CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5-1: Conclusion

It should be emphasized that real values are used in this study. The dimensions are real, and the value of effective pressure inside the vessel is a real value, except the value of the weld efficiency which was assumed as unity.

In this research a Liquefied Petroleum Gas vessel with two meters shell length, 1400 mm diameter, 15mm shell thickness, 15 mm dish end thickness was designed. ANSYS package was used to check the stress values in different points in shell and dish end according to what is designed as per ASME code previously. The maximum value of stress was found to be decreasing in the out ward direction of the wall thickness, starting at a value of 179 MPa, It is noted that the distribution of stress was a gradual. The safety factor will be calculated as follows:

5-1-1:Factor of safety for strength

the yield strength SyFor the Mild steel= 235 MPa

the maximim stress obtained by ANSYS $\sigma_{max} = 194$ MPa

$$fs = \frac{\sigma_y}{\sigma_{max}}$$

$$fs = \frac{235}{194} = 1.2$$

5-1-2:Factor of safety for pressure

$$fs = \frac{Pmax}{P\ work}$$

$$fs = \frac{21.2}{17.5} = 1.2$$

5-2: Recommendations

From previous acquired results, the following could be recommended:

1. According to the analysis and the results acquired it is recommended to Insert the welding efficiency with the real value E≠1 and check the design again.
2. It is also recommend that to use autofrettaging analysis to minimise the thickness.

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