

# Cooling Tower Control Strategy

Recommended Actions Based on Concentration-Based Targets\*

Test Result (cfu/mL)	Strategy
Not Detected**	<p>1. <i>Maintain Legionella monitoring</i> **</p> <p>Maintain water treatment program.</p>
Detected at $\geq 10$ but $< 1000$ cfu/mL	<p>2. <i>Investigate</i></p> <p>a. Review water treatment program.</p> <p>b. Take necessary remedial action including immediate online disinfection and undertake control strategy described in footnotes.</p> <p>3. <i>Retest water within 3 to 7 days of plant operation:</i></p> <p>a. If not detected, continue to retest water every 3 to 7 days until two consecutive samples return readings of not detected and return to maintenance strategy.</p> <p>b. If detected at <math>&lt; 100</math> cfu/mL repeat control strategy with online disinfection and retest.</p> <p>c. If detected at <math>\geq 100 &lt; 1000</math> cfu/mL investigate problem and review water treatment program, immediately carry out online disinfection, retest and repeat control strategy.</p> <p>d. If detected at <math>\geq 1000</math> cfu/mL undertake control strategy with online disinfection and retest.</p>
Detected at $\geq 1000$ cfu/mL	<p>4. <i>Investigate</i></p> <p>a. Review water treatment program.</p> <p>b. Take necessary remedial action including immediate online decontamination and undertake control strategy.</p> <p>5. <i>Retest water within 3 to 7 days of plant operation:</i></p> <p>a. If not detected, continue to retest water every 3 to 7 days until two consecutive samples return readings of not detected and return to maintenance strategy.</p> <p>b. If detected at <math>&lt; 100</math> cfu/mL repeat control strategy with online disinfection.</p> <p>c. If detected at <math>\geq 100 &lt; 1000</math> cfu/mL investigate problem and review water treatment program, immediately carry out online disinfection, retest and repeat control strategy.</p> <p>d. If detected at <math>\geq 1000</math> cfu/mL investigate problem and review water treatment program, immediately carry out system decontamination, retest and repeat control strategy. See footnote for online and system disinfection information.</p>

\*This information is based on the control strategies from the Australia/New Zealand Standard. [See Australian/ New Zealand Standard AS/NZ S 3666.3:1998 for process details]

\*\* Limit of detection  $< 10$  cfu/mL. Monthly monitoring required in Australia, not in U.S. Online Disinfection = Dose the cooling water system with either a different biocide or similar but increased concentration to that of the regular water treatment program. Online decontamination = dose recirculating water with chlorine-based compound equivalent to at least 5 mg/L free residual chlorine for at least one hour (maintain pH at 7.0-7.6). System decontamination = maintain 5-10 mg/l free residual chlorine for minimum of one hour, drain and flush with disinfected water, clean wetted surfaces, refill and dose to 1-5 mg/L of free residual chlorine at pH 7.0-7.6 and circulate for 30 min.



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