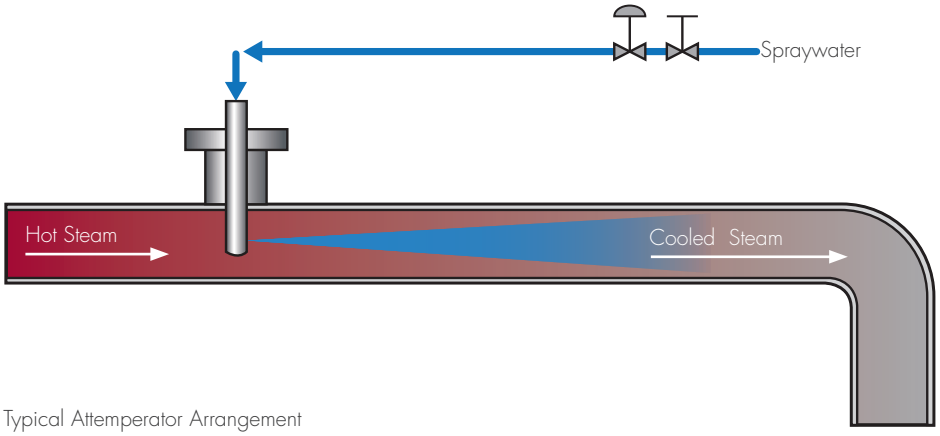
Structural Integrity Associates, Inc.®

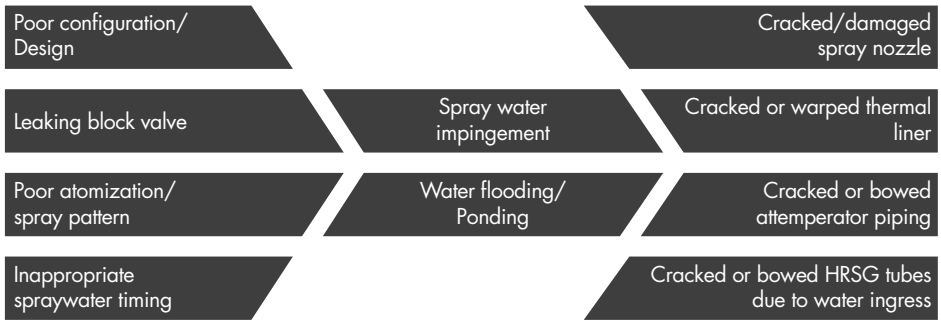
ATTEMPERATOR
ONLINE DAMAGE TRACKING APP



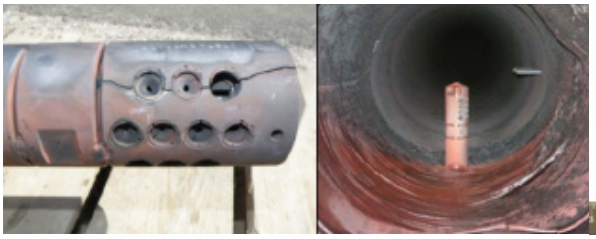
Typical Attemperator Arrangement

THE PROBLEM

Attemperators (aka desuperheaters), which reduce steam temperature using a water spray, are one of the most problematic components in combined cycle plants. There are a number of attemperator designs and configurations but all of them are potentially vulnerable to damage. If the causes of damage are not addressed early, then cracking and steam leaks can occur leading to costly repairs and replacements. The main challenge is that damage often goes undetected until it is too late because the damaging temperature transients are not detected by standard plant control instrumentation until it is too late.



