

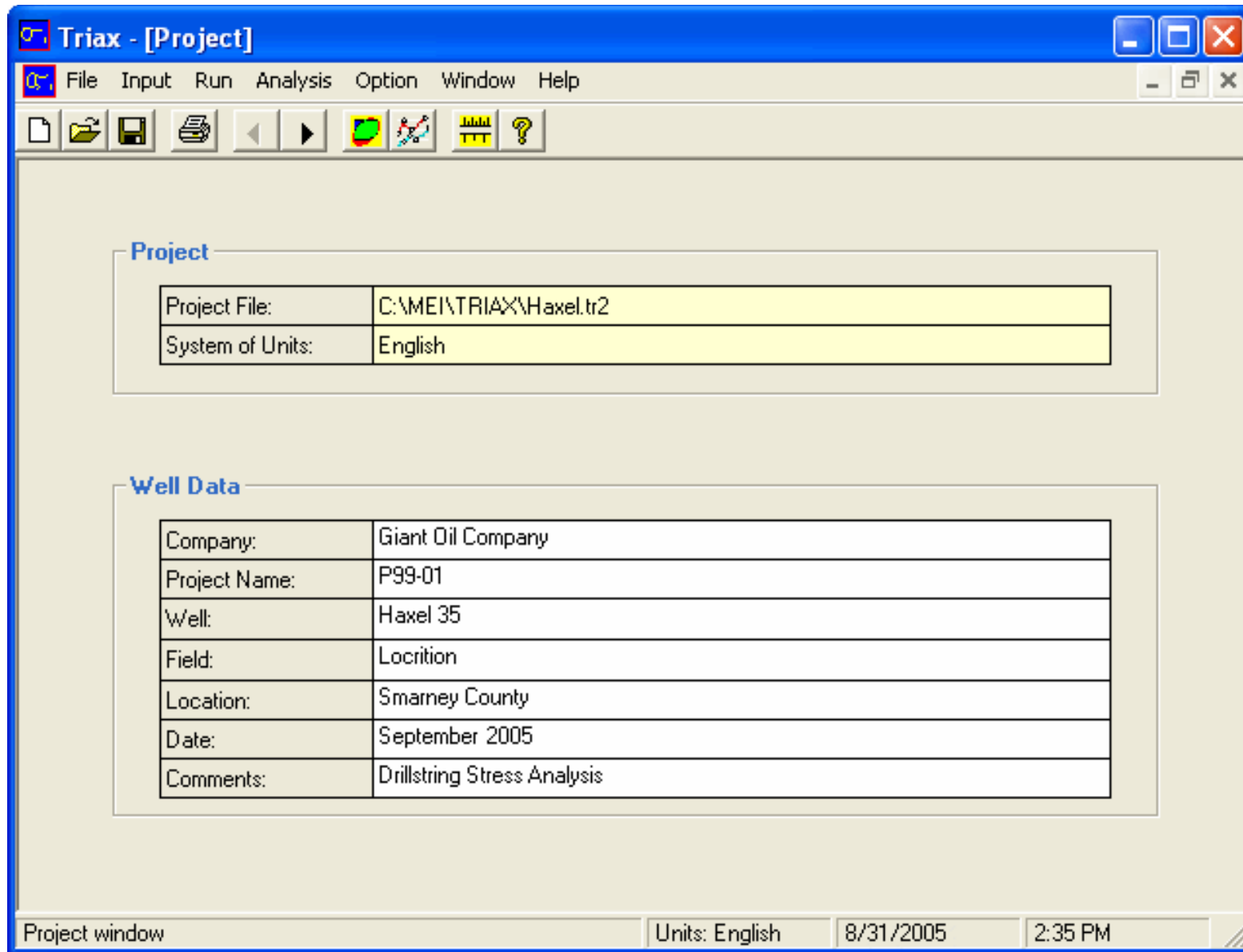
TRIAx – Triaxial Stress Analysis Model

TRIAx calculates limits for burst and collapse pressures and equivalent stresses for the pipe body. Three pressure limit models are evaluated by the program: (1) triaxial, (2) biaxial, and (3) API. The program also performs triaxial stress sensitivity analysis for the factors of internal and external pressure, doglegs, and D/t (diameter/wall thickness) ratios.

