

3D TRASAR™ Technology and System Assurance Center help save plant assets from process acid leak



CASE STUDY - CHEMICALS

CH-1967

BACKGROUND

A major textile and engineering plastics manufacturer in India, which produces fluorochemicals, experienced an unexpected process leak in the middle of the night. It was not known to the plant's operations staff until 3D TRASAR™ Technology detected the abnormally low pH and alerted the System Assurance Center. A System Assurance Engineer quickly investigated the problem and alerted the local Nalco Water Representative.

SITUATION

A "pH low" alarm with a value of 2.96 was received by the System Assurance Center from the 3D TRASAR controller located at the plant in late September. The System Assurance Engineer immediately analyzed the situation, diagnosing it as, very likely, an acidic process leak. The pH had fallen to a highly corrosive level below three with conductivity and corrosion rates rising at the same time. See Figure 1 for the data points that triggered the alarm.

SOLUTION

After assessing the 3D TRASAR System data, the System Assurance Engineer immediately contacted the Nalco Water Sales Engineer responsible for this plant by phone to request an immediate response to these issues. A detailed alarm analysis was also sent by e-mail to the Sales Engineer, who in turn, forwarded it to the customer, followed by a phone call to discuss the issue.

The plant's operations staff immediately checked the impacted cooling system and found hydrofluoric acid leaking at a condenser into the cooling water. Plant operations quickly shut down the system in question to ensure the safety of personnel. Figure 2 shows the detailed system data from the 3D TRASAR System and response timeline.

ENVIRONMENTAL RESULTS

Prevented premature replacement of plant assets due to quick detection/response to acid leak.



ECONOMIC RESULTS



Asset replacement costs valued at \$151,000 USD.

eROI is our exponential value: the combined outcomes of improved performance, operational efficiency and sustainable impact delivered through our services and programs.

RESULT

After a review of the System Assurance Center's findings, the customer launched an investigation. It was found that iron levels in the cooling water increased from 0.6 to 6.0 ppm in just a few hours, showing the impact of the low-pH cooling water on the system's components. This situation could have been much worse had the plant not stopped production and drained the cooling system as a result of the alert. The Nalco Water Sales Engineer and the System Assurance Engineer recommended passivating the cooling water circuit at restart. The customer then asked the System Assurance Center to closely monitor the system for at least ten days, to ensure correction of the acid leakage. No issues were observed during the subsequent monitoring period.

3D TRASAR™
DETECT DETERMINE DELIVER

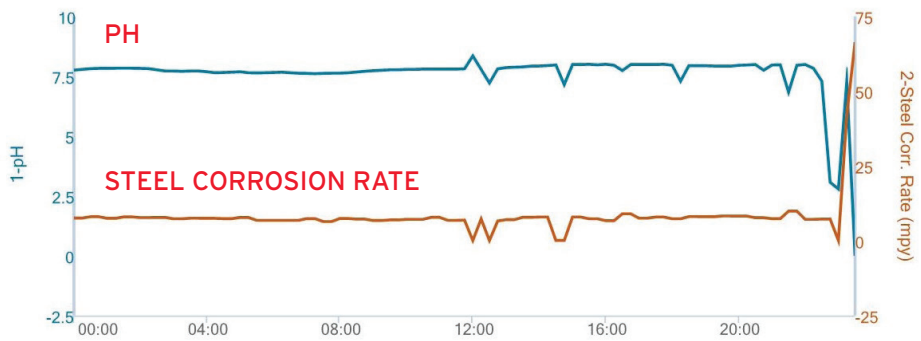


Figure 1 - 3D TRASAR data from the event



Figure 2 - Detailed data and corresponding timeline of response

1. pH drops to 2.9 causing high corrosion rates
2. System Assurance spots acid leak and alerts local Nalco Water contact
3. Data unavailable due to plant shutdown

CUSTOMER TESTIMONIAL

3D TRASAR System Assurance Center Case Study

"With the immediate alert by the System Assurance Center, we were able to save the condenser's mild steel tubes in which the hydrofluoric acid vapor is circulated to be cooled. This quick action also prevented damage to other heat exchangers through their contact with the low-pH water. If the alert had not been raised, the estimated replacement cost of the damaged equipment and pipes in this cooling circuit would be around \$151,000 USD. The plant was shut down for 4-5 days, but could have been down 30-45 days had the problem not been detected and resolved so quickly."

"Nalco Water, together with its 3D TRASAR Technology and System Assurance Center, saved our plant from a serious corrosion disaster with costly equipment damage across the plant." - **Plant Utility Manager**

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