



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

March 4, 2019

MEMORANDUM TO: Christian B. Cowdrey, Acting Chief  
Operator Licensing Branch  
Division of Inspection and Regional Support  
Office of Nuclear Reactor Regulation

FROM: Brian W. Tindell, Reactor Engineer (Examiner Qualified) */RA/*  
Operator Licensing Branch  
Division of Inspection and Regional Support  
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF FEBRUARY 13, 2019, PUBLIC MEETING WITH  
INDUSTRY OPERATOR LICENSING REPRESENTATIVES

On February 13, 2019, the U.S. Nuclear Regulatory Commission (NRC) staff held a public meeting with representatives of the Nuclear Energy Institute's Licensed Operator Focus Group and other industry operator licensing representatives.

This meeting was the latest in a series of meetings intended to promote efficiency, effectiveness, and open communications. The discussions addressed a variety of operator licensing topics, including: proposed revisions to the Generic Fundamentals Examination and Written Examination, Operating Test grading, revision of NUREG-1122 and 1123, "PWR and BWR Knowledge and Abilities Catalogs," revision of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," revision of Regulatory Guide 1.8, "Qualification and Training of Personnel for Nuclear Power Plants," and Operator Requalification inspection program changes.

Representatives of the NRC and the nuclear industry agreed that this meeting was useful for the exchange of information and agreed to continue the periodic meetings.

Enclosures:

1. List of Attendees
2. Agenda
3. Discussion Summary
4. NUREG-1021 Handout

CONTACT: Brian Tindell, NRR/DIRS  
(301) 415-2026

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OPERATOR LICENSING REPRESENTATIVES MARCH 4, 2019

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**\* via e-mail**

OFFICE	NRR/DIRS/IOLB	NRR/DIRS/IOLB	NRR/DIRS/IOLB *	NRR/DIRS/IOLB:C
NAME	BTindell	TBuchanan	MScheetz	CCowdrey
DATE	2/27/19	2/28/19	2/28/19	3/4/19

**OFFICIAL RECORD COPY**

List of Attendees – Public Meeting with Industry Operator Licensing Representatives  
February 13, 2019

Name	Organization
Chris Cowdrey	NRC
Theresa Buchanan	NRC
Eric Cushing	NRC
Bernie Litkett	NRC
Maurin Scheetz	NRC
Brian Tindell	NRC
Lin Chen	NRC
Donald Jackson	NRC
Gerald McCoy	NRC
Eugene Guthrie	NRC
Randy Baker	NRC
David Garmon-Candelaria	NRC
Lauren Nist	NRC
Jeremy Wachutka	NRC
Kevin Hsueh	NRC
David Lanyi	NRC
Rebecca Susko	NRC
Kayla Gamin	NRC
Greg Werner	NRC (via telephone)
Thomas Setzer	NRC (via telephone)
Joseph Viera	NRC (via telephone)
Mark Bates	NRC (via telephone)
Gregory Roach	NRC (via telephone)
Jesse Seymour	NRC (via telephone)

List of Attendees – Public Meeting with Industry Operator Licensing Representatives February 13, 2019	
Name	Organization
Mark Miller	NRC (via telephone)
Kevin Roach	NRC (via telephone)
Kostas Dovas	Nuclear Energy Institute
Timothy Riti	Nuclear Energy Institute
Maggie Staiger	Nuclear Energy Institute
Andrew Mauer	Nuclear Energy Institute
Jim Slider	Nuclear Energy Institute
Julie Sickle	Exelon
Chuck Millard	Exelon
Rick Murray	Entergy
Richard Baird	NextEra
Doug Bowman	NuScale Power
Pat Leary	NuScale Power
Chris Hynes	Duke Energy
Russ Joplin	Tennessee Valley Authority
John Munro	(via telephone)
Brian Magnuson	(via telephone)
Joseph Debor	Talisman International (via telephone)
Scott Meier	V.C. Summer Nuclear Generating Station (via telephone)
Tom Byrne	Duke Energy (via telephone)
Jim Peschel	Certrec Corporation (via telephone)
Stacey Hamm	McGuire Nuclear Station (via telephone)
Brandon Webster	Catawba Nuclear Station (via telephone)
Vince Parente	Shearon Harris Nuclear Power Plant (via telephone)
Mark Martellotta	Seabrook Station Nuclear Power Plant (via telephone)
Randal Martin	Arkansas Nuclear One (via telephone)

List of Attendees – Public Meeting with Industry Operator Licensing Representatives  
February 13, 2019

