



Essential Expertise
for Water, Energy and Air



1.2 Million gallons of water saved

Treasure Island Hotel (TI) and Casino saves millions of gallons of water annually using 3D TRASAR® Cooling Water Technology

Situation

According to Interior Secretary Gale Norton, “watersheds in the West are experiencing a worsening of chronic water supply shortages because of growing populations and heightened competition for a finite supply.”¹

Pat Mulroy, General Manager of the Southern Nevada Water Authority put it more bluntly: “People shouldn’t move to Las Vegas and expect to see green lawns.”²

Treasure Island (TI) Hotel and Casino, located on the Las Vegas Strip, looked to Nalco to help them conserve water, maintain their reputation as a good corporate citizen of Las Vegas, ensure their guests enjoy their stay, and maintain the integrity of their cooling water system. “To aggressively save water

is the right decision for the good of our desert community and equally makes good business sense”, according to Michael Longi, VP and CFO of Treasure Island (TI).

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California Energy Commission

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ENVIRONMENTAL RESULTS

eROI

ECONOMIC RESULTS

Water savings of 1.2 million gallons over six-month period



water

\$7,200 in annual water savings

Energy reduced through better microbic control and cleaner chiller tubes



energy

\$21,000 in annual reduced energy costs

¹U.S. Department of the Interior Press Release, “Secretary Norton Awards \$4 million in grants for water conservation projects in the west,” June 21, 2004

² Associated Press, “Water authority says Las Vegas will have enough water to grow,” Las Vegas Sun, March 21, 2002.

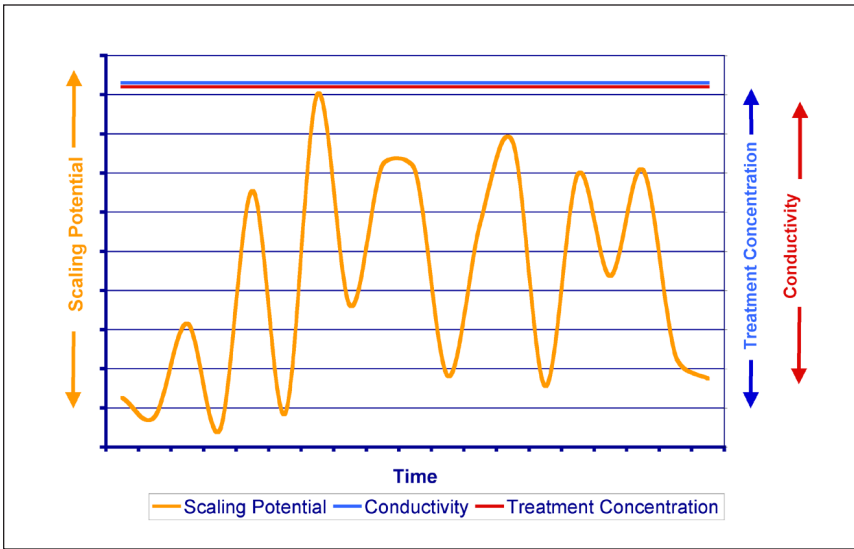


Figure 1 – Maintaining a constant treatment level and good conductivity control prevents operational problems, but can waste water and chemicals if stress on the system is not consistently high.

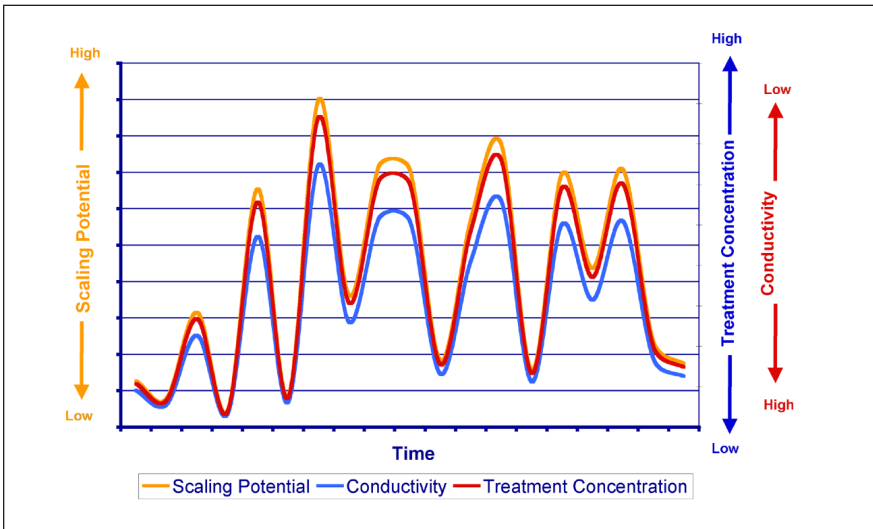


Figure 2 – 3D TRASAR prevents operational problems and optimizes water and chemical use by controlling the system based on the stresses placed upon it.

Program

Since 1996, Treasure Island (TI) Hotel and Casino has utilized 3D TRASAR technology to control their cooling water treatment program. 3D TRASAR technology utilizes an inert, fluorescent material to maintain a consistent chemical dosage (Figure 1).

Stress on a cooling system varies constantly. When it is too low, water and chemicals are wasted. When it is too high, scale, corrosion and microbial fouling result.

3D TRASAR technology advances the state of the art in fluorescence-based control by employing an innovative “tagged” high-stress dispersant polymer in addition to the traditional inert fluorescent material. By monitoring the relationship between the inert 3D TRASAR material and the “tagged” dispersant, 3D TRASAR technology detects and responds to changing system stress. It manages the system based on the stresses placed on the cooling system (Figure 2).

Environmental Results

At Treasure Island (TI) Hotel and Casino, the ability to automatically increase cycles of concentration when the risk of deposition was low and decrease cycles when scale potential increased saved 1.2 million gallons of water in the first six months of 3D TRASAR operation – April through October 2004 — even though the average temperature during the period was 8% higher than normal.

Management of the cooling system microbial population was of great concern. 3D TRASAR technology provided the solution. Maintaining a constant biocide concentration results in periods of under- and over-treatment. Over-treatment wastes money; under-treatment allows bio-populations to grow, form corrosive bio-films and may create environmental and health concerns.

3D TRASAR Bio-Control measures actual bio-activity, both planktonic and sessile, and applies biocides in response. Bio-populations are controlled, biocide use is optimized and operational concerns are alleviated.

At Treasure Island (TI) Hotel and Casino, even with the higher-than-normal temperatures and an electricity rate hike during the trial, energy costs decreased by a significant percentage after the adoption of 3D TRASAR technology control. This improvement is directly related to the ability to prevent the formation of bio-films.

Economic Results

Water usage decreased at Treasure Island (TI) Hotel and Casino by 1.2 million gallons over the six-month 3D TRASAR technology trial period, resulting in annualized environmental ROI of

\$7,200. Energy costs were also reduced by \$21,000 during the trial period through better microbio control and reduced electric draw from cleaner chiller tubes. 3D TRASAR comprehensive communications and data management capabilities have been instrumental in identifying areas for improvement and troubleshooting. For example, 3D TRASAR technology's integrated corrosion monitoring package continuously measured and reported mild steel and copper corrosion rates, allowing those values to be compared to other operational parameters. During the trial, mild steel corrosion rates were maintained between 0.00 and 4.09 mpy, well within industry standards for good corrosion control. Upsets were detected, root causes identified and solutions implemented before any system degradation could occur. This ability to instantly and continuously see cause-and-effect is a great improvement over traditional, 90-day corrosion coupon analysis.

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