

Nuclear Regulatory Commission and Boiling Water Reactor Owners Group Executive Oversight Committee Meeting

December 12, 2022

Agenda

Time	Topic	Speaker
1:00 PM	Public Meeting Start / Introductions	Ngola Otto , NRR, DORL BWROG Project Manager
1:05 PM	NRC Opening Remarks	Mike King , NRR, Deputy Office Director for Reactor Programs
	BWROG Presentations	
1:10 PM	BWROG Introduction <ul style="list-style-type: none"> Meeting Objectives & BWROG Overview 	Steve Douglas , BWROG Executive Committee Chairman
1:20 PM	Emergency Procedures Committee and Emergency Procedures and Severe Accident Guidelines (EPG/SAG) Rev. 4 Update	Brent Humm , BWROG Emergency Procedure Committee Vice Chair
1:30 PM	Risk Topics (BWROG) <ul style="list-style-type: none"> NRC Endorsement of Institute of Electrical and Electronics Engineers (IEEE) 1819 and endorsed NEI Guidance for 50.69 ASME/IEEE Components Standards that could be developed to replace/supplement NRC endorsed NEI 50.69 Guidance NRC endorsement of Low Power/Shutdown PRA standard 	Robert Rishel , BWROG Integrated Risk Informed Regulation Committee Chairman
1:50 PM	TSTF-576, Revise Safety/Relief Valve (SRV) Requirements	Ryan Joyce , BWROG
2:10 PM	RG 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors"	Tamara Malaney , RG 1.183 Revision Committee Vice Chair
	NRC Presentations	
2:25 PM	Proprietary Information	Thomas Wengert , NRR, DORL
2:40 PM	Break	All
2:55 PM	Update on Inspection Plans and Schedule for EPG/SAG Rev. 4 Implementation	Aron Lewin , NRR, DRO
3:10 PM	Licensing and TSTF-576, SRV Update	Michelle Honcharik , NRR, DSS
3:20 PM	Engineering Program Inspection Changes	Douglas Bollock , NRR, DRO
3:35 PM	Subsequent License Renewal	Lauren Gibson , NRR, DNRL Ted Smith , NMSS, REFS
3:50 PM	Digital Instrumentation & Controls	Mike Waters , NRR, DEX
4:10 PM	NRC Questions/Comments/Wrap-up	NRC/BWROG
4:20 PM	Opportunity Public Questions/Comments	Public/NRC
4:30 PM	Adjourn	

Opening Remarks

Michael King
Deputy Office Director for Reactor Programs
Office of Nuclear Reactor Regulation

NRC Staff Review of Requests for Withholding of Proprietary Information

Tom Wengert
Office of Nuclear Reactor Regulation
December 12, 2022

Key Messages

- **Release of public information is an important aspect of NRC's mission and its value of public openness.**
- **10 CFR 2.390 contains the requirements for submitting and requesting withholding of proprietary information.**
- **NRR Office Instruction LIC-204, Rev. 4, provides guidance for the NRC staff's review and disposition of withholding requests.**
- **A good understanding of the requirements for proprietary submittals and reviews by the NRC staff and the industry will improve the effectiveness of the process.**
- **The NRC currently plans to transition to a Controlled Unclassified Information (CUI) program on November 1, 2023.**

Overview of Applicable Regulations

- **Governing regulation: 10 CFR 2.390, “Public inspections, exemptions, and requests for withholding.”**
- **NRC is required by 10 CFR 2.390(a) to make public final NRC records, including correspondence to and from the NRC.**
- **For submittals requesting withholding of proprietary information, the NRC must make a determination on the request.**
- **Basic requirements of 10 CFR 2.390**
 - Types of documents that can be withheld [2.390(a)]
 - Marking requirements [2.390(b)(1)(i)]
 - Affidavit requirements [2.390(b)(1)(ii)]
 - NRC criteria for making a determination [2.390(b)(3) and (4)]

Overview of NRC Staff Review Process

- **NRC Management Directive 3.4, “Release of Information to the Public,” describes the agency’s policy governing the public availability of information in NRC’s possession, including the receipt and handling of sensitive proprietary information.**
- **NRR Office Instruction LIC-204, “Handling Requests to Withhold Proprietary Information from Public Disclosure,” Revision 4, contains guidance for the NRC staff’s review and disposition of proprietary withholding requests.**
- **Basic Requirements**
 - Affidavit or Unsworn Testimony
 - Marking of Information Sought to be Withheld
 - Proprietary Determination by NRC Staff
 - Issuance, Correspondence, and Documentation of the Proprietary Determination