Name	Organization
Craig Oliver	Brunswick Nuclear Generating Station (via telephone)
Donna Christiansen	Comanche Peak Nuclear Power Plant (via telephone)
Brian St. Louis	Comanche Peak Nuclear Power Plant (via telephone)
Tom Morales	Comanche Peak Nuclear Power Plant (via telephone)
Charlie Brown	Comanche Peak Nuclear Power Plant (via telephone)
Greg Van Den Berg	Susquehanna Nuclear Power Plant (via telephone)
Russ Long	Columbia Generating Station (via telephone)
Kevin Roach	Columbia Generating Station (via telephone)
Rick Garner	Duke Energy (via telephone)
Bob Meyer	Professional Reactor Operator Society (via telephone)
Rob Johnston	V.C. Summer Nuclear Generating Station (via telephone)
Gary Ohmstead	Southern Nuclear (via telephone)
Clyde Edington	Cooper Nuclear Station (via telephone)

AGENDA FOR THE U.S. NUCLEAR REGULATORY COMMISSION CATEGORY 2  
PUBLIC MEETING WITH INDUSTRY OPERATOR LICENSING REPRESENTATIVES

Wednesday, February 13, 2019  
2:00 p.m. to 4:30 p.m. Eastern Standard Time

NRC Three White Flint North, Room 1C05  
11601 Landsdown Street  
North Bethesda, MD 20852

<u>TOPIC</u>	<u>PRESENTER</u>
Introductions and Opening Remarks	NRC/Industry
Regulatory Guide 1.8 Revision	NRC/Industry
Generic Fundamentals Examination and Written Examination	NRC/Industry
K/A Catalogs Revision	NRC/Industry
Operating Test Grading	NRC/Industry
NUREG-1021 Revision	NRC/Industry
Requalification Inspection Program Revision	NRC/Industry
Closing Remarks	NRC
Topics from Industry	Industry
Public Comments	Public
Adjourn	NRC

## **DISCUSSION SUMMARY**

### **Regulatory Guide 1.8 Revision**

The NRC staff began by providing a brief background. The American Nuclear Society published ANSI/ANS-3.1-2014, "Selection, Qualification, and Training of Personnel for Nuclear Power Plants," and the NRC published Draft Guide DG-1329, "Proposed Revision 4 to Regulatory Guide 1.8, 'Qualification and Training of Personnel for Nuclear Power Plants'" (available through NRC Agencywide Documents Access and Management System (ADAMS) Accession No. ML16091A267) for public comment. The staff presented several proposed changes to Rev. 4 of Regulatory Guide (RG) 1.8 in response to public comment. The staff proposed removing 10 CFR Part 55, "Operators' Licenses," applicability from RG 1.8, Rev. 4. The current National Academy for Nuclear Training (NANT) guidance referred to in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 11 (ADAMS Accession No. ML17038A432) has been the primary guidance for determining licensing eligibility, and the NANT guidance and ANSI/ANS-3.1-2014 conflict, as commented on by the public. In addition, the staff proposed increasing the exception for temporary radiation protection managers to a period of six months and limiting the allowance for a middle manager who does not meet the qualification requirements to six months.

Industry representatives commented that they supported removing 10 CFR Part 55 applicability from RG 1.8, Rev. 4. An industry representative commented that the standard's middle manager qualification requirements remained unchanged from ANSI/ANS-3.1-1993, which was endorsed by the NRC in RG 1.8, Rev. 3 (ADAMS Accession No. ML003706932). The staff responded that the previous revisions of RG 1.8 are still valid, but this revision will clarify middle manager qualification requirements to ensure that managers are qualified for the position they hold.

A member of the public commented that lower qualification standards for plant personnel will not increase safety and that the draft guide negates the lessons learned from the 1979 Three Mile Island accident and the 2011 Fukushima Daiichi accident. The member of the public also commented that RG 1.8 does not establish minimum qualification requirements because individual plants use different revisions of the standard. The staff responded that new laws have been passed and the NRC has issued rules and orders that incorporate lessons learned, and which require minimum qualifications. All final revisions of RG 1.8 meet or exceed those minimum standards specified by law and regulations, and Revision 4 will also meet or exceed those standards. DG-1329 has a backfit analysis, history, and discussion of the requirements as part of the document that provides useful background information.

### **Generic Fundamentals Examination**

Due to feedback from the industry about the effect on initial operator training, the staff discussed the reduction from four to two Generic Fundamentals Examinations (GFEs) administered per year due to the NRC's Project Aim 2020. The staff has established a working group to explore other options that will increase efficiency while satisfying regulations. The working group is considering several options, including the authoring and administering the GFE using NRC staff, extending or eliminating the GFE expiration date for those who have passed the examination, and re-integrating the GFE with the site-specific initial licensing written examination. The working group will evaluate each option's cost to the industry and the NRC, exam scheduling

impact, regulatory alignment, and assurance that only safe and competent operators receive licenses. The working group plans to make a recommendation to management within the next 3 months.

