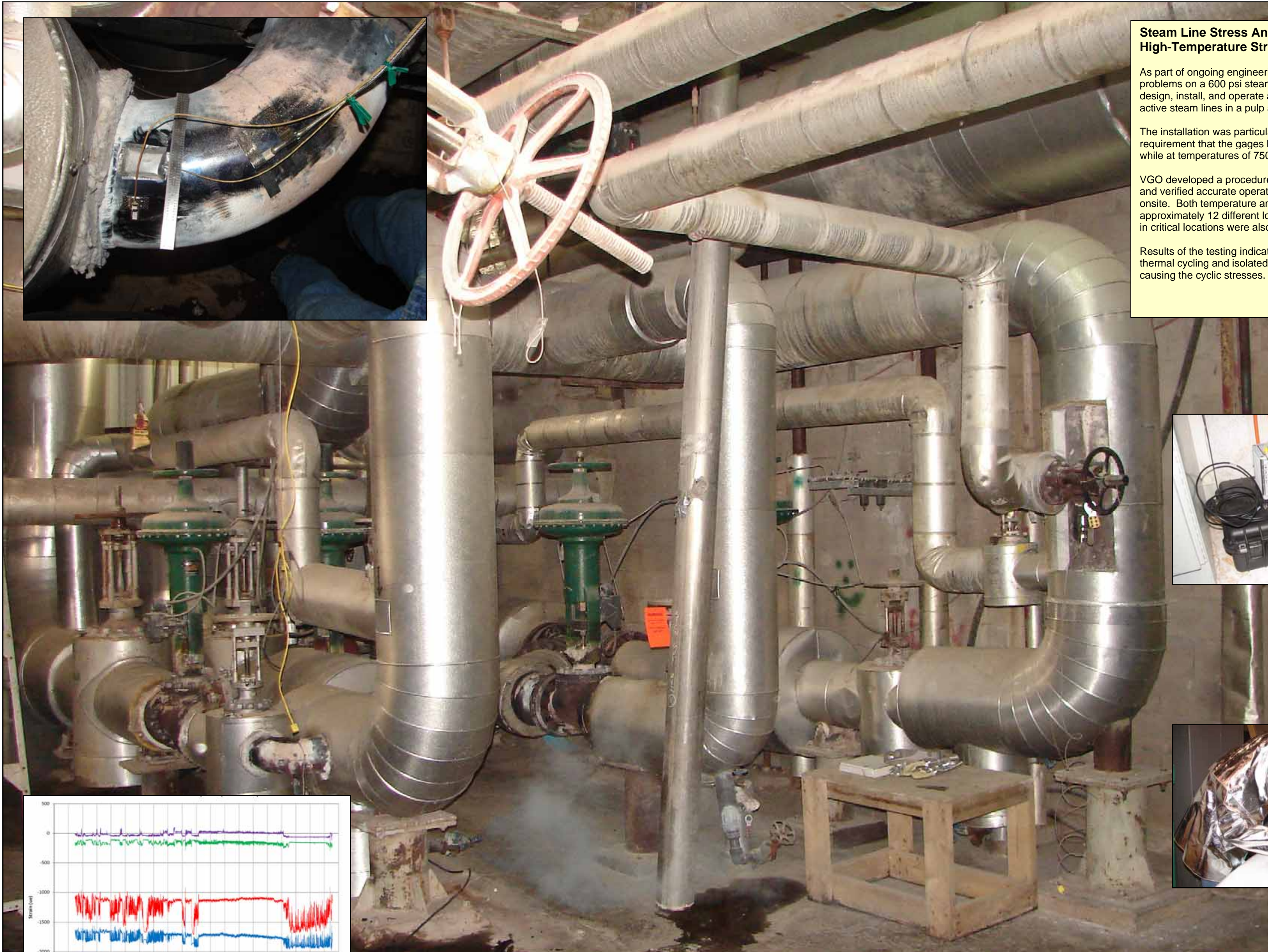


Mechanical Engineering & Strain Gaging



**Steam Line Stress Analysis
 High-Temperature Strain Gaging**

As part of ongoing engineering work related to cracking problems on a 600 psi steam line, VGO was retained to design, install, and operate a stress monitoring system on active steam lines in a pulp and paper mill.

The installation was particularly challenging due to a requirement that the gages be installed on active steam lines while at temperatures of 750 degrees F.

VGO developed a procedure for performing the installation, and verified accurate operation in lab test prior to arriving onsite. Both temperature and strain were monitored in approximately 12 different locations. Additionally, pressures in critical locations were also monitored.

Results of the testing indicated large cyclic stresses due to thermal cycling and isolated which thermal events were causing the cyclic stresses.

