

The following is a summary of the initial stress analysis for the LVI at Glengad to establish the boundaries for combined stress. Table 1 defines the cases and Table 2 shows that the combined stress during hydrostatic testing and the operational case and are all within the allowable pipeline stress defined within the onshore pipeline codes.

The LVI stress analysis will be reconfirmed when the route alignment is approved.

**Table 1 - Selected Boundary Cases**

Case	Description	Upstream Temp. (°C)	Downstream Temp. (°C)
1	Restart at LVI	4	-20
2	Start Up from Subsea Wells	4	4
3	Sensitivity case 0 deg C	0	0

**Table 2 – Results for stress analysis for hydrostatic pressure testing and each of the above cases.**

	Load Case (Note 2)	Maximum Stress, Mpa Von Mises	% of Allowable Stress (Note 1 & Note 3)
<b>Hydro-Test</b>	Hydrostatic Pressure Test, 504 barg and tied into the onshore pipeline	421.0	96.6
<b>Case 1</b>	Operational (LVI pipe work)	237.0	58.5
<b>Case 2</b>	Operational (LVI pipe work)	312.3	77.1
<b>Case 3</b>	Operational (LVI pipe work)	305.8	75.3

**Notes:**

- 1 Allowable stress is 90% SMYS in accordance with I.S. 328 and BS PD8010
- 2 Based upon design pressure.
- 3 Value calculated as:  $100\% * (\text{Maximum Calculated Von Mises Stress}) / (90\% * \text{SMYS})$