

## **ABSTRACT**

*Pressure vessel utilization lately has been growing rapidly in various industries. Pressure vessel serves as a place for processing and storing fluid material. A pressure vessel containing technical equipment a high risk of danger that can cause accidents. Therefore, it is a design of pressure vessels must have a high level of security and in accordance with applicable standards. Seeing the condition at this time that there are still cases of failure of pressure vessels, it would require a redesign to a vessel in order to know the level of safety.*

*The design of pressure vessels can be carried out with methods adapted to technological progress. In the design of this vessel is a pressure vessel designed Slug Catcher 3 m<sup>3</sup> capacity, the internal pressure of 98 bar and a temperature of 60 °C. The design is done by manual calculations and with the help of PV Elite 2014 software.*

*Based on the manual calculation obtained at 1.5625 inch the shell thickness, head thickness 1.5 inch, shell MAWP 1424.31 psi, and MAWP head 1478.15 psi. Meanwhile, based on the design of the software acquired shell thickness 1.5526 inch, 1.4539 inch the thickness of the head, shell MAWP 1621.20 psi, and MAWP head 1706.05 psi. From the results of the design is also known that the most critical component in receiving load is flange with the rating of 600 # as it has a maximum pressure of 1350 psi license under the design pressure 1421.37 psi. Design using software is preferable because it is more efficient in terms of time used in the design.*

**Keywords:** *Slug Catcher, PV Elite 2014 Software, Head, Shell, MAWP*