

I&C System Design and Analysis is a Core Competency of ORNL

- Multidisciplinary staff can address all aspects of I&C systems (e.g., measurement, signal transmission and processing, electronics, software, control and protection functionality, communications, systems integration)
- ORNL has 60 years experience with design, development, implementation, analysis, and review of nuclear power I&C systems/equipment
- ORNL has provided NRC over 15 years of continuous support in I&C
 - Functional issues for ALWR safety systems
 - Electromagnetic compatibility (R.G. 1.180)
 - Lightning protection (R.G. 1.180)
 - Qualification of computer-based I&C systems (DG-1142)
- ORNL provides expertise to NRR on BWR stability
- ORNL led the Advanced Controls Program for DOE-NE in the 1990s
 - Supervisory control
 - Advanced control algorithms
 - High-temperature sensors
 - Cognitive loading for multiunit operators
- ORNL lead roles on space power program—sensor development and conceptual design of reactor autonomous control systems