DESIGN OF LEVEL CONTROL SYSTEM IN OIL/WATER SEPARATOR BASED ON DISTRIBUTED CONTROL SYSTEM SOFTWARE CENTUM CS3000

Name : MOCH. ISMAIL
NRP : 2406 100 609
Department : Engineering Physics Department
Supervisor : Ir Ya’umar, MT
Fitri Adi Iskandarianto, ST. MT

Abstract
Separator is one of the main component in crude oil processing before another process begin. In separator there are crude oil separating process that separate crude oil to several fraction/Phase. There are some process variables in separating process. One of them is level variable bases on liquid phase layer. In real plant, level variable must be controlled by a control system. Sizing process used to calculate/decided level liquid in vessel. The designing and modeling are created in Distributed Control System (DCS) CENTUM CS3000 environment using Laplace equation approaching. Then, the equation model is re-writed into Function Block Diagram format in DCS Control Drawing. Human Interface Station is also created in order to do the system operating and monitoring function. By using oscillation method with closed loop system, the result of PI tuning gain are PB=800; Ti=6.5. From the simulation give the result of PI tuning parameter at set point 518 mm are Ts=99 second, Max.Overshoot=62 mm and Ess=10 mm.

Keyword : Separator, Distributed Control System, PI controller, Sizing calculation, Human Interface Station