPECTION / DISINFECTION

Property Name: 77 CORNHILL EC3

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

SHOWER HEAD INSPECTION / DISINFECTION

Property Name: 77 CORNHILL EC3

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

7

WATER SERVICES SYSTEM/ CHLORINATIONS

Property Name: 77 CORNHILL EC3

AS REQUIRED

WATER SERVICES SYSTEM/ CHLORINATIONS
Property Name: 77 CORNHILL EC3

AS REQUIRED

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.



AXIMA

ENGINEERING & CONTRACTING

Martin Mallee
77 Cornhill
London
EC3

1st March 2002

Dear Martin

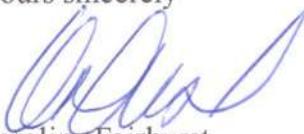
RE: MICROBIOLOGICAL TEST

Following the recent microbiological analysis undertaken, please find enclosed the relevant report.

The levels recorded are within recognised limits.

Should you require any further information please do not hesitate to contact the undersigned.

Yours sincerely



Caroline Fairhurst
Helpdesk Administrator



E5

Action Summary Schedule

Action Summary Schedule

(Must be completed whenever action is required)