Examples of Recent Issues with Proprietary Withholding Requests

- **Requests to withhold information that is already in the public domain**
- **Proprietary information unredacted**
- **Marking of documents [10 CFR 2.390(b)(1)(i)]**
- **Issues with Affidavits [10 CFR 2.390(b)(1)] :**
 - Statement of clear basis for withholding [(b)(1)(ii)(C)]
 - Specific harm statement [(b)(1)(ii)(D)]
 - Statement of reason for withholding [(b)(1)(iii)]
 - Affidavit signer: Owner vs. Submitter of information [(b)(1)(iii)]
- **Proprietary slide presentations – withholding request with affidavit must be submitted in advance to allow staff to review and make a withholding determination prior to the meeting.**

Summary

- **Release of public information is an important aspect of NRC's mission and its value of public openness.**
- **10 CFR 2.390 contains the requirements for submitting and requesting withholding of proprietary information.**
- **NRR Office Instruction LIC-204, Rev. 4, provides guidance for the NRC staff's review and disposition of withholding requests.**
- **NRC staff will engage licensees/applicants/vendors if there are questions or disagreements on assertions of withholding.**
- **A good understanding of the requirements for proprietary submittals and reviews by the NRC staff and the industry will improve the effectiveness of the process.**

References

- **10 CFR 2.390, “Public inspections, exemptions, requests for withholding”**
- **NRC Management Directive 3.4, “Release of Information to the Public”**
- **NRR Office Instruction LIC-204, “Handling Requests to Withhold Proprietary Information from Public Disclosure,” Revision 4 (ADAMS Accession No. ML20049A139)**
- **Controlled Unclassified Information (CUI) Program – NRC public website:**
<https://www.nrc.gov/reading-rm/cui.html>

Questions?



Update on Inspection Plans and Schedule for EPG/SAG Rev. 4

Aron Lewin
Office of Nuclear Reactor Regulation
December 12, 2022

71111.18 SAMG Update Sample

- **IP 71111.18, “Plant Modifications” currently requires inspection of Severe Accident Management Guidelines (SAMGs) updates as a one-time sample to be completed by the end of CY2022.**
- **To date, no findings have been identified.**
- **Following CY2022, IP 71111.18 will indicate that the SAMG update sample be performed “as required.” (see ADAMS ML22154A389)**

Traveler TSTF-576, “Revise Safety/Relief Valve Requirements”

**Michelle Honcharik
Office of Nuclear Reactor Regulation
December 12, 2022**

Overview of NRC Staff Review Process

- **Status:**

- The traveler is under review by the NRC staff. A second round of Requests for Additional Information (RAI) questions were drafted, and a clarity call was held in October 2022.

- **Technical concern:**

- The NRC staff has not been provided adequate assurance that the methodology that will be used to control the Safety/Relief Valve (SRV) setpoints is acceptable. The SRV setpoints can affect the ability of SSCs to respond to or operate through postulated accidents. The NRC staff has been unable to confirm that the methodology will be consistent with approved methods or that the staff will be able to verify adequate response to postulated accidents.

- **Next Steps:**

- TSTF will be discussing how to proceed with the BWROG licensing committee in December.

Engineering Program Inspection Changes

BWROG Meeting

December 12, 2023

Douglas Bollock
IRIB/DRO/NRR

Engineering Inspection Guidelines

- **Maintain risk-informed focus.**
- **Identify deficient conditions that would not normally be readily identifiable through routine plant activities or performance indicators (e.g., monitoring during normal operation or surveillance tests).**
- **Allow inspections that are focused on recent plant changes and operating experience.**
- **Maintain the NRC's role as an independent regulator.**

Engineering Inspection Program Starting in 2023

- **On July 21, 2022, the NRC Commission approved SECY-22-0053, “Recommendation for Modifying the Periodicity of Reactor Oversight Process Engineering Inspections”**
- **Approved changing engineering inspections from a 3-yr to a 4-yr cycle.**
- **4 Engineering inspections will be conducted at each site in the 4-year cycle.**
 - Comprehensive Engineering Team Inspection (CETI)
 - 3 Focused Engineering Inspections (FEI)s.

