

SCDS Safety I&C Non-Safety I&C SDM 🛮 PS/SAS **FUNCTIONAL UNIT** (APU, ALU, CU) Input Module MSI Communication Fiber Optic Module Communi-Communi-(SICS) Fiber Optic Function Function cation cation Processor Processor Module Module Communication EOC EOC Gateway ·► PICS Module Output Module **PACS** Communi-Fiber Optic Priority cation Interface Module Module **LEGEND NOTES** The interface from the Service Unit to the safety SYSTEM BOUNDARY I&C systems is not shown on this figure. The Service POINT TO POINT DATA CONNECTION Unit interface is shown in the Digital Protection System Technical Report (ANP-10309P) (Reference 6). NON-SAFETY RELATED EQUIPMENT QUALIFIED ISOLATION DEVICE REV 003 EPR3095 T2

Figure 7.1-20—Implementation of Independence Between Safety and Non-Safety I&C



(SICS) STOP (SICS) MNOFF CBSFT CMDOFF CMDON OR OR OPERATIONAL I&C AND SAFETY RELATED SFON CBSFT SFOFF CDON COMPONENT LEVEL SYSTEMS ACTUATION LOGIC MANUAL (SICS) LOGIC NOTES: Signals within the dotted box are internal to the priority module. Signals external to the priority module are outside the dotted box

Figure 7.1-21—PACS Priority Module Logic Diagram
Sheet 1 of 2



(from Actuator) TRQNON TORQUE OUTPUT CHECKBACK LOGIC COMMANDS AND SFOFF CBTRQOFF CBTRQON **TERMINATIONS** CDON OR OR CMDON CMDOFF CBTRQON CBTRQOFF CMDOFF **♥** CMDON NOTES:
Signals within the dotted box are internal to the priority module.
Signals external to the priority module are outside the dotted box
with their source/destination in parenthesis.
Parameters are configured by wiring to voltage source or ground. EPR3100 T2

