



Hospital Cooling Tower Application

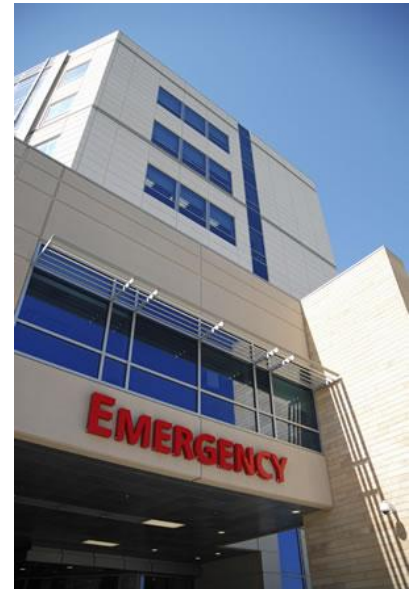
Earthwise Environmental provides an eco-friendly, safer alternative to effective cooling tower water treatment at one of Illinois's largest teaching hospital's neurosurgery center

The Challenge:

One of the largest teaching hospitals in Illinois wanted to improve safety and "green" operations in their cooling tower water treatment chemical regimen without sacrificing effectiveness.

The Solution:

Replacement of bulk bleach with on-site generated MIOX[®] mixed oxidant solution, Earthwise reduced the hospital's liability from hazardous chemicals and potential *Legionella* while exceeding past performance.



One of the largest and most well-respected teaching hospitals in Illinois is also home to a central plant with 7,000-tons of cooling tower capacity and a 100,000-gallon central chilled water loop. When new corporate responsibility guidelines were released, encouraging sustainability and green practices in facilities, the hospital turned to Earthwise Environmental for advice. Their experienced team consulted with the hospital on the wide range of technologies available to help meet their sustainability goals and to provide programs that would reduce operating costs with minimal capital investment.

The hospital contracted the Earthwise team of Certified Water Technologists to identify potential Water (WCM) and Energy (ECM) Conservation Management opportunities throughout their facilities, with the goal of reducing the plant water and energy footprints. In the site evaluation, Earthwise Environmental considered ways to improve efficiency, extend equipment life, reduce chemical consumption and provide remote system performance monitoring.

The discovery of positive *Legionella* counts in the hospital's cooling tower system required immediate intervention. The Earthwise Environmental engineering survey and inspection process found leaking chemical feed stations and insufficient biocide feeds, as well as the absence of a proper *Legionella* control program.

Committed to providing their clients with the safest, most environmentally beneficial technologies, Earthwise Environmental installed a MIOX[®] AE-4 on-site mixed oxidant disinfection system in July 2011, replacing a 12.5% bulk liquid sodium hypochlorite for the 3,000 ton cooling tower in the hospital's neurosurgery center. Located near both a diesel generator and kitchen exhaust fan, the cooling tower was experiencing excessive biofouling from fats, oils, and greases. A common regimen required several biocides including bleach, DBNPA, and a specific algaecide, along with frequent manual brushing of the outer fill and upper distribution decks by hospital personnel.

Using an electrolytic process that generates disinfectant by passing a high amount of electrical current through a salt and water mixture, MIOX mixed oxidant systems produce a combination of chlor-oxygen species – a dilute bleach solution of 0.40% hypochlorite and related mixed oxidant compounds that reduces or removes biofilm, reduces algae loading and demonstrates a better FAC residual for maintaining cooling tower disinfection.

Legionella testing was routinely conducted by hospital staff and positive readings were taken on several occasions in 2010. Since MIOX was installed in July, no positive results have been noted.

The operating engineer observed that the cooling tower is visibly cleaner this year and the slime and live green algae is gone from the hot distribution decks. Storage and handling of hazardous chemical bleach have been eliminated and the hospital's biocide program is more effective and efficient.



Distribution deck **before MIOX®**:
visible live green algae



Distribution deck **after MIOX®**:
green algae completely gone

About MIOX Corporation

MIOX Corporation (www.miox.com) is focused on solving one of the world's most pressing issues: the need for affordable, safe, and healthy water. MIOX's patented on-site water disinfection technology safely and economically generates either hypochlorite or advanced mixed oxidant using just salt, water and power, replacing the need to purchase, transport and store dangerous chemicals. MIOX is safely used in over 30 countries for public drinking water systems, water reuse projects, and non-municipal applications including the food and beverage, power, and aquatics and leisure industries.



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