Axial loads from DDRAG and internal/external pressures from HYDMOD can be input to this program to examine equivalent stresses and pressure limits for a specific point in the drill string or coiled tubing.

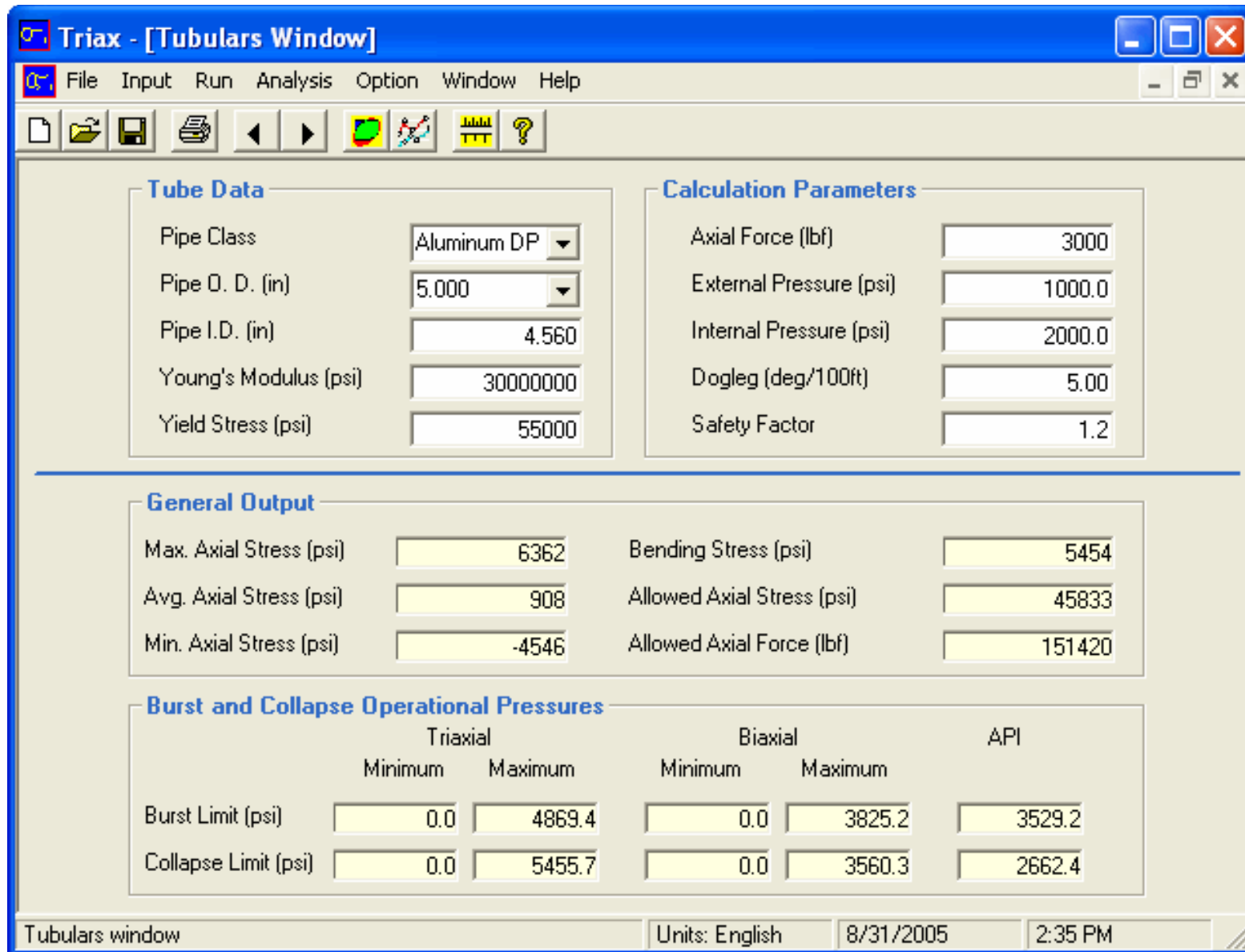
NOTE: Computer screens within this PDF document may appear slightly distorted. This is due to limitations in the Adobe Acrobat Viewer when displaying graphics. To clearly view details in the graphics, zoom in or print the document.





