ABSTRACT

Human safety is the most important factor in a system or working process because human life is very valuable and irreplaceable. The use of real time system currently has become a very important need to improve safety factor and efficiency of a system or process. A real time system design can be used as information media on the system process in real time therefore can ease the system monitor and control. Pertamina UPMS III UjungBerung, which is the Marketing unit of petroleum, has receiving terminal department which temporarily stores received petroleum to be distributed back to the people. The petroleum temporary storage is called heap oil tank. Therefore, in this research the writer would like to design a monitor and control system of heap oil tank that gives information in the form of valve status, received products, product density, pipe pressure, product temperature, and number of products for each heap oil tank with the title of "Monitoring and Controlling System Design of heap oil tank at UPMS III UjungBerung PT. Pertamina."

In designing this otomatized system, the problem solving is divided into five stages, which are preliminary studies stage, initialization stage, design stage, testing and analysis stage, and also analysis and recommendation stage. The first stage is to identify problem and determine objectives. On initialization stage literature studies and existing identification are conducted. The next stage is design stage, where programs for the PLC (Programmable Logic Controller) and the Human Machine Interface software are designed in parallel. To test whether the results have matched the research objectives therefore testing and analysis stage is conducted. The last stage is conclusion and recommendation for further research.

This Final Paper is divided into several chapters, they are: Chapter I about research background, research objectives, and research scope. Chapter II contains literature studies on Programmable Logic Controller (PLC), Human Machine Interface (HMI), and existing monitor and control system. Chapter III contains system modeling made conceptually and also problem solving framework. Chapter IV explains existing system analysis and system design. Chapter V explains analysis of the designed system. And Chapter VI describes conclusion of the research and also recommendation for further development of the research.

The conclusion of this research is that monitoring and controlling system heap oil tank using HMI will assist the operator to supervise and control it. This system can also minimize the human error factor and improve the working safety of the operator.