

GRADE 91 MATERIAL EVALUATIONS

The Problem: Grade 91 derives its unique and useful high temperature properties from heat treatment. Any heat applied during processing of the material must be within a small defined range. If excess heat is applied, creep properties are dramatically reduced.

Causes: Sources of damaging heat can be excessive welding pre-heat, un-monitored heating to straighten or align parts, errors in PWHT temperatures. You may not know if heat damaged material is in your plant.

Finding damaged grade 91: Structural Integrity provides a number of diagnostic tools to find damaged P91. Field hardness mapping will find areas that fall below specifications. Follow up linear phase array UT exams can locate cracks in hardness deficient zones.

Additional confirmation can be obtained from field replicas that can be examined later under microscope.



Creep Evaluation of Suspect Material

The 500-hour duration creep-indentation test can determine the remaining creep life of a material in as little as 3 weeks.

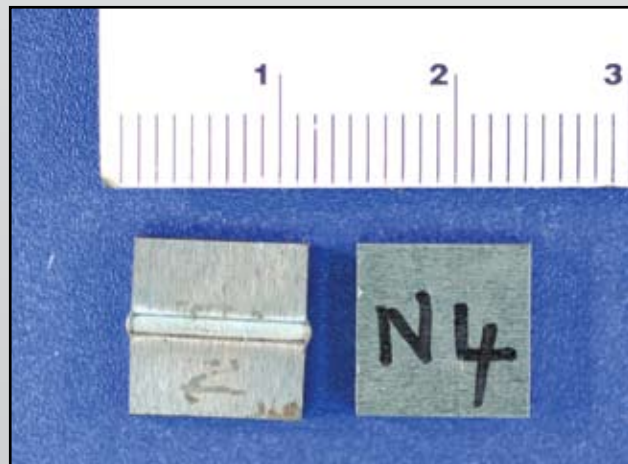
Structural Integrity has undertaken the development of tools that can extract small samples from field pieces that have excess wall thickness. These samples are then machined into test coupons that can be tested in our Indentation Test Machine.



Indentation Test Machine

Act Now

Your plant need not live with the uncertainties arising from improperly handled grade 91 materials. Structural Integrity can identify damage from a number of causes. Samples extracted with our SAM machine can be given accelerated creep tests in our Indentation Test Machine.



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