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*Comment Received From: Paul Lindahl*  
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**SPX Title 24 Water Quality Comment 05-10-24**

Document attached

*Additional submitted attachment is included below.*

May 10, 2024

To: CEC Docket 24-BSTD-01

(<https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=24-BSTD-01>)

Thank you for the opportunity to provide comments on the 45-Day Title 24 language related to cooling towers informed by both the 2025 Staff Supplement to the 2025 Case Report on Cooling Towers issued March 28, 2024 and the CA Utility CASE Team and Compliance Improvement Team Comment on 45-Day Express Terms dated May 3, 2024. SPX Cooling Technologies continues to understand and support the California Energy Commission's goals to improve building energy efficiency and reduce overall water use, while also decreasing carbon emissions. As per our Vision statement, SPX delivers valued cooling products and together with our customers, partners, suppliers and the public, SPX supports environmentally friendly, sustainable, and highly efficient heat rejection technologies, including evaporative heat rejection products.

Referring to Section (e) Open and Closed Circuit Cooling Tower and Table 110.2-A-1 Recirculating Water Properties, SPX Cooling Technology recommends: 1) a reduction of the Calcium Parameter by 50%, from 540 ppm to 270 ppm, resulting in an operating LSI reduction for evaporative cooling systems, and 2) addition of an explanatory Water Treatment Note to clarify cooling system operational needs when operating at elevated LSI's.

SPX Water Quality Guidelines, as well as those of other equipment Manufacturers, recommend LSI Range of 0-1. The current CEC Title 24 Recommendation for California Waters calculated to LSI's of Range of 0.68-2.49 with an Average of 1.82, and a Maximum of 2.49. Well above manufacturer's recommendations. Elevation of LSI presents a variety of system equipment and efficiency challenges, including Heat Exchanger [HX] scale and efficiency reduction, Cooling Tower [CT] scale and efficiency reduction, and under-deposit corrosion which shortens equipment life.

Even with this proposed Calcium Parameter reduction of 50% in place, CEC Title 24 Water Conservation and Cycles of Concentration [COC] goals can still be met with the addition of specialized water treatment modifications, such as ion exchange softening, membrane softening, pH reduction, and/or use of sophisticated chemical scale inhibitors.

The two proposed changes are independent. Regardless of the CEC decision on the Calcium Recommendation, SPX proposes the addition of the Note below that makes clear the need for Water Treatment upgrades in order to operate these systems trouble-free long term with the Water Recommendation in Title 24.

Proposed Text Changes:

1. Section: (e) Open and closed circuit cooling tower

Item 2. E. [edit]: ~~540~~ 270 divided by calcium hardness of the entering make-up water

2. Table: 110.2-A-1 Recirculating Water Properties

Line 5 [edit]: Calcium Hardness as CaCO<sub>3</sub> (ppm) ~~540ppm~~ 270 ppm

Note [Add]: **Water chemistry modifications, including adding specialized Water Treatments, such as, ion exchange softening, membrane softening, pH reduction, and/or use of sophisticated chemical scale inhibitors, may be necessary to operate at the elevated circulating LSI's that result from these CEC Title 24 Recommended Water Properties. LSI's above 1.0 are defined as resulting in substantial Calcium Carbonate Scale, unless water is modified.**

**Justification: It is important for System Operators to be aware of special Water Treatment needs for systems before implementing the CEC Title 24 Recommendations.**

**In support of this proposal, SPX undertook calculations of LSI's for a variety of California waters, which can be shared with the CEC.**