

Pipe Corrosion Calculations (RStreng feature)

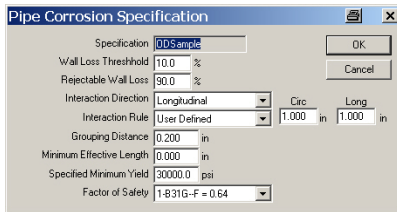
IntraSpect™ Imaging System Application

Application Background

The IntraSpect imaging system allows operators to automatically evaluate the results of corrosion examinations and determine safe operating pressures for the component. The feature uses industry standard engineering evaluation criteria.

Pipe Corrosion Calculations

The **Pipe Corrosion Calculations** feature is displayed in four sections, the input or *Specification* section, *Setup*, the River bottom data, and the RStreng calculations.



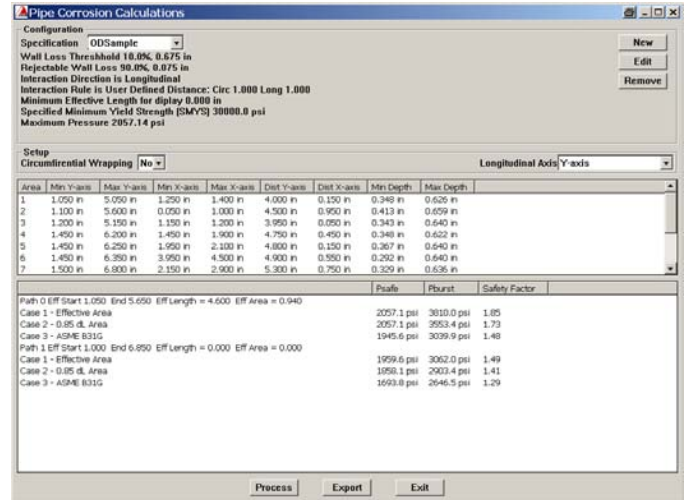
In the *Specification* section, labeled as *Configuration* for output purposes, specification files are created and managed using the *New*, *Edit*, and *Remove* buttons. Inputs such as *Wall Loss Threshold*, *Rejectable Wall Loss*, selectable *Factor of Safety*, and others supply the parameters used in the engineering calculations.

Factors of Safety Include:

- B31G – F = 0.64
- B31G – F = 0.60
- B31G – F = 0.50
- B31G – F = 0.40
- Z662 – F = 0.80
- Z662 – F = 0.72
- None – F = 1.00

Two parameters also necessary for the calculations are captured in the *Setup* section. *Circumferential Wrapping* is an operator selectable feature. When enabled, the pipe longitudinal axis must be selected for proper output.

The first output shown is *River Bottom* data for piping that falls in the Z662-99 class of the Canadian Standards Association Code. It is essentially pit dimensions based on the input specification.



The final output is **RStreng** (Remaining Strength). RStreng is an engineering calculation, licensed from Technical Toolboxes, used for determining calculated pipeline burst and safe operating pressures when there is ID or OD corrosion present. The automated RStreng software calculates multiple paths through the corrosion and lists the results. The operator then reviews the list to determine if any of the results exceed acceptable limits.

The formulas used by RStreng were developed for the Pipeline Research Council International, Inc. (**PRCI**), with the exception of B31G, which is from the American Society of Mechanical Engineers (**ASME**). The **B31G** approach to assessment was found to be excessively conservative after more industry research was performed. From that additional research came two new approaches, the **Effective Area** approach and the **0.85 dL** or modified B31G approach. All three of the approaches are shown in the output for each corrosion path found in the data.



WesDyne NDE Products
& Technology
20 International Drive
Windsor, CT 06095
(USA)

Voice: (860) 731-1683 FAX: (860) 731-2481
e-mail: sales1@amdataproducts.com
Web Site: www.amdataproducts.com
© Copyright 2010 Westinghouse Electric Company LLC
All rights reserved. All specifications subject to change.