Engineering Inspection Program Starting in 2023

- **4 Engineering inspections will be conducted at each site in during the 4-year cycle.**
- **Comprehensive Engineering Team Inspection (CETI)**
 - Combines the current IP 71111.21M Design Bases Assurance Inspection (Team) with the triennial portions of IP 71111.07 “Heat Exchanger/Sink Performance”, and IP 71111.17T, “Evaluations of Changes, Tests and Experiments”
- **3 Focused Engineering Inspections (FEI)s.**
 - IP 71111.21N.05 “Fire Protection Team Inspection,”
 - *IP 71111.21N.03 “Commercial Grade Dedication,” and
 - *IP 71111.21N.04 “Age-Related Degradation”

*New Inspections

Comprehensive Engineering Team Inspection (CETI)

- **CETI**
 - Team makeup: 7 inspectors, 2 onsite weeks (490 direct inspection hours)
 - We no longer use contractors as routine support for inspections
 - Same preparation for inspections as previous DBAI (team) inspections.

Commercial Grade Dedication Inspections

CGD inspection objectives

- To review the implementation of the licensee's process for dedicating commercial-grade items (CGIs), as required in applicable portions of Appendix B to Title 10 of the Code of Federal Regulations (10 CFR) Part 50 (Appendix B) to ensure reasonable assurance is provided that CGIs will perform their intended safety function.
- To review implementation of the licensee's procurement process for safety-related components as required in Appendix B or 10 CFR 50.69.

Commercial Grade Dedication Inspections

- **Technical/process and inspection implementation training conducted for each regions engineering inspectors.**
 - Training includes table-top scenarios
- **NRC Technical and Programmatic leads identified**
- **NRC internal cross-regional panels will be held post inspection**
 - (first 6 months of implementation to ensure consistency)

Age-Related Degradation Inspection (ARD)

- **Inspection Procedure IP71111.21N.04 is in development. Currently out for 30-day comment period until November 14. To be completed and publicly available by end of December 2022**
- **First ARD inspections to begin after July 2023**

Age-Related Degradation Inspection

DRAFT Objectives

- **To verify that maintenance activities to address age-related degradation for structures and components (SCs) are being conducted in a manner that provides reasonable assurance of the safe operation of the plant.**
- **To verify that age-related degradation for plant SCs are appropriately identified, addressed, and corrected.**

Age-Related Degradation Inspection

- **ARD inspection will sample both active and passive components**
- **This is NOT an aging-management program inspection.**
 - Age-related issues, aging components or phenomenon that accelerates the age of components.
- **Likely around 12-24 samples.**
 - Sample selection heavily informed by operational experience.

Age-Related Degradation Inspections

- **Technical and inspection implementation training will be developed and conducted for each region's engineering inspectors.**
 - Training will include table-top scenarios
- **NRC will identify Technical and Programmatic leads**
- **NRC internal cross-regional panels will be held post inspection to ensure consistency**

Questions?

For Future Questions

Douglas Bollock

Senior Reactor Operations Engineer

Office of Nuclear Reactor Regulation

Division of Reactor Oversight

Reactor Inspection Branch

Email: douglas.bollock@nrc.gov;

Phone: 301-415-6609

Subsequent License Renewal License Renewal & Environmental Reviews

**Lauren Gibson, Branch Chief, License Renewal
Projects**

**Ted Smith, Branch Chief, Environmental Review
License Renewal**

SLR Application Status



★ = Site Specific Environmental Report Submitted

Initial License Renewal Application Under Review



Comanche Peak Units 1 & 2 (TX)
Submitted 10/2021
Acceptance Review In Progress

SLR Safety Review



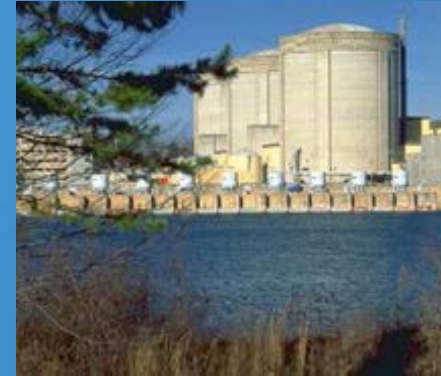
Environmental Reviews Planned Path Forward



Turkey Point



North Anna



Oconee

The NRC intends to

- review all applicable Category 1 (generic) issues listed in the applicable SEIS Table 4-1 for site-specific findings (e.g., SMALL, MODERATE, LARGE) using the methodology in the LR GEIS and document staff's analysis

Environmental Reviews Planned Path Forward (continued)