Industry representatives commented that they supported the initiative, given that: 1) only operationally-valid questions are included on the written exam, 2) NANT guidelines continue to require training and evaluation on GFE topics, 3) members of industry provide input to the working group, and 4) if re-integration occurs, the NRC pilots the integrated examinations. The staff responded that the staff will provide updates to the industry on all transformational matters pertaining to operator licensing.

### **K/A Catalogs Revision**

The staff discussed the draft revision 3 of NUREG-1122, "Knowledge and Abilities Catalog for Nuclear Power Plant Operators: Pressurized Water Reactors," and NUREG-1123, "Knowledge and Abilities Catalog for Nuclear Power Plant Operators: Boiling Water Reactors." The staff provided a brief history, as also discussed at the January 24, 2018, public meeting (Summary at ADAMS Accession No. ML18046A122). The Nuclear Energy Institute (NEI) recently submitted a revised version of the catalogs. NEI representatives stated that the GFE importance rating changes in the previously submitted Revision 3 catalogs were unintentional, the new submittal importance ratings had been corrected to the technically supported values, and NEI staff had performed a line-by-line verification of the catalogs. NEI representatives also stated that the importance rating survey data had been provided in the recent submittal so that the staff could verify the importance ratings. The staff plans to evaluate the revised submission to ensure that the changes are technically accurate and the staff plans to address other public comments prior to catalog publication.

A member of the public commented that several knowledge and abilities are missing from the catalogs, including Knowledge and Abilities (K/A) statements for: (1) 10 CFR 50.72 Immediate notification requirements for operating nuclear power reactors (e.g. K/As for event classification), (2) 10 CFR 50.73 Licensee event report system (e.g. K/As for LER reporting), (3) 10 CFR 50.54 - Conditions of licenses (e.g. K/As to ensure Technical Spec compliance), and (4) 10 CFR 50.59 Changes, tests, and experiments (e.g. K/As for converting analog instruments to digital). The staff responded that the K/As are covered under the generic K/A section of the catalogs, and the member of the public agreed.

### **Operating Test Grading**

The NRC staff presented a long-term, potential innovation towards performance based scenario grading for operating tests. The staff stated that the proposal has the potential to improve regulatory alignment, focus on task standards, clarify critical tasks, simplify results and documentation, and provide flexibility for new reactors. This proposal would require a future revision of NUREG-1021, and further opportunity public comment will be available, if such a transition is implemented.

A member of the industry commented that they would support this initiative, and would want to provide input early and socialize the potential changes with the rest of the industry. The NRC staff agreed that industry and public comment should be considered during the decision-making process. A member of the public provided a comment that if an operator makes a truly safety significant critical task error, such as an action that would lead to core damage, that they should



automatically fail the operating test. The staff acknowledged the comment, and noted that a working group on critical task definition is ongoing.

### **NUREG-1021 Revision**

The NRC staff provided information about an initiative to consolidate and re-organize information in NUREG-1021, "Operator Licensing Standards for Power Reactors." The objectives of this project are to increase the usability of examiner standards and simplify the revision process by creating a structure for section-based revision. The proposal would structure NUREG-1021 similar to the NUREG-0800 series, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition." The NRC staff provided a handout during the meeting which showed the draft Table of Contents (see Enclosure 4 of this document). The staff explained that information regarding requalification examinations would likely be moved to another guidance document and that placeholders would be created for the NuScale Small Modular Reactor examination processes. The staff stated that any changes to the content in NUREG-1021 during this project would be made following the existing NUREG revision process which includes opportunities for public comment.

An industry representative stated that they were aligned with the NUREG-1021 revision proposal and would like to be involved in the development of any revisions to the critical task grading methodology in NUREG-1021. An industry representative stated that the NRC could consider removing operator license eligibility from NUREG-1021 and endorse the NANT guidelines. An NRC staff member questioned whether the NANT guidelines were publicly available. The staff responded that a summary of the NANT guidelines has been submitted and should be made available soon through the NRC website.

### **Requalification Inspection Program Revision**

For information, the NRC staff presented changes in the licensed operator requalification oversight program. The NRC recently published Inspection Procedure 71111, Attachment 11, "Licensed Operator Requalification Program and Licensed Operator Performance," effective January 1, 2019 (ADAMS Accession No. ML18178A559) and Inspection Manual Chapter 0609, Appendix I, "Licensed Operator Requalification Significance Determination Process," effective January 1, 2019 (ADAMS Accession No. ML18178A571). The staff presented the changes in the new revisions, and provided updates on current efforts to update the resident inspector portion of the inspection procedure and add qualitative criteria to the manual chapter instead of transferring to Inspection Manual Chapter 0609, Appendix M, "SIGNIFICANCE DETERMINATION PROCESS USING QUALITATIVE CRITERIA" (ADAMS Accession No. ML18183A043).

