

# WATERWIDE

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## In Brief

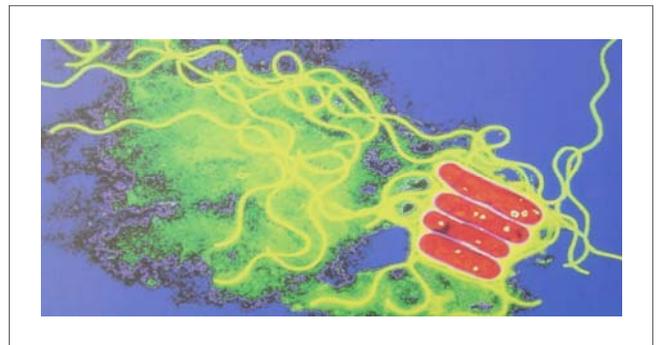
- WATERWIDE turn over is up by 20% for the 1st and 2nd quarters, based on the same period last year.
- WATERWIDE take on two new staff to support existing business.
- WATERWIDE set to expand into new geographical area of the UK (more info next newsletter)
- WATERWIDE wins two large new monitoring contracts
- WATERWIDE HSC-L8 compliance documentation vetted by local EHO's on two separate occasions over the last three months. Both resulted in FULL compliance being achieved.

## LEGIONELLA - HOME AND ABROAD

Legionella stories are again hitting the headlines recently. This bacteria is commonly found in water and usually poses little threat owing to the relatively low numbers. However, during the warmer weather, these bacteria, like so many other bacteria are encouraged to grow. It is at these times that their presence in high numbers can have significant consequences.

In order for the bacterium to cause a problem, the Legionella bacteria needs to be in an atomised state such that it can be drawn into the lungs of its victim. Once inhaled, it causes typically, respiratory problems along with pneumonia.

Fatality runs at 12% (ref HSC-L8) of those contracting the condition known as Legionnaires disease. There are however certain groups of persons who's susceptibility is enhanced. These include, smokers, those with depressed immune systems and those on medication. At the time of the year when many people are taking holidays abroad, some thought should go into minimising



Legionella Bacteria

your risk to exposure. Many smaller hotels in the Mediterranean for example, use the suns heat to warm up hot water for the building. This may be by way of solar panels or even open tanks. Invariably, the temperatures achieved are too low to effect microbiological control by means of temperature. Unfortunately, the running at a temperature below 50C will tend to exacerbate bacterial growth. With low water exchange, or over sized tanks, potentially harmful bacteria can be fed to the buildings water system on a continual basis. As most people take showers whilst on holiday, the atomisation

of water from the shower is a primary route to infection. Every year there is a significant number of reported cases which when traced back, lead to hotels abroad. In the UK, the HSE provide a standard to work to in terms of monitoring and controlling water systems. Unfortunately, on the European continent, there is little by way of monitoring and control (or understanding) by the majority of the population. Until such times as proper control regimes are instigated, think carefully about the facilities you use, when on holiday. .that cause water to become atomised.

## BOILER INSPECTIONS

Many steam raising boilers are down for annual inspection over the summer months. As part of WATERWIDE's on going technical commitment to its clients, we do on a free of charge basis, regularly take photographs of the inside of the boiler shell. This docu-

mented condition allows both the site engineers and us to evaluate the waterside condition on an on going basis. The benefits can be realised in several ways. For eg : Where personnel changes occur on site the history of the boiler's condition can be seen in pictorial

form. Or where discrepancies over earlier conditions occur. Or where on line descaling treatments are being used to remove 'old scale'. Or where the photographs prove effective scale and oxygen scavenger control. As the saying goes 'A picture paints a thousand words'

## WELCOME TO:

WATERWIDE have made two new appointments during the last three months.

### Roger Penn

Roger has joined WATERWIDE from the facilities maintenance company Dalkia. Roger has strong expertise in steam raising plant, especially on the engineering side. He has joined WATERWIDE to specifically look after the water hygiene and engineering side of the business. With his technical experience, Roger will be

a familiar face on the WATERWIDE team within a very short time. He is married and lives in a small village just outside the picturesque Georgian town of Bewdley in Worcs. As part of WATERWIDE's ongoing commitment to Health and Safety, and as part of his induction into the company, Roger has just successfully completed a four day course in First Aid at Work, making him a qualified First Aider in the field.

