

# Computerized Procedures System

## Background

Computerized procedures were developed to help operators execute normal and emergency operating procedures. Westinghouse has designed, developed and implemented a data-driven, software-based computerized procedures system (CPS) that guides operators through plant operating procedures. It monitors plant data, processes the data and then, based on this processing, presents the status of the procedure steps to the operator. The system can be used for normal operating procedures, abnormal operating procedures and emergency operating procedures. Computerized procedures allow the operator and computer to complement each other for more accurate and efficient procedural execution.

## Description

The CPS:

- Guides the user step-by-step through the procedures by monitoring the appropriate plant data, processing the data and by identifying the recommended course of action
- Provides the necessary parallel information, which allows the operator to assess other plant conditions that may require attention



The Westinghouse CPS accomplishes its purpose by executing the concurrent and independent functions of procedure processing, parallel information monitoring and conditions logging. The conditions logger generates a permanent chronological record of parameter and component state and actions taken. The CPS online software will run on operator workstations in the main and/or emergency control room. The system is embodied in a user interface that supports diverse procedure views: a graphical flowchart view, a textual view and a dynamic logic view.

The CPS provides a consistent structure within which plant operating procedures are created, maintained and utilized. It can reduce cycle time needed to implement changes in the operating procedures, because the procedures will reside within the computerized system. The CPS is not designed to perform any plant safety protection functions, and no Category B functions rely on the CPS equipment to perform those essential functions. The CPS equipment is functionally categorized as Category C, or as a non-safety system, according to U.S. Nuclear Regulatory Commission (NRC) guidance.

## Benefits

The CPS provides:

- More accurate and timely implementation of the procedures
- Enhanced situation assessment by the operator
- All procedural information at one location
- Detailed recordkeeping of the procedure execution
- Reduced operator mental workload
- Integrated information needed for procedure execution, such as direct access to graphical displays

## Experience

The Westinghouse CPS has been installed in nuclear power plants around the world, and has been approved by the NRC for use in the Westinghouse AP1000® nuclear reactor.

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