

**TEST SUMMARY # 15**



**STRONGBACK COMPOSITE REPAIR  
SYSTEM FOR DAMAGED PIPES**

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**TESTING PARTY: EUPEC FRANCE.**

**TEST LOCATION: GRAVELINES, FRANCE.**

**CLIENT: TOTAL FINA ELF, TOTAL ( E & P ) INDONESIE**

**DATE: COMMENCED 9/27/2004. COMPLETE 1/2005.**

**OBJECTIVE:**

To confirm StrongBack systems met client requirements for axial strength, corrosion prevention, abrasion resistance and pressure containment of corroded splash zone risers and for compatibility with several coating types.

**TEST DESCRIPTION:**

Multiple StrongBack systems applied to three coating types and bare steel 8" API 5L X42 Grade pipe and were subjected to adhesion, pull-off, cathodic disbondment, impact and burst tests. Two spools used for the burst tests each had a fully circumferential machined defect x 200mm length x 5.68mm deep ( equivalent to a 80% wall thickness loss ). For comparison, an unrepaired defective spool was hydrotested to ( hoop ) failure ( 48.6 bar ).

**REPAIR SYSTEM:**

The defect repair systems used the StrongBack load transfer epoxy # GS-154 to fill the defect volume. Epoxy undercoat # GS-561 for corrosion prevention and tape adhesion applied over the defect to a length of 76mm and around pipe circumference. Four rolls of StrongBack tape # SB-0690 wrapped over the epoxy, to provide approx. 31 layers.

**RESULTS:**

Calculated burst pressures of 111.6 bar ( Kastner, axial stress ) and 41.3 bar ( B31.G, hoop stress ) were exceeded as StrongBack repair failed by leakage at 171.6 bar and 144.5 bar ( after impact ).

**CONCLUSION:**

StrongBack systems provided adequate corrosion / abrasion characteristics and was the only product to provide sufficient axial and hoop strengths for risers with significant external defects.

**5/05NIC**