

Load case - injection down casing

Oliasoft

Abstract

In this document we describe the load case *Injection down casing* available in the Oliasoft™ application.

Introduction

Injection down casing is a burst load case, where the unknown is the internal pressure profile of the tubing¹. This is a load case that models an applied surface pressure to a static fluid column.

Inputs The following inputs define the injection down casing load case

- 1) The true vertical depth (TVD) along the wellbore as a function of measured depth. Alternatively, the wellbore described by a set of survey stations, with complete information about measured depth, inclination, and azimuth.
- 2) The true vertical depth/TVD of
 - a) The hanger of the tubing, TVD_{hanger} .
 - b) The shoe of the tubing, TVD_{shoe} .
- 3) The applied injection pressure, p_{inj} .
- 4) The density of the injection fluid, ρ_{inj} .

Calculations The internal pressure profile of the tubing is simply calculated as

$$p_i = p_{\text{inj}} + \rho_{\text{inj}} g h, \quad TVD_{\text{hanger}} \leq h \leq TVD_{\text{shoe}}. \quad (1)$$

¹We denote any tubular by tubing. All calculations encompass both tubings and casings.