Revision 5

Figure 7.1-21—PACS Priority Module Logic Diagram
Sheet 2 of 2



Figure 7.1-22—Distributed Control System Physical Architecture

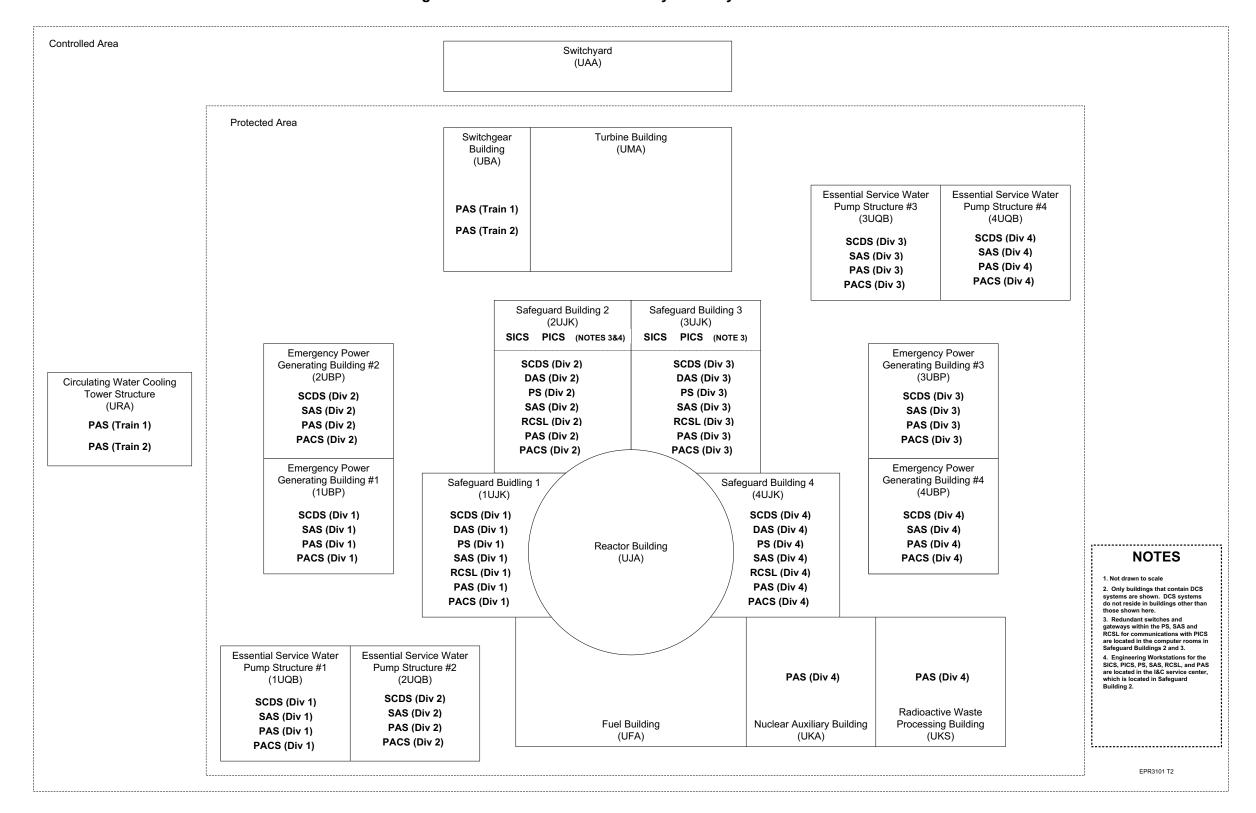




