

SUNSI Review Complete
Template = ADM-013
E-RIDS=ADM-03
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COMMENT #8
PUBLICATION DATE:
2/12/2018
CITATION # 83 FR
6053

April 12, 2018

Docket ID NRC-2018-0023

RE: Public comment on draft regulatory guide (DG), DG-1329, "Qualification and Training of Personnel for Nuclear Power Plants."

Background on the Qualification and Training of Nuclear Power Plant Operators:

"During the Three Mile Island crisis in March 1979, the performance of reactor operators was a major contributor to the severity of the accident."

"When a pressure relief valve stuck open at the plant and allowed large volumes of reactor coolant to escape, the operators on duty misread the signs of a loss-of-coolant accident, and for several hours, failed to take action to cool the core. Although the plant's emergency core cooling systems began to work according to design, the operating crew decided to reduce their flow to a trickle. By the time that the nature of the accident was recognized and the core flooded with coolant, the reactor had suffered irreparable damage. The President's Commission on the Accident at Three Mile Island, chaired by John G. Kemeny, concluded that "the equipment was sufficiently good that, except for human failures, the major accident at Three Mile Island would have been a minor incident.""

"The Kemeny Commission was sharply critical of the nuclear industry and the NRC for "down-playing...the importance of the human element in nuclear power generation." Its report to President Carter in October 1979 minced no words in citing shortcomings in operator training. It described the training of the operators at TMI as "greatly deficient" and added that "the depth of understanding, even of senior reactor operators, left them unprepared to deal with something as confusing as the circumstances in which they found themselves." The Kemeny Commission blamed both the utility and the NRC for the failures in the performance of plant operators. It declared that the "training of Met Ed operators and supervisors was inadequate" and that NRC standards for training were "shallow" and "minimal." The Kemeny Commission was not alone in its assessment of operator qualifications; the NRC's own investigations of the TMI accident reached the same conclusions."

-Operator Licensing History 1954 – 1994 (NRC ML16084A726)

This draft regulatory guide, DG-1329, proposes the NRC endorse the latest revision of ANSI/ANS-3.1 (2014) in the next revision (4) of Regulatory Guide 1.8, Qualification and Training of personnel for Nuclear Power Plants. If approved, RG 1.8 Rev. 4 may be used to satisfy the qualifications and training requirements of 10 CFR Parts 50, 52 and 55. Notably, "licensees may voluntarily use the guidance in the document [DG-1329] to demonstrate compliance with the underlying NRC regulations."

Unfortunately, DG-1329 and prior revisions of RG 1.8 are not stand-alone documents. They do not actually specify the minimum training and qualification standards for nuclear power plant personnel or

¹ "Extracted from American National Standard ANSI/ANS-3.1-2014 with permission of the publisher; the American Nuclear Society."

those proposed. This seems to limit the usefulness of the product. And, since compliance with RG 1.8 is voluntary, its purpose is questionable.

The minimum standards to be endorsed originate from ANSI/ANS 3.1-2014; however, this document is not readily accessible to the public. It is not available from the NRC or public libraries and cannot be read on the internet. It must be purchased from ANS; even then, its use is restricted to a "single user license." --Copying and networking is specifically prohibited. This impedes meaningful comments from the public. The practical reality of this requires the public to pay for access to federal regulations that affect their own safety (10 CFR Parts 50, 52 and 55). Because of the cost (\$141), access is limited to those with the ability to pay.

Considering the purpose of DG-1329 is to change standards, it seems prudent to include the current standards/methods acceptable to the NRC (ANSI/ANS, INPO, or other) and compare them to ANSI-3.1-2014; then, analyze and reconcile the differences -particularly those that lower minimum standards. Oddly, the Regulatory Analysis of DG-1329 (ML16091A271) concludes this: "proposed regulatory action will increase safety," but does not actually include any form of an analysis to support this conclusion.

Request 1: Please revise the Regulatory Analysis of DG-1329 to include the current standards/methods acceptable to the NRC (ANSI/ANS, INPO, or other) and compare them to ANSI-3.1-2014; then, analyze accordingly.

Request 2: Please include the revised Regulatory Analysis of DG-1329 in the folder for public comments.

In the past, the NRC found that text descriptions of similar evaluations were unnecessarily complex and difficult to follow.

Reference: 11/20/2012 Responses to Request for Additional Information Regarding Changes to the Entergy Quality Assurance Program Manual (QAPM) and Associated Plant Technical Specifications Regarding Staff Qualifications -ML12328A039

Request 3: Please revise the Regulatory Analysis of DG-1329 to include a Table or Tables that shows each plant on the Y-axis and the current commitments and ANSI/ANS-3.1-2014 minimum standards on the X-axis. If prior commitments were also included, the trends may provide valuable insight. -Commitments are requested because compliance with RG 1.8 is voluntary.

