



**TEST SUMMARY # 08**

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**STRONGBACK COMPOSITE REPAIR  
SYSTEM FOR DAMAGED PIPES**

**TESTING PARTY: SAUDI ARAMCO OIL COMPANY.**

**TEST LOCATION: UTHMANIYAH, SAUDI ARABIA.**

**CLIENT: SAUDI ARAMCO OIL COMPANY.**

**DATE: COMMENCED 7/13/1997. COMPLETE 7/14/1997.**

**OBJECTIVE:**

To prove the strength and sealing effectiveness of StrongBack repair systems on a pipe with a simulated leak / corrosion lake.

**TEST DESCRIPTION:**

A machined defect, approx. 3.25" length x 2" circumferentially x 0.16" deep ( equivalent to a 44% wall thickness loss ) was made in a bare steel spool of 10" API 5L X60 Grade B and a 0.125" dia. hole drilled through the defect. A StrongBack system was applied to it and hydro-pressure applied.

**REPAIR SYSTEM:**

Aramco required a steel taper pin inserted into the hole. The standard StrongBack repair system was then applied, comprising of the load transfer epoxy # GS-154 to fill the defect volume and encase the head of the taper pin. Epoxy undercoat # GS-561 was not applied in this case. Rolls of StrongBack tape # SB-0450 were spirally wrapped over the epoxy, to provide a sleeve length of approx. 14" and 20 layers.

**RESULTS:**

Hydro-pressure was gradually increased until at approx. 3,000psi, a sudden pressure drop occurred and leakage observed. After removal of the sleeve it was noted that the taper pin had given slightly.

**CONCLUSION:**

Different pin restraint techniques could have averted failure at 3,000psi. However, the StrongBack repair system in the damaged area exceeded the MAOP of 2,933psi of the good pipe and so proved itself to be a safe repair method.

**10/97NIC**