



ZETA CORPORATION

Electronic Deposit & Corrosion Control for Water Systems

Case History:

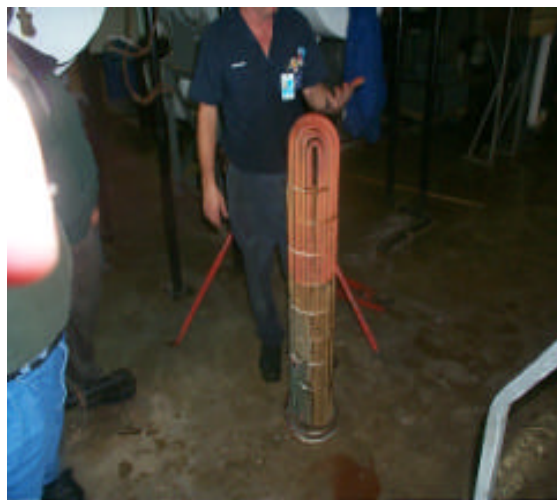
Zeta Rod™ System Protects Domestic Hot Water System at Major International Airport

As part of the re-design of George Bush International Airport's 300,000 square foot facility in Houston, Texas a Zeta Rod™ system as developed by Zeta Corporation, Tucson, Arizona, was installed into the domestic hot water system of one of the four main concourses of the airline terminal.

The hot water system consists of two heat exchanger hot water tanks: one 1200-gallon tank for the food concession hot water supply and one 1800-gallon tank for restroom hot water supply. The heat exchanger tube bundles receive recirculating hot water from the airport's central plant at 250 to 300 degrees (F). The domestic hot water is thus heated locally to meet the specifications for food service and sanitary water supply. Specifications call for delivery of water to food concessions at 180 degrees (F) and to the restrooms at 140 degrees (F).

Prior to installation of the Zeta Rod™ system, maintenance of the system required that the heat exchanger bundles be removed, and acid cleaned for removal of calcium carbonate scale. The normal condition of fouling found on these quarterly inspections was a deposit that coated and completely filled the voids and surfaces of the tube bundles thus preventing the hot water supply tanks from reaching design temperatures.

In the original demonstration a Zeta Rod™ system was installed in both hot water systems of the terminal. Three months after the installation, the heat exchangers were pulled out and inspected. The Operations and Maintenance team expected to see tube bundles totally encrusted with scale. In contrast the tube bundles were totally clean and required no cleaning whatsoever.



At the time of the Zeta Rod installation, the maintenance crew installed a clean tube bundle in preparation for inspection three to four months later. In January 2001, after four months of operation, the bundles were once again inspected and found to be clean and free of scale as they were when originally installed.

The Operations and Maintenance team were extremely pleased with the results of the evaluation. They stated that, in their 10-year experience, the bundles had never been so clean after three to four months running time. The technology has been accepted for use throughout the airport providing a large reduction in maintenance cost, and assuring the specifications for temperature levels mandated by health authorities are met on a continuous basis. A side benefit has been the absence of any buildup of sludge or sediment in the bottom of the large hot water storage tanks.



During this evaluation, one of the maintenance personnel was quoted as saying: "The best thing about this [the Zeta Rod™ system] is that we really don't need to pull the bundles out anymore. All we have to do is just open the case and pull it out an inch or so to inspect them and place them back into service."

The facilities maintenance personnel are also pleased with the long service life and reliability of the Zeta Rod™ system. Electrical demand is pennies per day with replacement of parts being a rare event. Since installation of the Zeta Rod™ system, there was no reduction in output temperature of the respective systems and the cost of maintaining the system with respect to both man-hours and the employment of outside chemical cleaning services is negligible. The Zeta Rod™ provides energy savings, and labor savings as well as removing and preventing storage tank sludge.

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