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TEST SUMMARY # 11

STRONGBACK COMPOSITE REPAIR SYSTEM FOR DAMAGED PIPES

TESTING PARTY: KUWAIT OIL COMPANY.

TEST LOCATION: AHMADI, KUWAIT.

CLIENT: KUWAIT OIL COMPANY.

DATE: COMMENCED 9/13/2003. COMPLETE 9/13/2003.

OBJECTIVE:
To demonstrate and prove that the StrongBack system was capable of meeting the clients' requirements to repair damaged pipe and to withstand in excess of the original design pressure of 90 bar (1,305 psi).

TEST DESCRIPTION:
A machined defect of approx. 4" length x 1"circumferentially x 0.30" deep (equivalent to a 80% wall thickness loss) was made in a bare steel spool of 12" API 5L X42 Grade B and a StrongBack system was applied over it.

REPAIR SYSTEM:
The standard StrongBack repair system comprised of the load transfer epoxy # GS-154 to fill the defect volume. Epoxy undercoat # GS-561 for corrosion prevention and tape adhesion applied over the defect and around pipe circumference. Four rolls of StrongBack tape # SB-0690 were spirally wrapped over the epoxy, to provide a sleeve length of approx. 14" and 32 layers.

RESULTS:
Hydro-pressure was initially taken to and held at 1,000psi for 5 minutes. The pressure was then increased to 1,450 psi and held for 30 minutes followed by a further increase to 1,650psi which was held for a further 20 minutes.

CONCLUSION:
The StrongBack system easily demonstrated strength in excess of the 1,305psi which was stipulated by the client. The repair sleeve showed no signs of weakening.

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