CLOCK SPRING®

Application Note
Temporary Repair of Defect Deeper than 80% wall

Introduction

Pipeline operators sometimes find themselves in the position of having to make emergency repairs. At times, it might be necessary to repair a defect that exceeds the depth limit imposed by Clock Spring Company L.P.

Clock Spring® composite repairs have traditionally been limited to defects with depths of less than 80% of the wall. This limitation stems, in part, from the requirements of the B31 code. This code requires that defects exceeding 80% of the wall thickness be removed from the pipeline. There is no engineering reason to limit the use of composite repairs to defects less than 80% of the wall.

The Clock Spring® system can be used safely to make these temporary repairs.

Following is the procedure recommended by Clock Spring Company to effect temporary repairs of non-leaking corrosion, or other blunt defects, exceeding 80% wall loss. The purpose of this procedure is to minimize stress that might be introduced to the thinned ligament of the defect under standard Clock Spring® installation procedures. The standard installation procedure requires an excess of filler be applied to the defect and that the excess filler be extruded out during the tightening of the Clock Spring®. This could, under extreme conditions, cause the thinned ligament of the defect to yield inwardly under the applied load.

The Clock Spring® composite repair must be installed by a qualified and experienced installer.

Procedure

The defect area will be cleaned. The defect length, depth and circumferential extent will be measured and recorded.

The defect will be assessed using GRIWrap, thin shell analysis, or other technique approved by the Company, to determine the effectiveness of the repair. Each repair will be approved by the Company.

The pipe surface at the defect area will be cleaned and prepared. The preparation will, to the extent possible, meet the requirements of the standard Clock Spring® installation. The surface of the pipe inside the defect will be cleaned by hand. Lose debris will be removed and the surface sanded slightly.

Caution will be exercised to ensure that the cleaning process does not exacerbate the defect.

Filler material will be mixed according to standard Clock Spring® procedures.

Defects will be filled and the filler material contoured, as nearly as possible, to the original outside contour of the pipe.

Filler material will be allowed to cure until it is firm and workable by machine tools (sanding or light grinding).

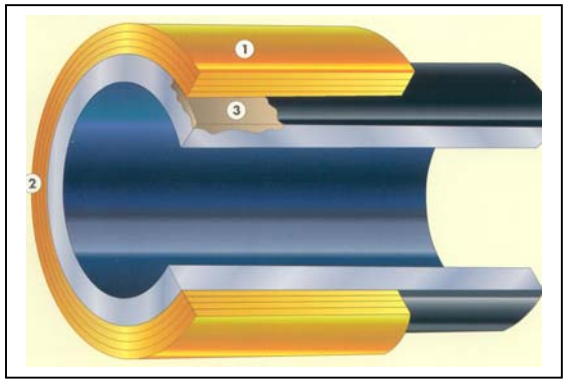
The defect area will be carefully dressed to restore a profile that, as closely as possible, matches the original contour of the pipe.

Filler material will be mixed according to standard Clock Spring® procedures.

A thin, skim-coat of filler will be applied to the defect area to fill all voids yet minimize the amount of excess filler.

A Clock Spring® will be installed using standard procedures while this thin skim-coat of filler is still uncured.

Repaired defects with depths exceeding 80% of the wall thickness will be removed from the pipeline as soon as practical.



Simply the smartest pipeline repair decision you can make!

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