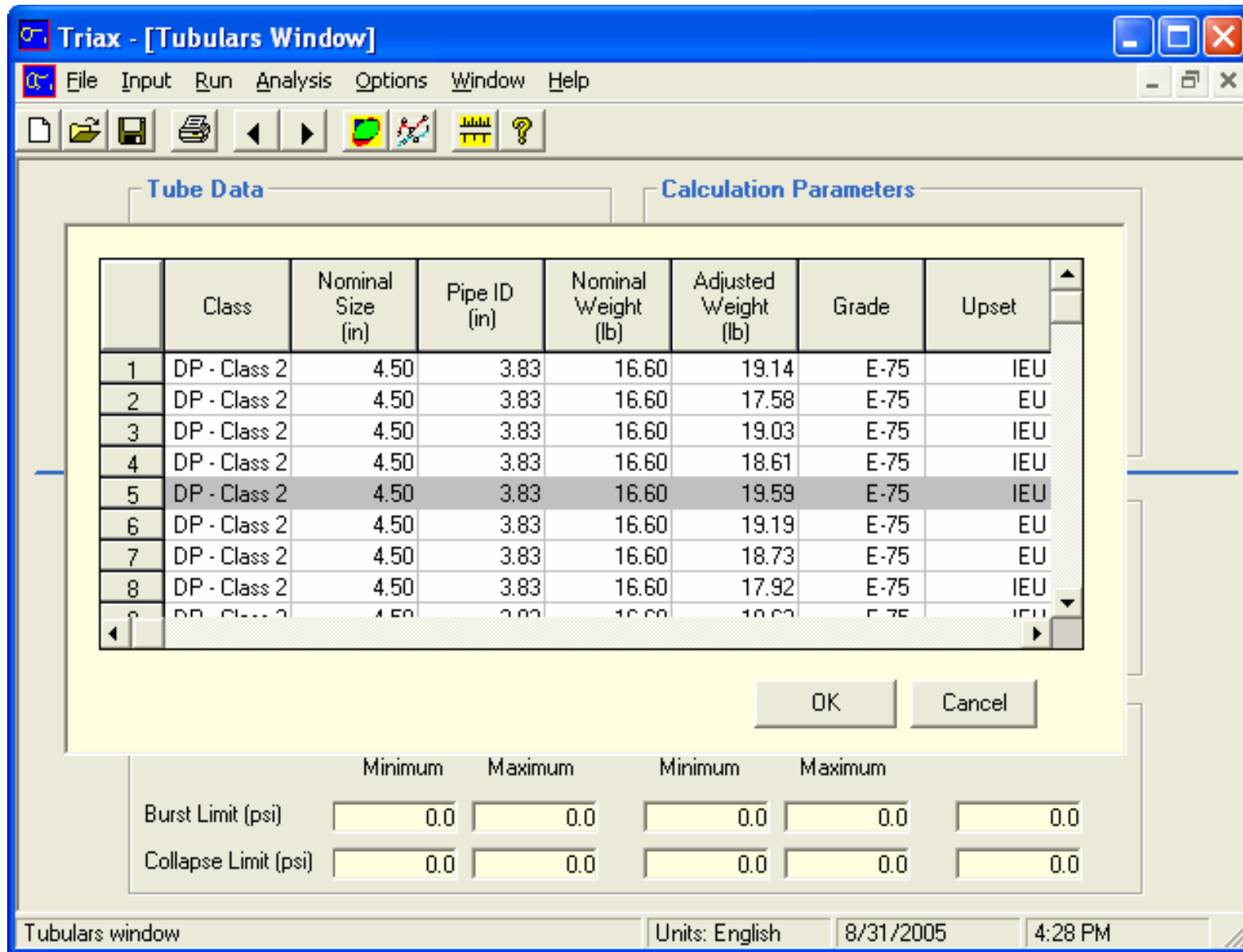
TRIAX

TRIAX is an easy-to-use engineering model. The first input screen (the Project page) stores project documentation.



