

Nalco TRASAR Technology

Worth the Cost?

0611



Typical HVAC Cooling Tower

Nalco Company in their Case Study CH 948 presents some interesting information concerning use of their 3D TRASAR technology.

The Case Study presents information on a large HVAC account, which Nalco had supplied since 2005, located in Singapore. Installation of a Nalco 3D TRASAR system in 2008 is claimed on page 1 to have reduced the electrical load by 108,000 kwh per month for an annual energy cost savings of \$129,600.

On a casual review, this is an impressive cost reduction claimed for use of this technology. Further investigation does show some problems.

First, the case study has some internal disagreement on energy use reduction; the first page states 108,000 kwh per month, while on page 2 it notes 3,750 kwh per month. Which is correct? A cost reduction of \$10,800/month is claimed for both energy use reductions. Using a power cost of \$0.10/kwh, 108,000 kwh gives the cost reduction of \$10,800/month while the 3,750 kwh gives a cost reduction of just \$375/month. The case study does not provide any additional data which could be used to determine which reported energy use reduction is correct.

Second, chemical usage and cost is stated to have increased from \$26,000/yr to \$33,000/yr, a monthly cost increase of \$538.46. If the 3,750 kwh energy use reduction is correct, the 3D TRASAR unit installation actually increased customer operating costs by \$163.46/month.

Third, installed cost of the 3D TRASAR unit was reported to be \$36,000. While no operating costs for the unit are reported, like any other control system there will be some and they will be substantial due to the proprietary nature of this control system. In any event, amortization of the unit over three years gives a monthly cost of \$1,000. When this is considered with the confusion over what the actual energy use reduction was, the 3D TRASAR installation looks to be a very poor investment.

Fourth, one always wonders about the degree of attention and type of control system utilized prior to installation of the 3D TRASAR system. Did the facility maintenance people do a good job or was the cooling system neglected? Did they use a primitive bleed-feed control system? No answers to these types of questions are provided by Nalco in their Case Study.

Alternative Technology

An alternative technology is the patented¹ BlueTrak control system offered by Advantage Controls, Inc., under license from ProChemTech, which provides for on-line control of scale and corrosion inhibitors via an optical tracer and biocide control using proven ORP sensing.

A fully fitted out Advantage BlueTrak controller has an equipment cost of \$4,331, including WEB reporting capability. Installation is typically less than \$2,000, so the total cost for this control system is just \$6,331 as compared to \$36,000 for a Nalco 3D TRASAR.

While chemical usage may be somewhat higher with the BlueTrak control system as compared to the 3D TRASAR, chemical cost will be lower as the BlueTrak unit works with non-proprietary chemical products.



Installed BlueTrak Control

These non-proprietary products do not incorporate the costly UV tagged polymers and biological dyes used in the 3D TRASAR system, BlueTrak products utilize an inexpensive optical tracer supplied by ProChemTech as a concentrate product to the entire water management industry.

Nalco Biosensar technology is based on a bio active dye which changes color as it is metabolized by microbes. This color change is used as the basis of control in the 3D TRASAR system. Unfortunately, the bio active dye is very sensitive to oxidizing biocides and thus these effective, low use cost products cannot be used with the 3D TRASAR system. The ORP control method used in the BlueTrak control system is specific for use of oxidizing biocides, giving this technology a decided cost advantage. In addition, oxidizing biocides are the only ones deemed effective against Legionella by OSHA and CDC.

From the standpoint of operational security, the 3D TRASAR technology achieves its reported cost savings by operating closer to scaling limits, when something goes wrong with the control system, scale/deposition will become an immediate problem. BlueTrak technology operates with a bigger margin of safety; higher chemical levels and increased distance from scaling limits translate into more time to resolve problems before scale/deposition become operating problems.

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¹ US patent 7,932,091

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