

## **Study of the influence of dent depth on critical pressure of pipe**

Study of the influence of dent depth on critical pressure of pipe Stress concentration is considered to be the origin of the pipe failures in service in more than 90% of the cases. The purpose of this study is to identify the influence of single dent geometry and especially its depth on the burst pressure of a pipeline. In this paper, a new approach based on a simple local strain criterion has been proposed to predict damage and failure of dented pipe. To validate a purely empirical rule, which specifies that a critical depth dent is equal to 10% of outside diameter of the pipeline, on the one hand, a series of mechanical tests was conducted (denting tests and burst tests). On the other hand, finite element analysis was used in order to compare the numerical and experimental results. This work has shown that a single dent did not affect the burst pressure of a pipeline; therefore the rule of a critical depth of dent equal to 10% is very conservative.