### Roger Mac Donald

The second Roger joins us from Fairey Nuclear Ltd in Tamworth. Roger has been appointed Health & Safety Officer for the company. As such, he will have direct responsibility for ensuring WATERWIDE complies with Health and Safety issues arising within the company. Roger has been involved with Health and Safety for a number of years and has a wealth of experience on which to draw. Roger is married with two boys.

## COOLING WATER TECHNICAL

The Health and Safety Commission utilises its ACOP document HSC-L8 as the standard to which cooling water systems should be run. This document however covers not only cooling water, but process and leisure water where a defined risk is assessed. It also covers Hot and Cold Down water services.

Part of the requirement is that cooling water systems are regularly monitored by a competent authority. Waterwide are fully conversant with this document and run water treatment programs to conform to this requirement.

This involves a cross section of involvement, from on and off site training for site personnel in the understanding

and implementation of the standard, to regular monitoring visits to determine the exact status of the water treatment program.

All Waterwide technical service staff carry mobile water analysis test kits which enable them to determine water quality on the plant.

This information is then fed into a lap top computer which all staff carry, to produce a 'readable' report which is printed out on site and at the time of the visit.

With the information being put onto the clients own database, a series of graphs are produced which give instant and updated trends of any critical parameters

such as dip slide counts, inhibitor levels, halogen levels and conductivity.

As these reports are tailor made to the individual client, the final format of the report is very much a bespoke document which details information which the client finds useful.

Some clients for example choose to have regular water meter readings taken in order to determine water usage on a cooling system during the course of a year. In short, if the parameter is measurable and produces a figure, WATERWIDE's report can plot the data which is updated on each visit to site as part of the water treatment program.

*“.....information is fed into a lap top... which gives instant updated trends of critical parameters”*

## A – Z OF WATER CONTAMINANTS: CONT NEXT ISSUE

**The Hardness** of a water is a statement about the calcium and magnesium content of a water. Hardness is divided into two categories. i) Temporary Hardness and ii) Permanent hardness. Tempo-

rary hardness relates to calcium and magnesium salts of carbonate and bicarbonate. Bicarbonates form when water containing CO<sub>2</sub> come into contact with Limestone.

Permanent hardness is derived from the chloride and sulphate salts. Chloride salts are general soluble. Sulphates have low solubility.

## TECHNICAL FORUM

# HEAT TRANSFER FROM STEAM

Steam is used in industry to heat up a process. The efficiency of the heat transfer from steam to process is dependant on several factors which occur on both sides of the heat exchange surface. On the process side, in a vat for example, agitation of the contents will significantly improve heat transfer through the process contents. Where the vat shows signs of baked on deposit, or scale, the engineer knows that heat transfer will be greatly impaired and that maintaining a clean process side surface will greatly improve the heat delivery system.

But what of the steam side of the heat exchange surface. Well, the same rules apply. Keep the surfaces clear of deposits and heat exchange will be optimised.....won't it?.

Well, not necessarily.

It is true that keeping the steam surfaces side clean is vitally important. But having no visual deposit does not mean there is efficient heat transfer occurring.

Steam Quality is the important factor.

Steam quality usually refers to the dryness of the steam. Steam which contains moisture/water droplets is a very

poor transmitter of efficient heat transfer. The reason for this is that wet steam, forms a layer of water on the heat exchange surface. This produces an extremely effective insulating barrier between



the steam and heat exchange surface. To put it in context. A water film on the wall of the heat exchange surface is 60–70 times more resistant to heat transfer than the iron or steel wall of the heating surface. (and 500–600 times more resistant than copper!!)

Supplying dry steam for heating therefore is critical in producing efficient heat transfer.

But it gets worse....There is another factor which produces an even more detrimental affect on heat transfer. An even greater effect than water.