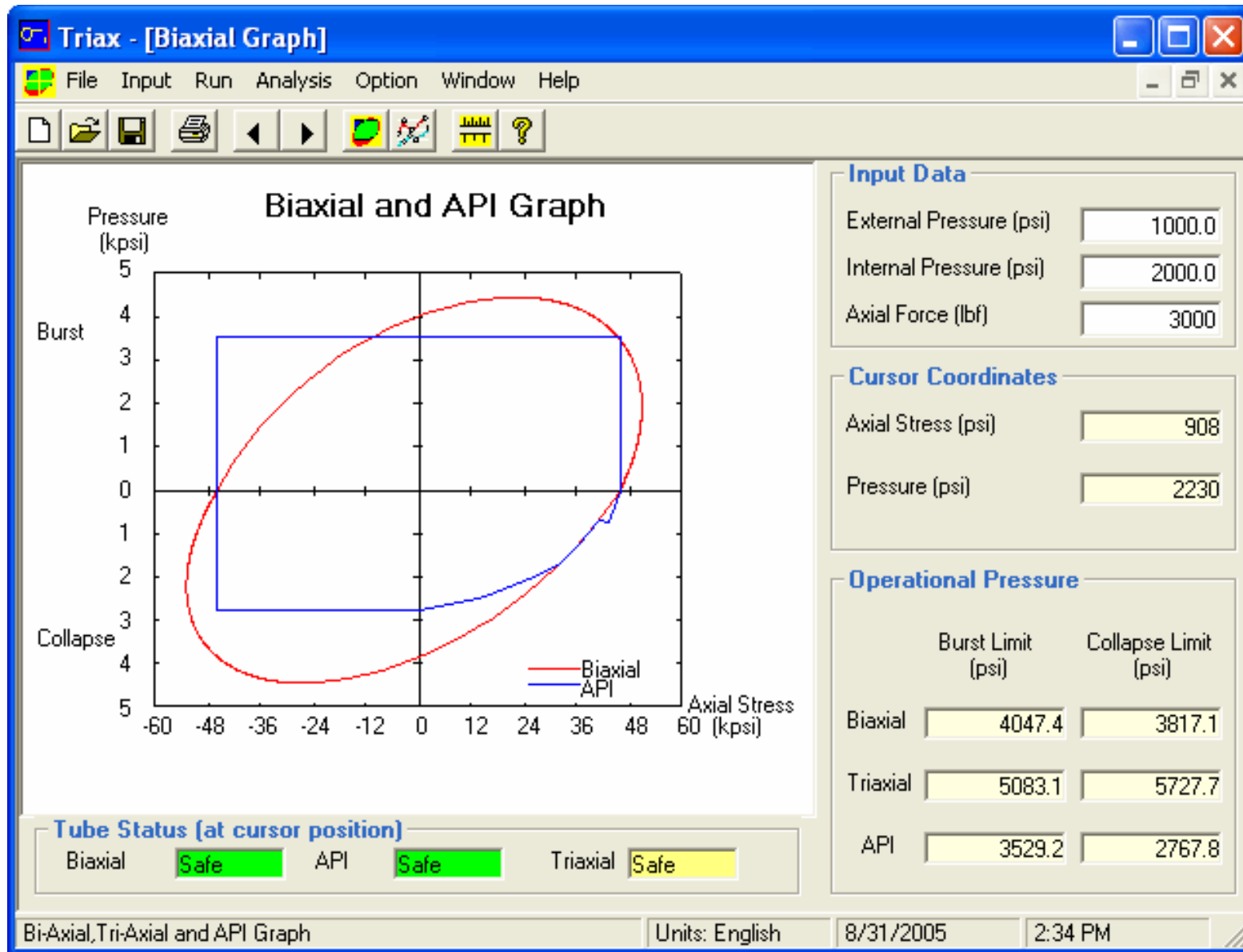
TRIAx

On the Tubulars page, tubular components of interest are specified in detail. After operating conditions are entered, results are displayed on the lower half of the window.



