

## **ABSTRACT**

Loading Berth LNG is one of the main units in the PT Arun NGL. This unit serves as a unit for distributing LNG that has been processed and stored in a storage vessel into LNG carrier. However, this unit is sometimes an error occurs in the system, which can lead to fatal errors if it occurs in large-scale and continuous. Then at each plant is given a safety instrumented system (SIS) or also known as ESD. In the SIS presented, that a state of emergency, Shutdown, the goal is as a form of security in the plant. SIS serves to protect if there are unexpected events that can be fatal, accidents at Suatu process instrumentation industry.

This final project study emphasized on the analysis of the existing SIS verification in PT Arun NGL and Design of Safety instrumented system (SIS) in units of 68 LNG Loading Berth use DCS YOKOGAWA CENTUM 3000 contained in the PT. ARUN NGL. On the basis of the specification and the sensor used. This system can prevent the occurrence of circumstances that may cause damage to the system. From the data obtained from sensors will be processed through DCS control to prevent trip-shutdown in the system.

Level testing system based on the accuracy of the system action taken against the instructions given by the user, or automatically by the sensor. Testing is also done through virtual DCS YOKOGAWA CENTUM 3000. It is expected that with the SIS research on this 68 unit can work well and make feedback for PT Arun NGL and can minimize damage to the system.

**Keywords:** *SIS, SIF, SIL, Safety Life Cycle, BPCS & IEC*