



CLOCK SPRING®

Application Note Pressure Reduction During Clock Spring® Installation

The Clock Spring® repair system is a composite design that reinforces pipeline defects by controlling and limiting the radial expansion strain and stress induced by internal pressure. When a pipe is pressurized, it expands radially outward as “hoop stresses” are induced. Pressure causes any reduced wall area, such as corroded areas, to bulge further outward than the surrounding non-corroded pipe, amplifying the stress and strain in the defect. Leakage or rupture of a defect can occur when pressure induces excessive bulging, causing the thinned region to tear. Installation of a full-encirclement composite repair prevents this mode of failure by controlling and limiting the bulging and the stress and strain in the defect underneath the composite.

Pressure reduction is not a mandatory requirement of the Clock Spring® repair and will be at the discretion of each operating company. Reducing pressure during the repair increases safety for pipeline personnel and allows the composite sleeve to share hoop stresses earlier in the re-pressure cycle. If practical, reducing pressure during the repair is good practice and should be considered.

Individual Pipeline Companies have developed internal guidelines for pressure reduction when defects are being investigated or repaired. This reduction in pressure is a safety issue not related to the repair mechanism. In some cases, pressure is reduced any time a pipeline is being exposed for any reason. Other operators have established safety guidelines for pressure reduction based on defect depth. Each operator will develop procedures appropriate to their requirements.

Simply the smartest pipeline repair decision you can make!

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