The NRC intends to

- review applicable Category 2 (site-specific) issues listed in the applicable SEIS Table 4-2 for new information since the issuance of the site-specific draft or final SEIS and update site-specific analyses
- issue a notice of availability that begins a limited scoping period (comments invited; no public meeting)
- complete a (virtual) environmental audit, including issuing RAIs and RCIs, as appropriate

Environmental Reviews Planned Path Forward (continued)

The NRC intends to

- issue a site-specific draft SEIS or draft SEIS supplement for public comment, and a notice of opportunity for hearing
- issue a site-specific final SEIS or final SEIS supplement to provide staff's recommendation on whether to authorize the licensing action

Timeline: Planned Path Forward

Milestone	Approximate Timing
Site-specific environmental license renewal application supplement received by NRC	0
NRC publishes availability of supplement <i>Federal Register</i> notice (FRN)	15 days
NRC publishes notice of intent to prepare an EIS supplement and start of 30-day scoping period, as appropriate, FRN	30 days
Scoping period ends (if one is conducted)	60 days
Conduct environmental audit	4 months
NRC issues environmental RAIs/RCIs (if needed)	5.5 months
NRC receives RAI/RCI responses	6.5 months

Timeline: Planned Path Forward (continued)

Milestone	Approximate Timing
NRC publishes draft SEIS supplement or draft SEIS and FRNs to start 45-day comment period and 60-day period to request a hearing	12 months
Draft SEIS supplement or draft SEIS comment period ends	13.5 months
Publish final SEIS supplement or final SEIS and FRN	14.5 months
EPA Issues FRN – final SEIS supplement, or final SEIS, notice of availability and beginning of 30-day cooling off period	15 months
NRC issues FRN - renewed license/record of decision (assuming no comments during EPA cooling off period or per Commission direction, as appropriate)	16.5 months, unless hearing(s) held

Outlook

- **Based on Notices of Intent, we are expecting 6 applications by the end of FY24.**
- **Resources are projected to be tight.**
- **Please continue to send in Notices of Intent so we can plan.**





Digital Instrumentation and Controls

Michael Waters

Office of Nuclear Reactor Regulation

December 12, 2022

What I'll Be Covering Today

- NRC Vision
- Accomplishments
- Ongoing Initiatives



Photo: Rendering of Limerick's Main Control Room displays for planned Plant Protection System, : ML21063A119

NRC Vision for Digital I&C

“A clear regulatory structure with reduced regulatory uncertainty that enables the expanded safe use of digital I&C in commercial nuclear reactors while continuing to ensure safety and security.”

From NRC SECY-19-0112

Accomplishments

Clear Expectations for Implementing 10 CFR 50.59

NEI TECHNICAL REPORT

NEI 96-07
Appendix D, Rev 1

SUPPLEMENTAL GUIDANCE FOR APPLICATION OF
10 CFR 50.59 TO DIGITAL MODIFICATIONS

Prepared by the Nuclear Energy Institute
May 2020

© NEI 2020. All rights reserved.

nei.org

Chiller Controls

Diesel Generator Controls

Feedwater/Turbine Control System

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
OFFICE OF NEW REACTORS
WASHINGTON, DC 20555-0001

May 31, 2018

NRC REGULATORY ISSUE SUMMARY 2002-22, SUPPLEMENT 1,
CLARIFICATION ON ENDORSEMENT OF NUCLEAR ENERGY INSTITUTE GUIDANCE IN
DESIGNING DIGITAL UPGRADES IN INSTRUMENTATION AND CONTROL SYSTEMS

ADDRESSEES

All holders of operating licenses under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities."

All holders of combined licenses under 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants."

