THE WORLD'S LEADING SUPPLIER OF HEAT RECOVERY STEAM GENERATORS

Nooter/Eriksen
Aftermarket Services

Vibration Support Modifications – April 2010 – Texas

Following the modification of the Siemens 501G gas turbine diffuser tail cone section at a facility with a **Nooter/Eriksen** HRSG, a significant increase in vibration and noise coming from the HRSG was detected. The increase in vibration coincided with an increased movement of the reheater cross over piping at the main platform elevation. During a subsequent internal inspection of the first module by plant personnel it was noted that some of the tube fins had been damaged at the lowest (2) vibration supports. It was assumed that the turbine diffuser cone modification had increased the exhaust gas turbulence. The increased turbulence was suspected of causing the finned tubes to vibrate inside the vibration supports and wear away the fins. In addition the turbulence caused flexing of the first coil module which was evidenced by the movement of the cross over piping.

The alterations suggested for the HRSG were based on the successful modifications performed on a similar **Nooter/Eriksen** HRSG behind a Siemens 501G turbine. The other **Nooter/Eriksen** unit had operated successfully for over (3) years following the modifications as suggested by **Nooter/Eriksen**.

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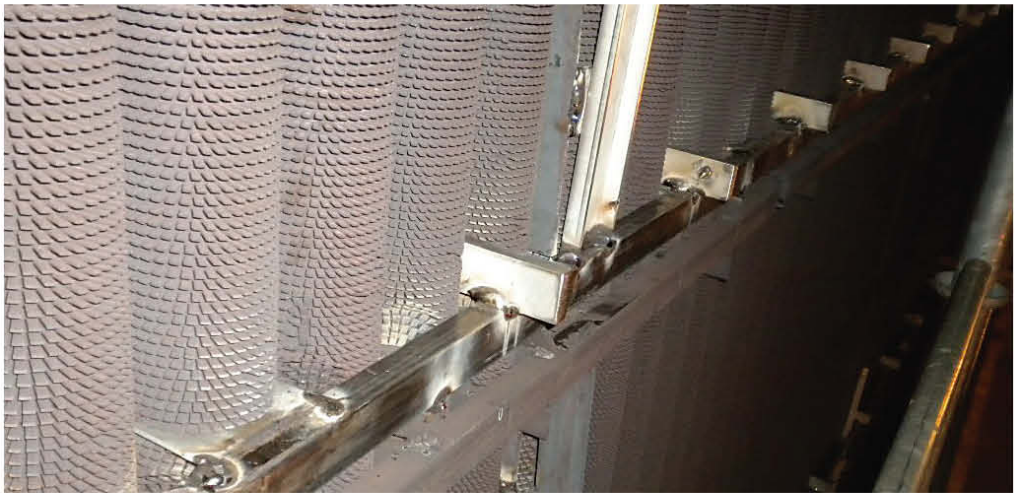

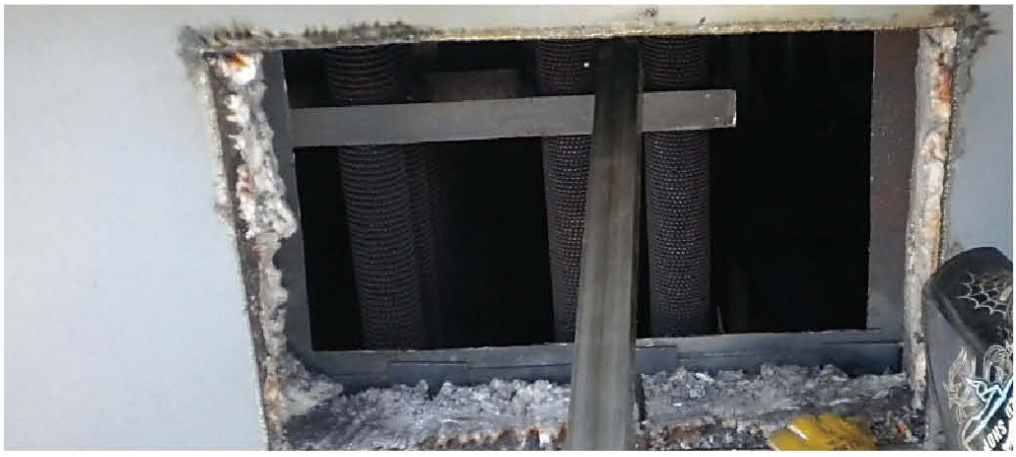

The first phase of the work involved restoring the original characteristics of the vibration supports at the lowest three elevations. The second phase of the work involved the installation of two additional vibration supports; the first located between the lowest two existing vibration supports and the second between the second and third from the bottom existing vibration supports. The final phase of the work was the addition of struts that connect the vibration supports between module 1 and module 2. The struts are designed to minimize the movement of module 1 parallel to the gas flow.

The purpose of the work was to restore the original performance of the existing equipment and increase the unit's ability to tolerate the increased vibration and turbulent gas forces.

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