Possible causes and damaging effects of malfunctioning attemperators



Damaged Nozzle

Cracked Liner

Failed downstream Weld/Elbow

info@structint.com

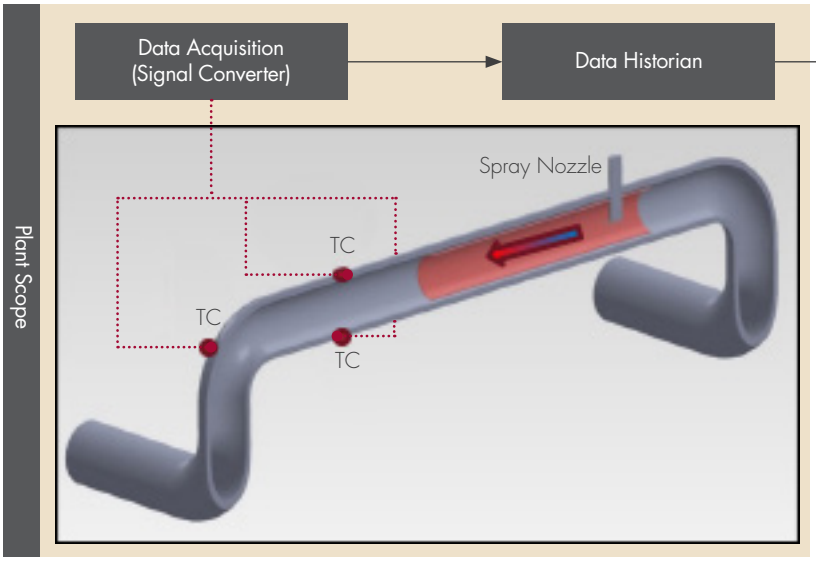
www.structint.com

1-877-4SI-POWER
1-877-474-7693

5215 Hellyer Avenue Suite 210
San Jose, CA 95138

THE SOLUTION

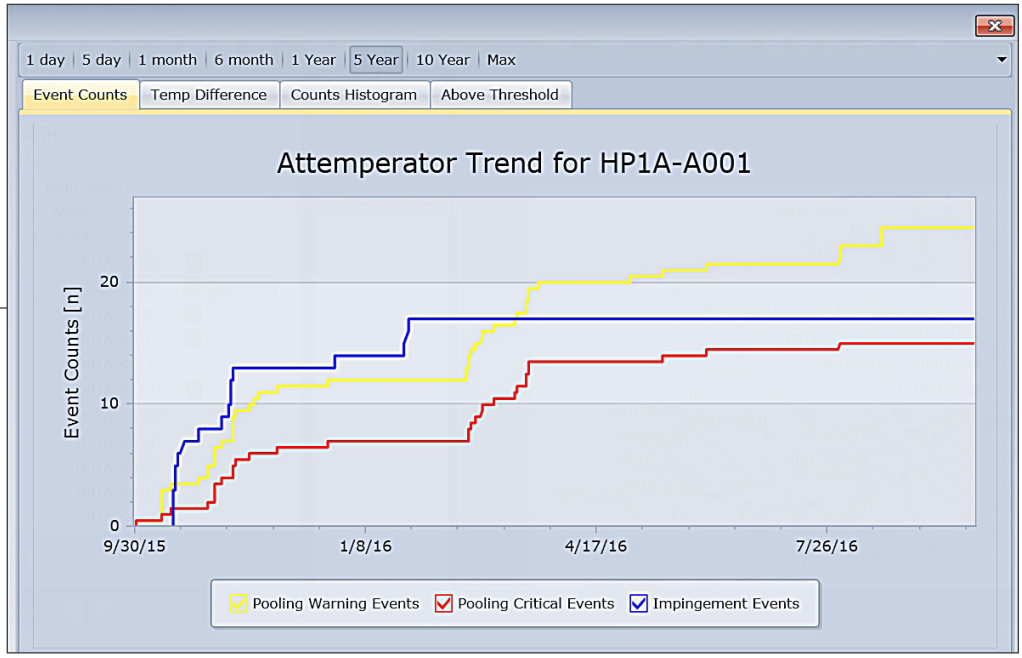
Tracking of damaging temperature differentials with strategically placed thermocouples provides direct feedback on the magnitude of damage incurred from each water impingement or flooding/ponding event. The signals from the thermocouples are analyzed by Structural Integrity's attemperator damage tracking app to count the number and severity of impingement and flooding events, providing a trend of damage accumulation. Our software can be configured to provide email alerts when certain magnitude events occur, or based on trends in damage accumulation. This allows early detection of potentially damaging events so that appropriate mitigations (maintenance, logic updates, etc.) can be performed before costly repairs are required.

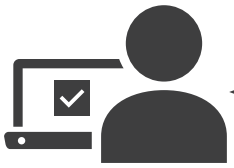


Typical thermocouple placement for Online Attemperator Damage Tracking System

Structural Integrity's
Attemperator Damage Calculator

Attemperator Damage Tracking App





Send Notification if user defined damage levels reached at certain locations

PlantTrack Online
Online provides a suite of real-time damage tracking applications for common plant components: piping, headers, tubing, attemperators, etc. These applications interface to common DCS / Historian systems allowing for easy implementation, including analysis of historical data where that exists.

PlantTrack Offline
Offline provides web-based graphical data management of design, configuration, inspections, failures, repairs, etc.