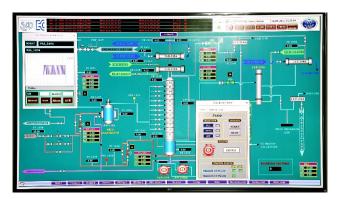A secure PLC based test facility configured as Distributed Control System (DCS) consisting of two Master Hot Standby control PLC configurations, each having 32 and 9 remote I/O nodes catering to 8000 I/O was installed at ECIL. Based on the functional and performance requirements of large size DCS of the INRP project, a detailed checklist for evaluation of Secure PLC was prepared aimed to validate the I&C requirements of INRP project on the secure PLC test facility. For validation of each functional, performance, redundancy, switchover, safety and security requirement of I&C of INRP Project, large number of test cases were prepared referring to the evaluation checklist. Integrated test plan and procedure document describing each of the individual test case to be executed in the test facility has been prepared.

PLC application software facilitating testing of all the test cases was developed and hosted on the CPUs of control nodes in the test facility. Validation testing was carried out by executing all the test cases and the test results were recorded. A comprehensive document of validation testing was prepared documenting all the test plans, procedures and reporting of all the test results. This validation exercise established the suitability of Secure PLC for I&C applications of INRP project.

Control Room of Test Facility

Master Hot Standby PLC

Sample HMI Screen Shot developed for Validation testing