



TEST SUMMARY # 17

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STRONGBACK COMPOSITE REPAIR SYSTEM FOR DAMAGED PIPES

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TESTING PARTY: BOTAS.

TEST LOCATION: ANKARA, TURKEY.

CLIENT: BOTAS PETROLEUM PIPELINE CORPORATION

DATE: COMMENCED 6/2006. COMPLETE 6/2006.

OBJECTIVE:

To test and confirm that the StrongBack repair system could contain extreme pressures, above 100 barg, on a significantly thinned wall pipe.

TEST DESCRIPTION:

A single StrongBack system applied to a bare, metal section of spiral weld, 24" API 5L X65 Grade pipe and was intended to be subjected to a hydro-pressured to burst. The machined defect of 100mm wide x 200mm length and depth equivalent to a 80% wall thickness loss was positioned approx. 50mm from the weld bead.

REPAIR SYSTEM:

The defect was filled with the StrongBack load transfer epoxy # GS-154 followed by the epoxy # GS-561 undercoat which was applied over the defect and around the pipe circumference. Five (5) rolls of StrongBack tape # SB-1290 wrapped over the epoxy, to provide approx. 30 layers.

RESULTS:

Pipe pressured to the regular pipe test level of 102.5 barg and easily held for 15 minutes. The pressure was gradually increased to 137.5 barg, the limit of the pump. At this pressure deformation of the virgin pipe was clearly visible but the StrongBack reinforced section showed no deformation.

CONCLUSION:

The StrongBack repair system proved capable of preventing failure of the defective pipe at pressures exceeding the pipe limits.

7/06NIC



**AT PUMP LIMIT, PRESSURE OF 137.5 BARG REACHED.
STRONGBACK REPAIR SEEN CONTAINING EXPANSION AS UNWRAPPED
PORTION OF PIPE SHOWN BALLOONING.**