

Cooling Tower Control Strategy

Recommended Actions Based on Concentration-Based Targets*

Test Result (cfu/mL)	Strategy
Not Detected**	<p>1. Maintain <i>Legionella</i> monitoring **</p> <p>Maintain water treatment program.</p>
Detected at ≥ 10 but < 1000 cfu/mL	<p>2. Investigate</p> <p>a. Review water treatment program.</p> <p>b. Take necessary remedial action including immediate online disinfection and undertake control strategy. **</p> <p>3. Retest water within 3 to 7 days of plant operation</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 < 100 cfu/mL repeat control strategy with online disinfection and retest.</p> <p>c. If detected at $\geq 100 < 1000$ 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 ≥ 1000 cfu/mL, undertake control strategy describe below (see 4. below) with online decontamination and retest.</p>
Detected at ≥ 1000 cfu/mL	<p>4. Investigate</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. Retest water within 3 to 7 days of plant operation</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 < 100 cfu/mL repeat control strategy with online disinfection and retest.</p> <p>c. If detected at $\geq 100 < 1000$ 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 ≥ 1000 cfu/mL investigate problem and review water treatment program, immediately carry out system decontamination, retest and repeat control strategy. See below 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 minutes.



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