

# Water Treatment



## How much do you know about it, and how does it affect your equipment!

Water treatment and how it's managed can seriously affect the budget bottom line, year in, and year out, as well as create legal and maintenance issues caused from improper system management and control.

When choosing your water treatment provider has it become a matter of selecting the lowest price or is it a more rigorous selection procedure? Your decision today could and will have serious implications in the future!

### Food for thought!

- Do you independently monitor your water treatment provider?
- Are they concerned if independent testing is conducted?
- Do you have Key Performance Indicators in place for the provider to meet?
- Are they proactive in offering innovative solutions?
- Do they recommend remote monitoring solutions?
- Do they recommend corrosion monitoring, and if not, why not?
- Do they have regular and structured meetings with you to discuss results, concerns, and problems, and do they compare each month's results?
- Does the service technician explain the test results and what they mean?
- What educational background, knowledge, experience, and training do they have?

Key Performance indicators and why it is absolutely necessary to have these.

How do you decide on what is a controlled method, and then ensure that these are in your best interests?

- **Price** - If price is a factor, and Key indicator does your provider appear to be too cheap?  
Price alone can be very deceiving when a supplier incorrectly calculates the chemical usage, or prices without doing proper due diligence, or overlooks proper biological or corrosion controls and concerns. When equipment life is reduced it causes other operational costs to increase significantly. Poor chemical treatment and control can result in system corrosion, a build-up of scale, increased energy costs, excessive water losses, and poor biological controls. Nobody likes to appear before the General Manager or the investors requesting Capex because the life of equipment is reduced due to poor maintenance practices.
- **Corrosion** - Is corrosion monitoring performed? Failure to perform this inexpensive check and monitoring can cause potentially massive damage to chillers and pipe work. Relying on an annual service to determine if the chiller tubes or pipe work is corroding can be fraught with danger, and reacting after the damage is done makes the cost all that much higher. If corrosion has occurred the life of plant has already decreased, and maintenance costs are rising. Proper corrosion control helps to inhibit microbiological growth and poor steel corrosion control can contribute to Legionella detections.



Corrosion inside package unit due to poor water treatment practices



Microbiological induced corrosion at end of tube sheet in chiller



Scaling in a shell and tube heat exchanger due to poor water treatment practices.



Scaling in the fill of a cooling tower, due to low inhibitor rates and high conductivity.

### Independent Monitoring Consultants

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- **Microbiological** - At what detection limits, and frequency is microbiological activity measured, and are there procedures in place to take corrective action? Is there a trigger for further investigation if repeatedly higher levels are experienced? Are alternating biocides used? If bromine/chlorine is used what are the parameters, and is the secondary biocide being alternated to prevent possible bacterial resistance occurring? Is corrosion controlled when using these products?
- **Sampling** - Is the sampling conducted by an independent company? Just because it is tested, and sampled by your Water Treatment Service company using an independent laboratory, are you sure that the sampling procedures, and sample transportation is being conducted in your best interests. Is the sample taken before adding additional biocide, transported under refrigeration, and does it reach the lab within the required time period. NATA accreditation by the laboratory doesn't ensure a quality of results. If you look at the results of the national NATA Legionella proficiency program there is a wide variety of acceptable and unacceptable results. You need to know the practices involved by your provider in the taking of water samples and that the facility they use for testing is competent and capable. Businesses involved in a legionella outbreak can, and will have serious impacts to their occupancy rates, and bottom line.
- **Scaling** - is it appearing on and in the towers or evaporative condenser? This will cause an increase in energy consumption, add to corrosion problems, and reduce system performance of your plant. Scaling in the heat exchanger will dramatically increase your energy consumption.
- **Ownership** - Does the water treatment supplier, and more importantly the service technician take ownership of your site? If they appear to be in a rush and not communicate properly or discuss with you at the completion of service, is the site being looked after correctly?
- **Innovation** - Is your provider recommending new and updated technology to your site. The water treatment industry has come a long way from the old drip feeder to sophisticated remote monitoring equipment that can be controlled via your smartphone/tablet or computer. Nowadays a site can see if they have uncontrolled water losses through smart software accessed through various technology which previously required for a "Johnny on the spot" to see, or somebody to sit long hours and watch a plant start and stop.
- **Remote Monitoring** - Remote monitoring is installed to a site but what happens to the data or alarms? Does someone actively check and action on these alarms? Is there a procedure to investigate these actions and implement remedial actions?

Fortunately there is an organisation that is here to help reduce the risk of these serious issues to your site. Independent Monitoring Consultants with 20 years serving the Australian market have personnel with collectively 100 years' experience in the water treatment industry, and who are available to consult with you in providing the best technical expertise for scale, corrosion, and microbiological issues. We can assist your organisation with *independent* sampling and testing of bacteria, including Legionella and Standard Plate Counts, in our own highly recognised NATA laboratory, perform risk assessments, monitor corrosion in your cooling water system, supply and monitor "state of the art" equipment to minimise costs, and consult with you to achieve maximum system performance.

#### About the Author:

David Curry is Queensland Customer Account Manager for Independent Monitoring Consultants with over 20 years extensive experience in the chemical water treatment industry and chemical dosing and monitoring before joining IMC.



Cooling Tower with microbiological and plant growth



Legionella Bacteria



Mid 1990's water treatment control equipment



Latest water treatment control equipment with data logging and remote capabilities.

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