

Regulations and Guidance

This page lists regulations and guidance for digital instrumentation and controls (I&C) systems.

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Some links on this page are to documents in the NRC's [Agencywide Documents Access and Management System \(ADAMS\)](#), and others are to documents in Adobe Portable Document Format (PDF). ADAMS documents are provided in either PDF or Tagged Image File Format (TIFF). To obtain free viewers for displaying these formats, see the NRC's [Plugins, Viewers, and Other Tools](#) page. If you have questions about search techniques or problems with viewing or printing documents from ADAMS, please contact the [Public Document Room staff](#).

10 CFR Part 50

Document Number	Description
10 CFR 50.55a	"Codes and Standards," paragraph (h), "Protection and safety systems"
10 CFR Part 50, Appendix A	"General Design Criteria for Nuclear Power Plants"

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SECY Papers

Document Number	Description
SECY-93-087	"Policy, Technical, and Licensing Issues Pertaining to Evolutionary and Advanced Light-Water Reactor (ALWR) Designs," (Item II Q), April 2, 1993 ADAMS Accession No. ML003708021
SRM to SECY-93-087	SECY-93-087, "Policy, Technical, and Licensing Issues Pertaining to Evolutionary and Advanced Light-Water Reactor (ALWR) Designs," (Item II Q) ADAMS Accession No. ML003708056

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Regulatory Guides

Document Number	Description
RG 1.97, Rev. 4	"Criteria For Accident Monitoring Instrumentation For Nuclear Power Plants," June 2006
RG 1.152, Rev. 2	"Criteria for Digital Computers in Safety Systems of Nuclear Power Plants," January 2006
RG 1.153, Rev. 1	"Criteria for Safety Systems," June 1996
RG 1.168, Rev. 1	"Verification, Validation, Reviews, and Audits for Digital Computer Software Used in Safety Systems of Nuclear Power Plants," February 2004
RG 1.169	"Configuration Management Plans for Digital Computer Software Used in Safety Systems of Nuclear Power Plants," September 1997
RG 1.170	"Software Test Documentation for Digital Computer Software Used in Safety Systems of Nuclear Power Plants," September 1997
RG 1.171	"Software Unit Testing for Digital Computer Software Used in Safety Systems of Nuclear Power Plants," September 1997
RG 1.172	"Software Requirements Specifications for Digital Computer Software Used in Safety Systems of Nuclear Power Plants," September 1997
RG 1.173	"Developing Software Life Cycle Processes for Digital Computer Software Used in Safety Systems of Nuclear Power Plants," September 1997
RG 1.180, Rev. 1	"Guidelines for Evaluating Electromagnetic and Radio-Frequency Interference in Safety-Related Instrumentation and Control Systems," October 2003
DG-1145	Draft Regulatory Guide DG-1145, "Combined License Applications for Nuclear Power Plants (LWR Edition),"

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Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (NUREG-0800)

Document Number	Description
NUREG-0800, Chapter 7	<p>Instrumentation and controls</p> <p>The Standard Review Plan (SRP) Chapter 7 guidance that addresses digital I&C topics is as follows:</p> <ul style="list-style-type: none"> • Section 7.0 and Appendix 7.0-A describe the overall review process for digital systems. • Appendix 7.1-A addresses rule changes (10 CFR Part 52, "Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Plants," and revisions to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities") and new regulatory guides. • Appendix 7.1-C provides guidance with respect to review according to Institute of Electrical and Electronics Engineers (IEEE) Std. 603-1991 (referenced in 10 CFR 50.55a(h)). • Appendix 7.1-D provides guidance for evaluation of conformance to IEEE Std. 7-4.3.2 as endorsed by Revision 2 of Regulatory Guide 1.152, "Criteria for Digital Computers in Safety Systems of Nuclear Power Plants." • Sections 7.2 through 7.9 focus on systems that include references to digital system guidance in Section 7.1. • Appendix 7-A includes the following Branch Technical Positions (BTP) that address digital system issues: <ul style="list-style-type: none"> ○ BTP-14, "Guidance on Software Reviews for Digital I&C" ○ BTP-16, "Guidance on the Level of Detail Required for Design Certification Applications under 10 CFR Part 52" ○ BTP-17, "Guidance on Self-Test and Surveillance Testing" ○ BTP-18, "Guidance on Use of Programmable Logic Controllers" ○ BTP-19, "Guidance on Evaluation of Defense-in-Depth and Diversity (D3) of Digital I&C" ○ BTP-21, "Guidance on Digital Computer Real-Time Performance"

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Safety Evaluation

Date	Description
12/11/2001	Review of Triconex Corporation Topical Reports 7286-545, "Qualification Summary Report," and 7286-546, Revision 1, "Amendment 1 to Qualification Summary Report" ADAMS Accession No. ML013470433
09/28/2004	Final Safety Evaluation for Topical Report WCAP-16096-NP-A, Revision 1, "Software Program Manual for Common Q Systems" ADAMS Accession No. ML042730580
02/24/2003	Acceptance of the Changes to Topical Report CENPD-396-P, Revision 01, "Common Qualified Platform," and Closeout of Category 2 Open Items ADAMS Accession No. ML030550776
06/22/2001	Safety Evaluation for the Closeout of Several of the Common Qualified Platform Category 1 Open Items Related to Reports CENPD-396-P, Revision 1, and CE-CES-195, Revision 1 ADAMS Accession No. ML011690170
08/11/2000	Acceptance for Referencing of Topical Report CENPD-396-P, Revision 01, "Common Qualified Platform," and Revision 01, Appendices 1, 2, 3, and 4 ADAMS Accession No. ML003740165
05/05/2000	Siemens letter, Topical Report EMF-2110 [NP] Revision 1, Teleperm XS: A Digital Protection System ADAMS Accession No. ML003711856

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