Figure 7.1-23—Signal Conditioning and Distribution System Architecture

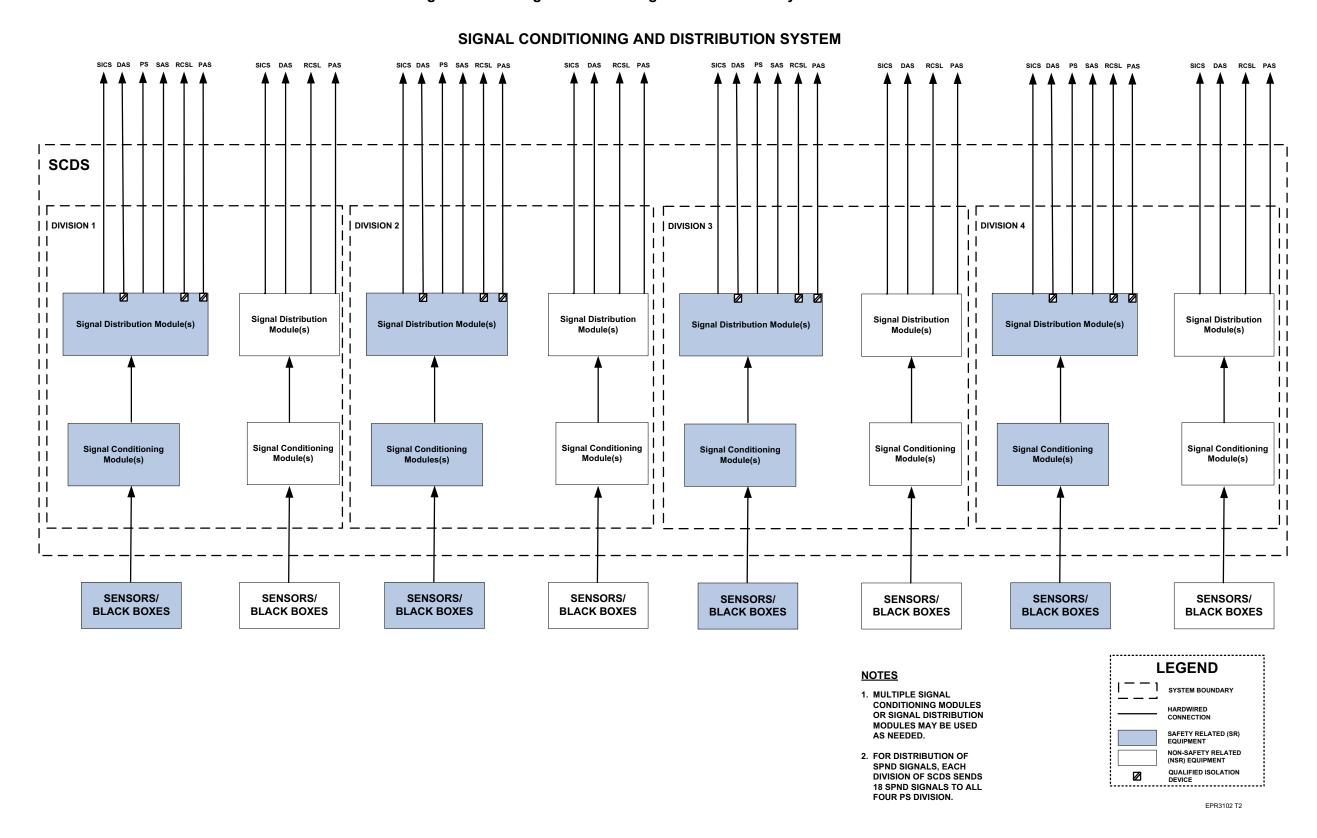
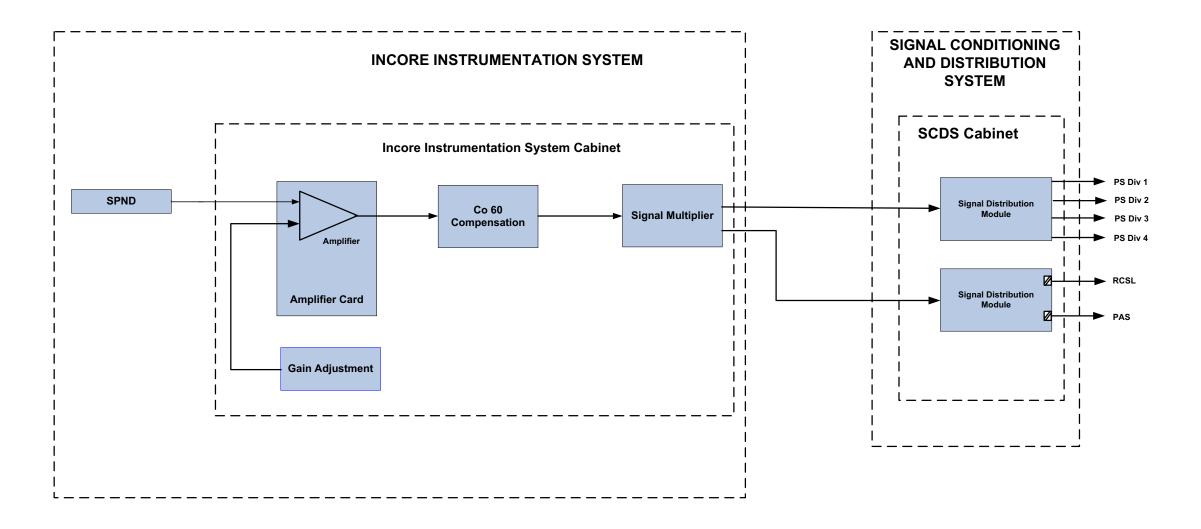
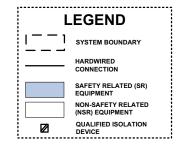