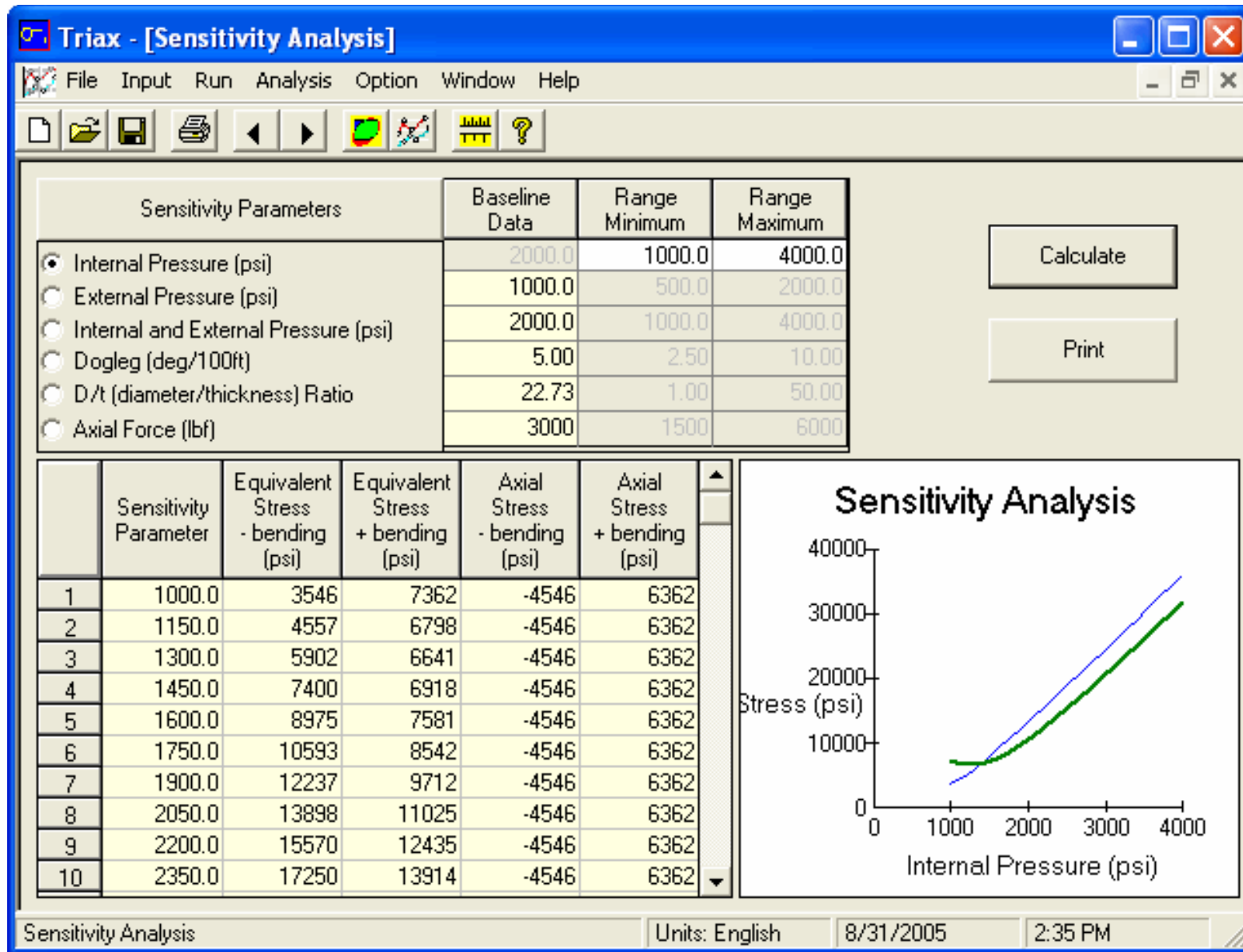
TRIAx

All MTI programs include an extensive database of tubulars that may be edited/customized. This feature avoids the need to look up the drillstring component's size, weight, ID, etc.



