



The Idyllwild Water District and Pine Cove Water District are small groundwater systems with multiple wells. Both systems have soft, mildly acidic waters with high carbon dioxide content and dissolved inorganic carbon concentrations of approximately 18 mg/L C, and both systems exceeded one or both of the lead and copper action levels in 1993 and 1994. In 1997, aeration was investigated to increase pH and replace inhibitor or other chemical additions.

CALIFORNIA'S FIRST aeration plants for corrosion control

Four designs were evaluated, and a deep bubble aeration system was pilot-tested. Full-scale systems were designed and built and became operational in October 1998. Aeration raised the pH from 6.1–6.3 to 7.1–7.6, and by January 1999, both systems easily met both the lead and copper action levels. Radon (Rn) samples

taken at Pine Cove showed a 99% reduction to 33 ± 8 pCi/L, assuring compliance with the proposed Rn regulation. Using aeration for corrosion control has considerably simplified treatment and improved water quality in most respects. Treatment was integrated with system designs, enabling the use of one treatment plant for the multiple wells at each system, locating the treatment plants above storage to eliminate repumping, and maximizing electricity savings by increasing operation at off-peak times.

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As required by the Lead and Copper Rule (LCR) (USEPA, 2000; USEPA, 1994; USEPA, 1992; USEPA, 1991a; USEPA, 1991b), Idyllwild Water District (IWD) and Pine Cove Water District (PCWD) conducted a sampling and testing program in 1993 and 1994. The program began with an evaluation of local household plumbing to identify the 20 sites in each district that would be the most likely candidates for internal corrosion activity. The sampling and testing program in the IWD found that water used at the identified test sites exceeded the 90th percentile action level (AL) for copper (Cu) of 1.3 mg/L in both sampling rounds and exceeded the AL for lead (Pb) of 0.015 mg/L in June 1994. In 1993, test site water barely passed the Pb AL. Because of the absence of Pb or Cu in the source water, Pb or Cu found in the tests resulted from internal corrosion in household plumbing or fixtures.

PCWD took only one round of LCR samples because although the system met the Pb action level, it was obvious that corrosion-control treatment would be needed for Cu. Monitoring data for IWD and PCWD are summarized in the