Figure 7.1-24—Self Powered Neutron Detector Functional Arrangement



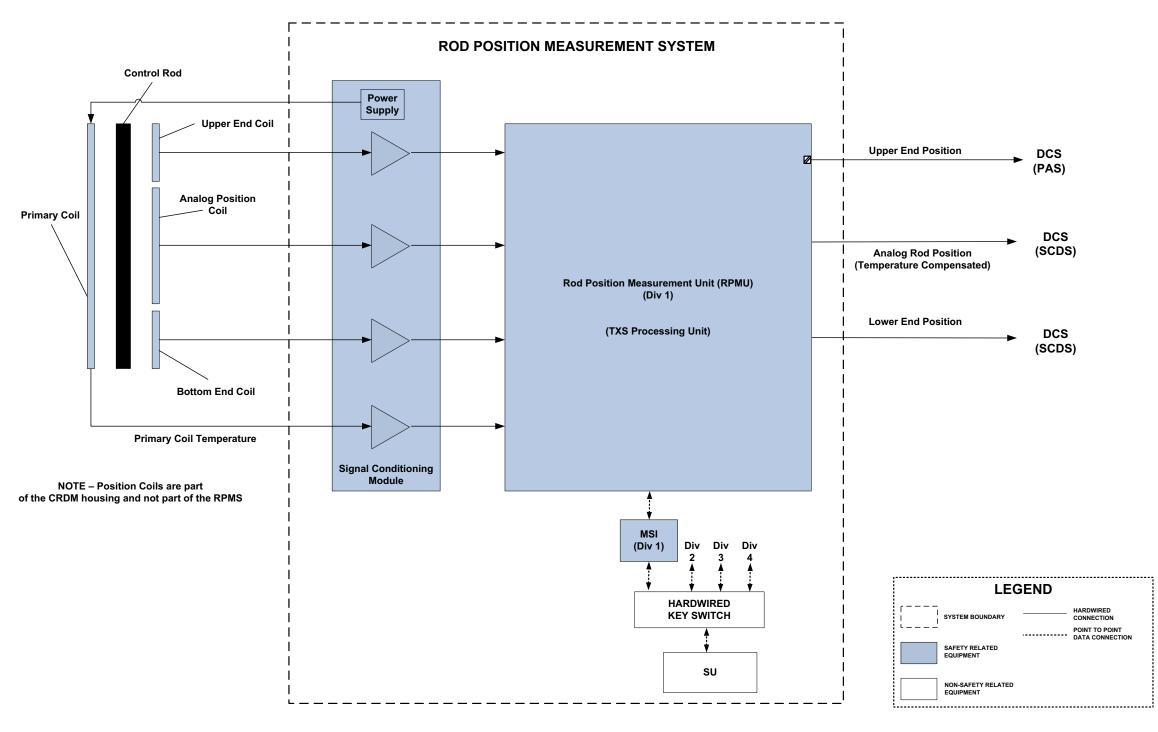
SIMPLIFIED SIGNAL PATH



EPR3103 T2



Figure 7.1-25—Rod Position Measurement System Arrangement



EPR3104 T2



Control Rod Drive Control System Coil Module **CRDCS Cabinet** Lift Coil (Control Transistors) RCSL -Movable DAS RCCA 1 Gripper Coil (Control Transistors) Coil Module (Control Gripper Coil Coil Module (Control Lift Coil RCSL < Movable Rod Control Coil Module RCCA 2 DAS -(Control Coil Module Stationary Gripper Coil Coil Module (Control Transistors) Lift Coil RCSL -Coil Module RCCA 3 DAS Gripper Coil (Control Transistors) Coil Module (Control Stationary Gripper Coil Coil Module (Control Lift Coil Movable RCCA 4 DAS Gripper Coil Coil Module (Control Transistors) Stationary Gripper Coil 24 VDC Power Supply Module 24 VDC Power Supply Module Main Trip **Breakers** DAS

Figure 7.1-26—Control Rod Drive Control System Arrangement

EPR3106 T2

250 VDC



DAS DIVISION 1 PS DIVISION 1 2 out of 4 TG I&C TG I&C TG I&C **DIVISION 1 DIVISION 2 DIVISION 3** OR OR **TURBINE GENERATOR INSTRUMENTATION & CONTROL LEGEND** SAFETY RELATED (SR) EQUIPMENT NON-SAFETY RELATED (NSR) EQUIPMENT QUALIFIED ISOLATION DEVICE Hydraulic System Trip Block (2 Out of 3)

Figure 7.1-27—Turbine Trip Logic within Turbine Generator I&C

EPR3428 T2

Page 7.1-230