



Digital I&C Website

On

NRC Public Website

<http://www.nrc.gov/>



Digital I&C Website Objective

- Dedicated to Digital I&C Issues & Developments
- Enhance Stakeholder Communication & Participation During Ongoing Efforts on Regulatory Guidance Development
- Digital_IC@nrc.gov Email Account Has Been Established for a Single Point of Contact for Digital I&C Issues



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U.S. Nuclear Regulatory Commission

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Nuclear Reactors

Regulated Reactors

- [Power Reactors](#)
- [Research and Test Reactors](#)

Regulated Activities

- [Operating Reactors](#)
- [Operator Licensing](#)
- [New Reactor Licensing](#)
- [Plant Specific Items of Interest](#)

For general information, see the [How We Regulate](#) page.

Responsibilities

The [Office of Nuclear Reactor Regulation](#) has overall responsibility for NRC's reactor program. NRC's Regional Offices ([Region I](#) - Northeast, [Region II](#) - Southeast, [Region III](#) - Midwest, and [Region IV](#) - West/Southwest) implement this program in the states for which they are responsible. Reactor regulation is also supported by a [Nuclear Reactor Safety Research](#) program and by independent advice from the [Advisory Committee on Reactor Safeguards](#).

Related Information

- [NRC Strategic Plan \(Reactor Section\)](#)
- [NRR Task Action Plans](#)

Quick Links - to reactor information on one page

Key Topics

- [Digital I&C](#)
- [Davis-Besse Reactor Vessel Head Degradation](#)
- [License Renewal](#)
- [Potassium Iodide in Emergency Planning](#)
- [Reactor Oversight Process \(ROP\)](#)
- [Reactor Safety Focus Areas](#)
- [PWR Sump Performance](#)
- [Groundwater Contamination \(Tritium\)](#)
- [Use of Risk in Nuclear Regulation](#)

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Power Reactors

The NRC regulates commercial nuclear power plants that generate electricity. There are several types of these power reactors. Of these, only the Pressurized Water Reactors (PWRs) and Boiling Water Reactors (BWRs) are in commercial operation in the United States. Select a type from the list below to view a description and diagram of each.

- [Pressurized Water Reactors \(PWRs\)](#)
- [Boiling Water Reactors \(BWRs\)](#)

There are currently 104 licensed to operate nuclear power plants in the United States (69 PWRs and 35 BWRs), which generate about 20% of our nation's electrical use. For more information about [operating reactors](#), see the [location map](#), [list of power reactors](#), and [NRC Project Managers](#).

As part of operational experience monitoring, the agency will periodically encounter certain reactor systems or management areas that could be improved. For additional information on areas related to safety that the agency is working to improve and upgrade, see [Reactor Safety Focus Areas](#).

[Privacy Policy](#) | [Site Disclaimer](#)
Last revised Friday, June 02, 2006

- [Digital I&C](#)
- [Maintenance Effectiveness](#)
- [Multiple/Repetitive Degraded Cornerstone Column](#)
- [PWR Sump Performance](#)
- [South Texas/Reactor Vessel Bottom Head Penetration Leakage](#)
- [Technical Specifications](#)
- [Power Uprates](#)

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Operating Reactors

What We Regulate

NRC regulates the operation of over 100 commercial nuclear power reactors that generate electricity. For more information about [power reactors](#), see the [location map](#), [list of power reactors](#), and [NRC Project Managers](#).

It also regulates about 36 research and test reactors located primarily at universities where they are used for research, testing, and training. For more information about [research and test reactors](#), see the [location map](#), and [NRC Project Managers](#).

How We Regulate

NRC regulates reactor operations through a combination of regulatory requirements; licensing; safety oversight, including inspection, assessment of performance and enforcement; operational experience evaluation; and regulatory support activities. For details of the first four components, see:

- [Regulations, Guidance, and Communications](#)
- [Licensing](#)
- [Oversight](#)
- [Operational Experience](#)

- [Digital I&C](#)
- [Results of Licensee Survey](#)
- [Multiple/Repetitive Degraded Cornerstone Column](#)
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- [Licensee Toolkit](#)
- [Power Plant Security Order](#)

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Proposed Digital I&C Home Page

Digital Instrumentation and Controls (I&C)

Instrumentation and Control systems that use digital computers in safety systems make extensive use of advanced technology, i.e., equipment and design practices that are expected to be significantly and functionally different from current designs. These designs include, but are not limited to, the use of microprocessors, digital systems and displays, fiber optics, multiplexing, and different isolation techniques to achieve the needed independence and redundancy.

The deployment of digital technology in nuclear facilities has the potential to improve safety and operational performance. The NRC is committed to the licensing of digital technology provided that the necessary levels of safety are maintained. The digital I&C area continues to evolve as the technology changes and NRC continues to refine its regulatory approach. NRC is actively working to find solutions to technical challenges that affect licensing of digital systems for both operating and new reactors and at other nuclear facilities. In anticipation of future licensing activities, NRC is building its infrastructure by developing guidance and staff resources. NRC will continue to interact with external stakeholders, other government agencies and international regulators on regulation of digital technology.

On this page:

- [Overview](#)
- [NRC Activities](#)
- [Related Information](#)
- [Reports and Correspondence](#)



Proposed Digital I&C Home Page

Overview

- [Digital I&C in Nuclear Power Plants](#)
- [Key Issues](#)

Hyperlinks to
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NRC Activities on Digital I&C

- [Public Meetings](#)
- [Resolution Activities](#)
- [Regulatory Activities](#)
 - [Office of Research](#)
 - [Office of NRR/NRO](#)

Related Information

- [Frequently Asked Questions](#)

Reports and Correspondence

- [Regulations and Guidance](#)
- [Technical References](#)
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- [Other Correspondence](#)

for additional information or comments contact us at Digital_IC@nrc.gov



Digital I&C Website Schedule

- A Total Redesigned NRC Website is Scheduled for Deployed in April 2007
- Production of Digital I&C WebPages will Coincide with NRC Website Redesign
- Interim Access to Digital I&C Web Pages will be Available Through Electronic Reading Room at <http://www.nrc.gov/> (Keyword: Digital I&C Website)