INTENT

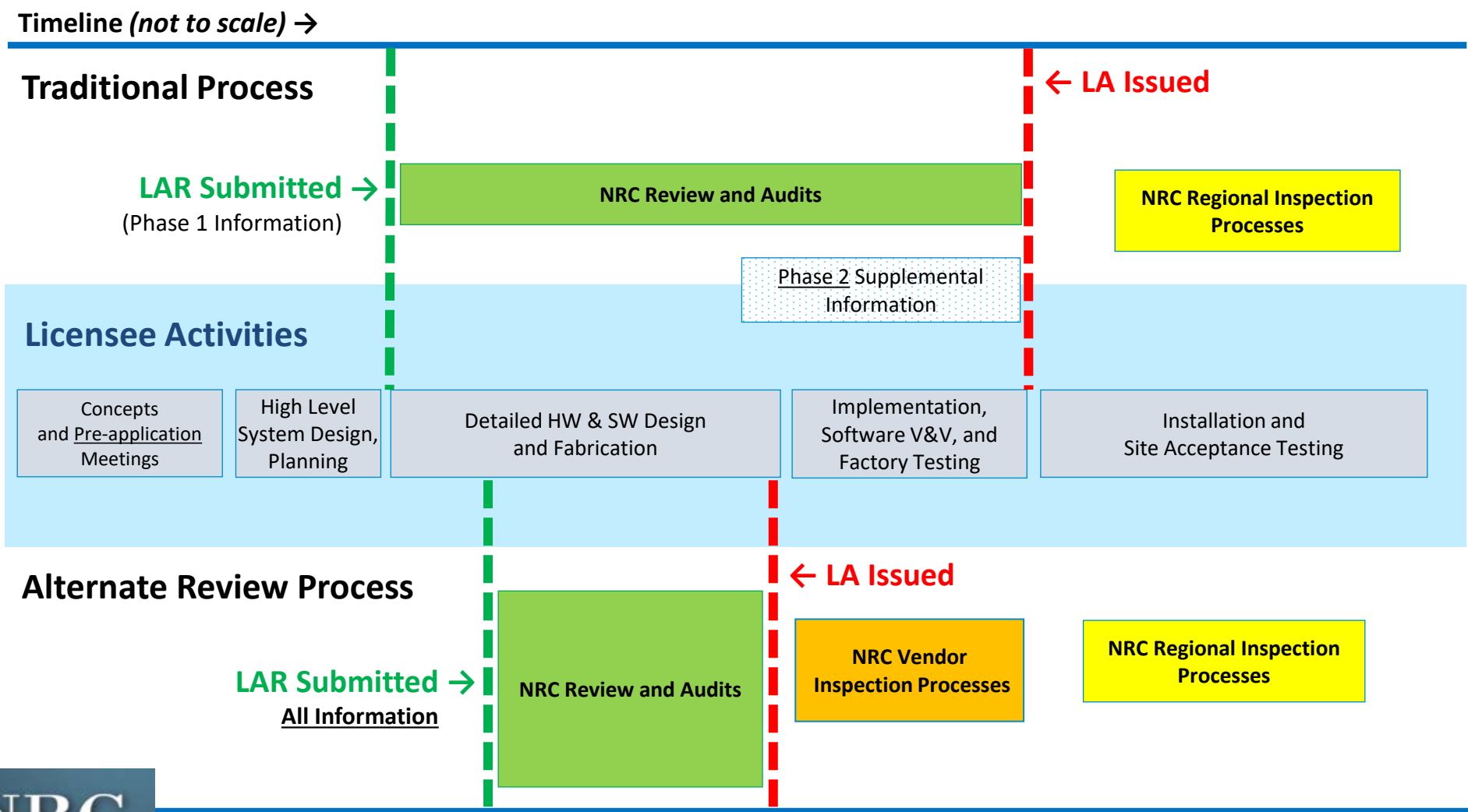
The U.S. Nuclear Regulatory Commission (NRC) is issuing a supplement to Regulatory Issue Summary (RIS) 2002-22, "Use of EPRI/NEI Joint Task Force Report, 'Guideline on Licensing Digital Upgrades: EPRI TR-102348, Revision 1, NEI 01-01: A Revision of EPRI TR-102348 To Reflect Changes to the 10 CFR 50.59 Rule,'" dated November 25, 2002 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML023160044). RIS 2002-22 endorses Nuclear Energy Institute (NEI) 01-01, "Guideline on Licensing Digital Upgrades: EPRI TR-102348, Revision 1, NEI 01-01: A Revision of EPRI TR-102348 To Reflect Changes to the 10 CFR 50.59 Rule," issued March 2002 (ADAMS Accession No. ML020860169). NEI 01-01 provides guidance for designing, licensing, and implementing digital upgrades and replacements to instrumentation and control (I&C) systems (hereinafter referred to as "digital I&C") in a consistent and comprehensive manner.

