Schlumberger

TDAS tubular design and analysis system software

Analyzes casing and completion stress and movement during the well life cycle

Tubular Stresses:
Stress and movement engine provides accurate downhole tubular and equipment stress and movement calculations

Torque and Drag:
Torque and drag engine ensures tubular string is able to reach target depth

When it is used

During well construction and production operations to analyze tubular and equipment stress and movements.

How it improves wells

Since 1985, TDAS* tubular design and analysis system software has recommended safe operating envelopes for casing, tubing, and completion equipment under various operating conditions.

How it works

TDAS software simulates different operational conditions to anticipate potential stresses and movements of casing, tubing, and downhole equipment. This information is compared with minimum design criteria and equipment operation envelopes to ensure tubular and equipment integrity.

What it replaces

Compared to conventional software, TDAS software provides a user-friendly workflow and flexible, predefined load cases. The software supports a variety of completion equipment, handles complex string design, gives output summary with risk warnings, and embeds torque and drag analysis.

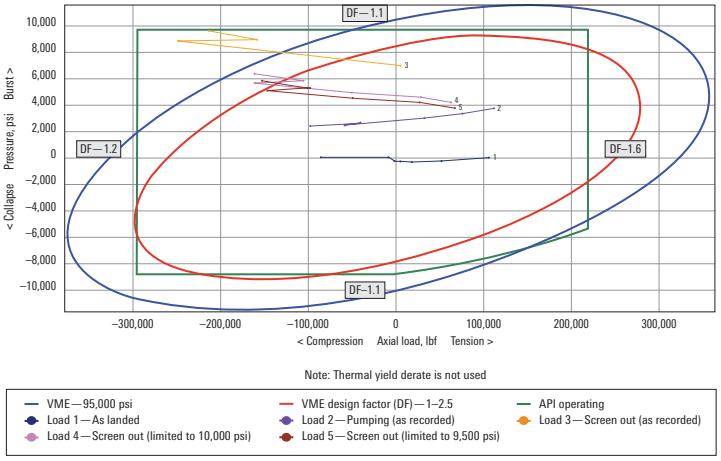
What it evaluates

Stress and movement analysis ensures tubular and equipment integrity during the service life of the well. Thermal analysis simulates multistring temperature profiles during production or injection. APB simulates pressure change in downhole traps because of temperature change. The kick tolerance calculator calculates kick tolerance for casing. The least cost design engine proposes a minimum-cost string for a given well based on the input constraints. Torque and drag analysis simulates whether the tubular string can safely run in hole to target depth.

Additional information

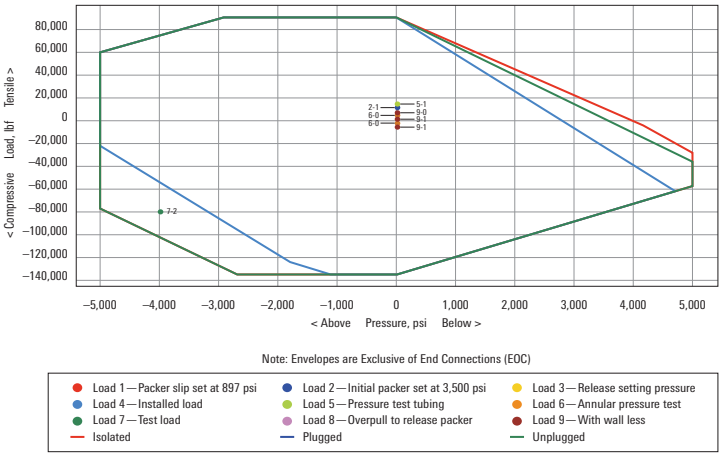
TDAS software follows industry standards such as API Spec 5CT, Spec 11D, Spec 19V, and TR 5C3, among others.

Triaxial plot



The Triaxial plot compares the API and von Mises equivalent (VME) stress boundaries and the pumping operating conditions to highlight any potential hazardous operating conditions.

Operation envelope



The operational envelope shows a single packer with three operating conditions (isolated, plugged, and unplugged) and overlays these with various operating conditions over the life of the well.

Output summary table

Load	Design Factor	Design Criteria	Failure Cause	MD, ft	Position	Load Name
Burst	1.00	1.10	Pipe body	12,786	Above	Screen out (as recorded)
Collapse						Collapse loading does not occur
Tension	3.27	1.40	Pipe body	0	Below	Screen out (as recorded)
Compression	2.52	1.20	Use defined	12,786	Above	Screen out (as recorded)
VME	0.73	1.25		9,790	Above	Screen out (as recorded)

TDAS software clearly summarizes the results associated with the completion deployment.

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