An industry member commented that the new guidance regarding cycle-to-cycle examination security was vague. The staff responded that the inspection procedure is not a standard, so the wording allowed flexibility for licensees to meet their NRC approved requalification program. The staff also requested input for the next revision of the procedure.

### **Industry and Public Comments**

An industry representative commented that the industry has noticed examination development and administration inconsistencies between regions. Specifically, some examiners are not consistently evaluating the use of references on the written examination, and some examiners are not consistently requesting or disallowing surrogates on operating tests. The staff

responded that NUREG-1021 requires the counting of references, including pictures on an examination to ensure the proper level of difficulty on examinations, and regions have flexibility of scheduling or declining surrogates to maximize efficiency and consistency on operating tests. Additionally, the staff encouraged discussion on the use of surrogates early in the examination development process. In addition, NRC examiners will continue to discuss consistency on teleconferences and during examiner training.

An industry representative asked if any of the topics discussed today would affect research and test reactors. The staff responded that none of the topics would affect research and test reactors. An industry representative asked if the merger of the Office of Nuclear Reactor Regulation (NRR) and the Office of New Reactors (NRO) will affect operator licensing. The staff responded that the merger of operator licensing program office between the two offices has been completed, and the NRR operator license group now has additional staff and additional responsibility for evaluating operator licensing policy for new reactor designs. An industry representative commented that the industry examination author workshop is in early 2020, during the first week of February, and that NRC staff will be invited.

An NRC staff member stated that it is difficult to administer multiple examinations at the same time due to staffing. An industry representative suggested that regional branch chiefs should have calls with site examination schedulers to assist with scheduling conflicts.

**Table of Contents for Proposed NUREG-1021 Revision**

Section	Title	Revision
N/A	Table of Contents	x/2019
N/A	Executive Summary	x/2019
N/A	Abbreviations and Acronyms	x/2019
<b>Exam Standard 1 General</b>		
1.1	Purpose and Format	x/2019
1.2	Regulations and Publications Applicable to Operator Licensing	x/2019
<b>Exam Standard 2 Pre-Exam Activities</b>		
2.1	Exam Process (includes exam security)	x/2019
2.2	Applications	x/2019
2.3	Eligibility (includes waivers/excusals and cold licensing information)	x/2019
<b>Exam Standard 3 Operating Test</b>		
3.1	Developing JPMS (Includes Appendix C Guidelines)	x/2019
3.2	JPMS for Large Light Water Reactors (requirements, administration, documentation, grading)	x/2019
3.3	JPMS for NuScale SMRs (requirements, administration, documentation, grading)	x/2019
3.4	Special Considerations: In-Plant JPMs for plants under-construction	x/2019
3.5	Developing Simulator Scenarios (includes Appendix D Guidelines)	x/2019
3.6	Simulator Scenarios for Large Light Water Reactors (requirements, administration, documentation, grading)	x/2019
3.7	Simulator Scenarios for NuScale SMRS (requirements, administration, documentation, grading)	x/2019
<b>Exam Standard 4 Written Examinations</b>		
4.1	Written Examination Guidelines (from Appendix B)	x/2019
4.2	The Generic Fundamentals Exam	x/2019
4.3	Written Exam for PWRS (sample plan, develop, administer, grade)	x/2019
4.4	Written Exam for BWRS (sample plan, develop, administer, grade)	x/2019
4.5	Written Exam for NuScale SMRs (sample plan, develop, administer, grade)	x/2019

Exam Standard 5 Post Exam Activities

5.1	Documentation and Licensing Action	x/2019
5.2	Informal NRC Staff Reviews	x/2019
5.3	Hearings	x/2019
5.4	Making Examinations Publically Available	x/2019

Exam Standard 6 Other Licensing Actions

6.1	License Maintenance (to keep license and to terminate license)	x/2019
6.2	License Renewal	x/2019
6.3	License Amendments	x/2019

Exam Standard 7 LSRO Examinations

7.1	LSRO Written Exams (general)	x/2019
7.2	LSRO Written Exams for BWR	x/2019
7.3	LSRO Written Exams for PWR	x/2019
7.4	LSRO Written Exams for ABWR	x/2019
7.5	LSRO Written Exams for AP1000	x/2019
7.6	LSRO Written Exams for NuScale SMRs	x/2019
7.7	LSRO Operating Tests (general)	x/2019
7.8	LSRO Operating Tests for Large Light Water Reactors	x/2019
7.9	LSRO Operating Tests for NuScale SMRs	x/2019

Appendix A: Overview of Examination Concepts

Appendix B: Glossary

Note: Appendices B-E incorporated in sections above

All NRC administered requal exam information moves to an OLMC or other document