The RIS supplement clarifies RIS 2002-22, which remains in effect. The NRC continues to endorse NEI 01-01 as stated in RIS 2002-22, as clarified by this RIS supplement. Specifically, the guidance in this RIS supplement clarifies the NRC staff's endorsement of the guidance pertaining to NEI 01-01, Sections 4 and 5 and Appendices A and B. This RIS supplement clarifies the guidance for preparing and documenting "qualitative assessments" that can be used to evaluate the likelihood of failure of a proposed digital modification, including the likelihood of failure due to a common cause (i.e., common-cause failure (CCF)). Licensees can use these qualitative assessments to support a conclusion that a proposed digital I&C modification has a sufficiently low¹ likelihood of failure. This conclusion and the reasons for it should be documented, as required by 10 CFR 50.59(d)(1), as part of the evaluations of proposed digital

¹ On page 4-20 of NEI 01-01, NEI defines "sufficiently low" to mean much lower than the likelihood of failures that are considered in the updated final safety analysis report (UFSAR) (e.g., single failures) and comparable to other CCFs that are not considered in the UFSAR (e.g., design flaws, maintenance errors, calibration errors).

ML18143B633

NRC DI&C Interim Staff Guidance (ISG) 06 Revision 2



NRC Branch Technical Position 7-19

Defense-in-Depth and Diversity to Address DI&C CCF

Incorporates a Risk-Informed Graded Approach

Incorporates Lessons-Learned from Previous Operating Reactor and New Reactor Reviews

Supports Expanded use of Defensive Measures to Address Software CCF

Non-Light-Water Reactor I&C Design Review Guide (DRG)

Supports NRC's Non-LWR Vision and Strategy, Implementation Action Plan Strategy 3, which involves developing:

- 1) guidance for flexible regulatory review processes for non-LWRs within the bounds of existing regulations
- 2) non-LWR regulatory framework that is risk-informed, performance-based, and features NRC staff's review efforts commensurate with the demonstrated safety performance of non-LWR technologies.
- 3) Incorporates principles from RG 1.233 and NRC Vision and Strategy: Safely Achieving Effective and Efficient Non-Light Water Reactor Mission Readiness," which describes the NRC's vision and strategy for preparing for non-LWR reviews.

Just Released--Reg Guide 1.250: Dedication of Commercial-Grade Digital I&C Items in Nuclear Plants

- Endorses NEI 17-06 Rev. 1 and IEC-61508 with clarifications
- Provides supplemental guidance for performing commercial grade dedication of digital technology equipment by leveraging 3rd party certifications of digital I&C equipment to determine the acceptability of the “dependability” critical characteristics of that equipment
- Ensures that the 3rd party certification organizations are regularly accredited by signatories to the International Accreditation Forum Multilateral Recognition Arrangement

Ongoing Initiatives

DI&C Safety System Licensing

- License amendment requests for operating reactor digital I&C modernization
 - Turkey Point RPS/ESFAS replacement (July 2022)
 - Limerick RPS/ESFAS and other system replacement (Sept 2022)
- Construction Permit Reviews
 - Kairos (Sept 2021)
 - Abilene Christian University (Aug 2022)
- Pre-submittal interactions, white papers, topical reports, & reviews supporting advanced reactor I&C designs (2023)
 - NuScale US460
 - TerraPower
 - ASL2
 - Holtec SMR-160
 - X-Energy
 - MELCO
 - GE BWRX-300
 - Atomic Alchemy
 - MMR
 - WEC eVinci

Risk-Informing Digital I&C CCF Policy

- The current policy in SRM-93-087 has been effectively used to license digital I&C systems in nuclear power plants
 - A defense-in-depth and diversity (D3) analysis is required to cope with a hypothetical digital CCF that disables a safety function during an accident.
 - Requires a diverse means of safety actuation if plant consequences could be significant
- Staff proposed expanding the use of risk information in SECY-22-0076 (August 2022) to address potential alternatives for the D3 analysis
- Additional stakeholder interactions clarifying the policy on independence of manual actuation displays/controls credited in the D3 analysis

Continue work on Reg Guides Endorsing Updated Standards

- Endorsement of IEEE 7-4.3.2-2016 (RG 1.152)
- Endorsement of IEEE-603-2018 (TBD)
- Endorsement of IEEE-1012-2106 and streamlining of Guides for IEEE computer society standards (RGs 1.168 – 1.173)

Summary

- Early engagement and pre-submittal meetings are critical
- NRC will continue to engage stakeholders on regulatory needs and guidance development activities
- Potential Interactions in 2023
 - RG 1.153 Workshop (~March)
 - Advanced Reactor Workshop(s) (TBD)
 - DI&C Licensing Lessons Learned Workshop (April –May)

Questions?

Efficient
Licensing



Endorsement of
Updated Standards



Clear 50.59
Expectations

Opportunity for Public Questions and/or Comments