This is air.

Air in steam is more than 1,500 times more resistant to heat transfer than iron or steel and a massive 19,000 times more insulating than copper. This means that a film of air just one thousandth of an inch thick will resist heat transfer as much as a wall of copper nineteen inches thick!

It becomes important therefore, if steam is to be used efficiently and effectively, that both water content and air content of the steam are kept to a minimum. Regular steam trap monitoring should be part of an ongoing routine maintenance program. Condensing water vapour should be carried away from the steam line as soon after formation as possible. Steam separators should be positioned ideally, before each heat exchange unit in order to maximise dryness. Like wise, adequate air venting is also crucial. And like steam traps, their placement within the system is critical for effective air discharge.

There are many types of steam traps and air vents available. WATERWIDE will be pleased to discuss proper selection of each if required.

*“Air in steam is  
.....19,000  
times more  
insulating than  
copper*

## INEXPENSIVE WATER SOFTENER MONITORING

Water softeners are used both in domestic and industrial situations. The use of a water softener is to remove calcium and magnesium scale forming ions and exchange them for non scaling sodium ions. Hence water softeners are sometimes referred to as base exchange units. Soft water can be easily tested for with the use of a simple colour change tablet. A small sample of water is taken and one tablet intro-



duced. If the water turns green, then the water is soft. If the water turns red, then

the water is hard. As a consequence of this red/ green result, the tablets used in the test are sometimes referred to as Yes / No tablets or Stop / Go tablets for obvious reasons. WATERWIDE can supply a complete test for evaluating hardness, which will also allow a moderate degree of definition on how hard (or soft) a water is. Similarly, we can provide replacement test tablets for most type of Yes/No–Stop/Go kits.

The Industrial Water  
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*Working Water Harder*



WATERWIDE is a Midlands based water treatment company supplying products and services to industrial and municipal water users.

Working throughout the UK, we design our own water treatment programs within the confines of current legislation. HSC—L8 is the guidance used from the HSE for programs where water is used for open evaporative or spray cooling and is also used to provide programs for hot and cold down water services.

On the steam raising side of the business, land boilers are maintained in strict accordance with the parameters laid down in BS2486 and again, programs are tailored and bespoke to the clients needs.

*If you have any questions or comments regarding water related topics, please telephone, fax or e-mail us.*

## 'NATURAL' MINERAL WATER

**Natural Mineral Water** comes from an underground source recognised as such by the environmental health dept. It is untreated in any way which might alter its chemical or microbiological composition. Its microbiological quality is governed by a EC Directive 80/777/EEC 1980. At no time should it contain any coliforms, *E Coli* or *Pseudomonas aeruginosa* in 250 ml. Within 12 hours of bottling the total colony counts at 22°C and 37°C should no exceed 100 / ml and 20 / ml respectively. After 12 hours the total counts should be no more than that which results from the normal increases in the bacterial content at source.

Other drinking water sold in containers can be **spring water** (from one underground source) or **table water** (from more than one source which may or may not be underground and could be from a public supply). The microbiology of such waters is covered by the EC Directive 98/83/EEC 1998. That

covers all drinking water. That is, No coliforms or *E Coli* in 100/ml at any time. The total colony counts standards are the same as those for natural mineral waters. Vending machines cause many questions and problems as frequently the water from these machines has a high colony count. In essence, the water entering

these machines should be of drinking water quality and as such is governed by directive 98/83/EEC 1998. Usually these machines are connected to a mains supply so this is not a problem. The water coming from these machines is best considered as food!. That means that it is covered by the Food Safety (General Food Hygiene) Regulations 1995. These state that there should be no coliforms or *E Coli* in 100 ml. There is no agreed standard for *Pseudomonas aeruginosa* and their absence is not a criterion. Total colony counts of a water from vending machines are usually considerable. To be in line with foods such as scotch eggs, pork pies and vegetable bhaji, less than  $10^3$ /ml would be regarded as satisfactory and between  $10^3$  and  $10^4$ /ml is acceptable

(Author: John Kurtz :OBSL)

