

CASE STUDY

FLUID CODES

 SOFTWARE  SUPPORT  TRAINING  CUSTOMIZATION

CONTACT OUR LOCAL OFFICES

UNITED ARAB EMIRATES +971 4330 8666
SAUDI ARABIA +966 13 8318182
EGYPT +971 4330 8666
BULGARIA +359 88 8813820
UNITED KINGDOM +44 20 3753 4607

 sales@fluidcodes.com
 consulting@fluidcodes.com
 fluidcodes.com

FINITE ELEMENT ANALYSIS OF COLUMN

CHALLENGES

Gasco required to study an existing column built in 1978, which was heavily corroded and some places replaced with new sheet metal.

The goal was to verify the integrity of the renovated column with the various working conditions and loads, internal pressure, packing load, nozzle load, platform load, pipe support, insulation, operating liquid and self-weight.

ENGINEERING SOLUTION

The external structure of the column was modeled in ANSYS including the existing bulges in the structure. The geometry was built as a surface model and then appropriate thickness used. The study helped the customer to identify the critical locations in the column and find out the maximum pressure at which the column can safely operate. Additionally, a parametric study was done to find an optimum shell thickness for the column with the given operating conditions. The results were validated with the latest ASME Sec VIII Div.2

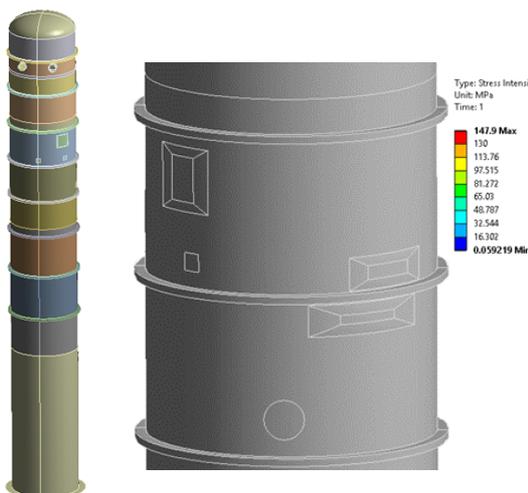


Figure 1. Geometric Model of Column including bulges

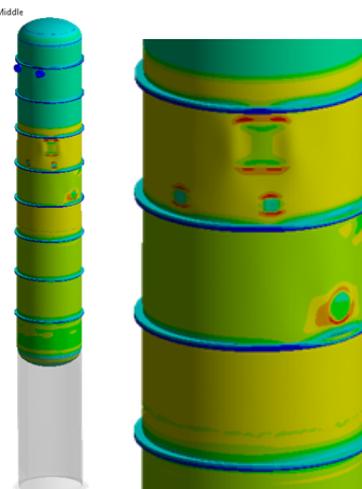


Figure 2. Column-Stress contour plot

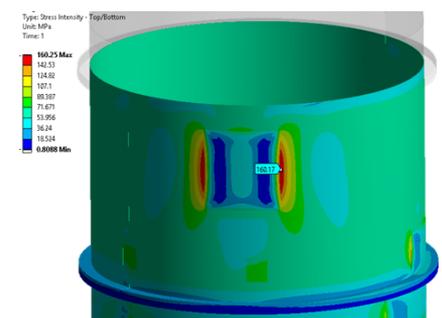


Figure 3. Stress contour plot near the bulge