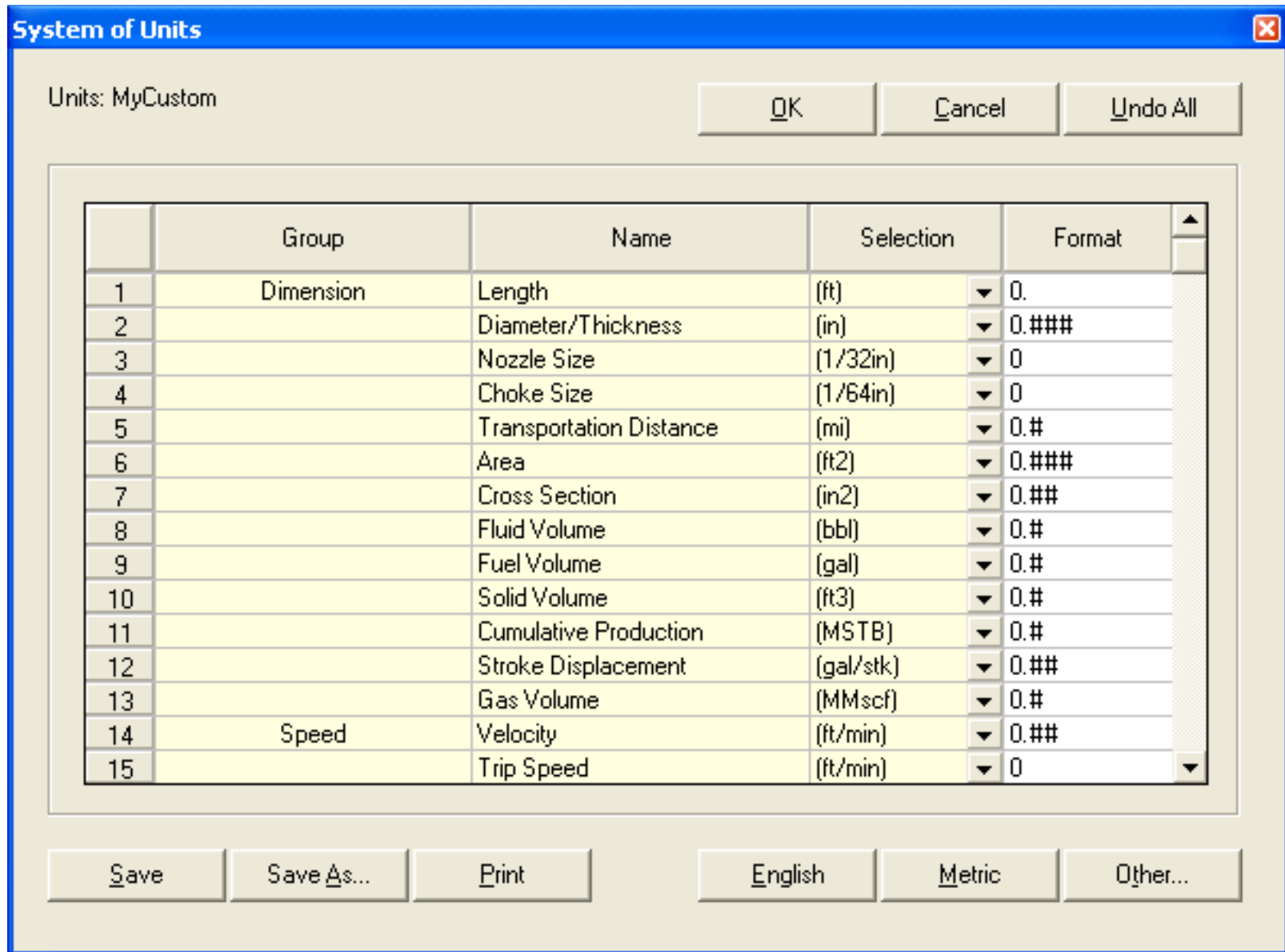
TRIAx

Biaxial, API and triaxial limit curves can be reviewed next. Move the cursor within the graph area to explore the effects of changing stresses and pressures. Burst pressure limits and collapse pressure limits are only affected by the axial stress.



TRIAx

The **Sensitivity Analysis** is an important output utility. It can be used to test the impact of changes in any of several operational parameters. This type of analysis can quickly demonstrate which operational parameter(s) must be optimized.



Units for input and output displays are easy to select and customize. Choose between the default metric or English systems, or a custom combination of units (for example, depth in meters, hole size in inches). Custom systems are saved and automatically recalled in future sessions.

Help for TRIAX

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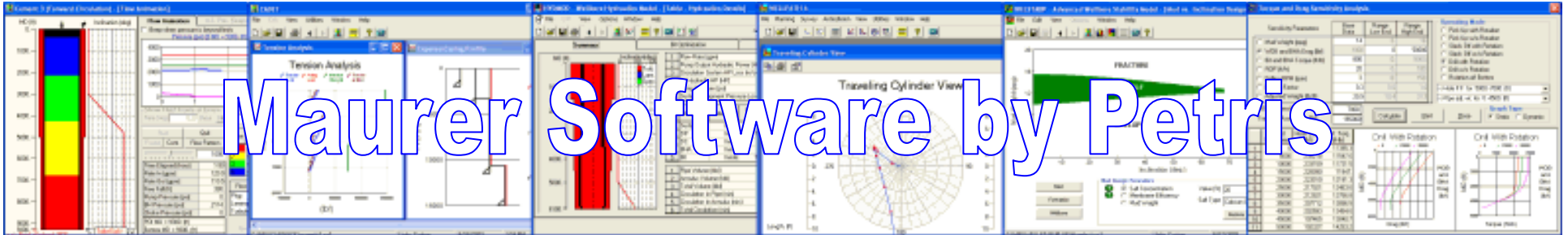
Tubing Stresses

An element of material subjected to stresses σ_x , σ_y , and σ_z in three perpendicular directions is said to be in a state of triaxial stress. Tubes in wellbores subjected to both axial load and pressure (external and/or internal pressure) are under triaxial stress.

The generally accepted relationship for the influence of axial stress on collapse or burst is based on distortion energy theory. A closed triaxial design procedure was developed using Von Mises' and Lamé's equations. The current models included in **TRIAX** do not consider the impact of torsion.

TRIAX

A comprehensive **On-Line Help System** is also provided. Tips on program operation, program structure, and basic theoretical background are immediately available at the click of a button.



Thanks for your interest in TRIAX

*For more information on Maurer Software by Petris,
email:*

sales@petris.com

or visit us on the web at
www.petris.com

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