

ABSTRACT**PLC Upgrade of the Desalination Unit's Control System at the
Titan Methanol Facility.**

Marlon John Francois

The present control system of the Desalination Unit at the Titan Methanol Facility is based on the use of Electro-mechanical relays. This relay based control system has experienced a number of failures and proven to be difficult to troubleshoot by maintenance personnel. A Programmable Logic Controller (PLC) based control system is proposed to alleviate problems with the existing system while also providing additional benefits such as quick and easy installation, high level of flexibility and expandability, cost effectiveness, and high reliability. Implementation of the proposed PLC based control system is first justified by establishing an increase in 'Equipment Effectiveness'. Thereafter, hardware specifications and design considerations are discussed and final hardware design is determined. The PLC User Program is then structured according to process sub-tasks and hardware addressing format. Finally, the form of program testing is discussed with appropriate recommendations being put forward regarding the PLC program.

Keywords: Marlon John Francois, Desalination, Electro-mechanical relays, Programmable Logic Controller, Equipment Effectiveness, User Program.