Please consider the following specific observations and questions:

ANSI/ANS-3.1-2014 4.2.2 Operations:¹

The operations manager is the individual responsible for management of the planning, directing, and coordinating of the operating activities in accordance with applicable regulations, policies, and procedures, and shall meet the following requirements.

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Education: Baccalaureate in engineering or related science.

Minimum experience for the position:

Power plant experience which shall include: 4 yr,

Nuclear power plant experience 4 yr,

Supervisory or management experience 3 yr.

Special requirements:

(1) Shall meet one of the following:

(a) Hold a senior operator's license, or

(b) Have held a senior operator's license, or

(c) Have been certified for equivalent senior operator knowledge.

(2) During the years of nuclear power plant experience, the individual shall have participated in the supervision or management activities at a nuclear power plant during the following periods:

(a) 2 months of operation above 20% power,

(b) 1 month of routine refueling outage or initial fuel load,

(c) Initial plant startup testing or post refueling outage startup testing.

If the operations manager does not hold a senior operator's license, then the operations middle manager (see Sec. 4.3.6) shall hold a senior operator's license. [emphasis added]

Based on publicly available documents on the NRC web site, it appears the prior plant Technical Specification (TS) requirement for the operations managers to hold a senior operator's license was based on the ANSI/ANS minimum standard at the time. The current TS (commitments) of many plants allow, by exception, the assistant operations manager (AOM) to hold a senior operator's license instead of the OM. The exception to ANSI/ANS-3.1-2014 to allow the operations middle manager (OM) to hold a senior operator's license instead of the operations manager—differs from current plant TS—and further broadens the exception to allow an operations middle manager to hold a senior operator's license instead of the OM.

Reference: Surry Units 1 And 2 - Issuance of Amendments Re: Supervisor Shift Operations (TAC Nos. 77944 And 77945), December 1990 (ML012640142).

This proposed change to the standard relegates the overall responsibility to provide direction and oversight of the most sensitive activities at a nuclear power plant—licensed activities—from a senior manager to one of several, yet unspecified middle managers.

It appears this would undermine the lessons learned from the Three Mile Island meltdown and conflict with NUREG-660, NRC Action Plan Developed as a Result of the TMI-2 Accident (May 1980):

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Supervisors of licensed reactor operators, up to at least the level of unit superintendent [OM], should be required to hold a senior-reactor operator license on any unit to which they are assigned supervisory responsibilities for normal or emergency operations. [emphasis added]

If approved, DG-1329 would allow NPPs to further ease their TS requirements by adopting ANSI/ANS-3.1-2014 and allowing one of several middle managers to hold a senior operator's license in lieu of the OM or AOM. The reason for easing this standard is not explained or analyzed. From a plant's perspective, one or more operations middle managers currently hold a senior operator's license; therefore, it would give plants the latitude to simply eliminate the license currently held by either the Operations Manager or the Assistant Operations Manager.

From another perspective, given the safe operation of a nuclear power plant relies in a large part on the experience, training and qualifications of operators, how would this proposed exception affect safe operation? Otherwise stated, how would less qualified senior managers affect safe operation of a nuclear power plant?

If this 'Special Requirement' of the OM/AOM was relegated to an unspecified middle manager, would the functional responsibilities of the OM/AOM also be relegated?

10 CFR 50.54(l) states: "*The licensee shall designate individuals to be responsible for directing the licensed activities of licensed operators. These individuals shall be licensed as senior operators pursuant to part 55 of this chapter.*"

As it stands, if current plant TS require the OM or AOM to hold a license, the non-licensed senior manager cannot direct licensed activities. If the OM is non-licensed, this significantly reduces their functional responsibilities and prohibits them from directing the most sensitive activities -licensed activities. If the AOM is also non-licensed, neither senior manager has the overall responsibility of safe operations, and the line of authority to licensed operators becomes blurred.

If the OM/AOM license requirement is relegated to an unspecified middle manager, does that place them directly in the line of authority above licensed operators (shift managers and licensed supervisors)? Or, will it be relegated to a shift manager (who is defined as a middle manager)? This becomes increasingly problematic. Because of work hour rules (10 CFR 26.205), would the responsibility be rotated between shift managers?

Does relegating the OM/AOM license to an existing license holder add to their responsibilities? If not, what purpose does this serve? If it adds to their responsibilities, should a shift manager be burdened with them? Would the relegated OM/AOM license be rotated between other middle managers? If so, is this acceptable?

Request 4: Please revise the Regulatory Analysis to include an analysis of ANSI/ANS-3.1-2014, 4.2.2 Special Requirements, which allows a middle manager to hold a senior operator's license instead of the operations manager.

This prompts an additional observation. ANSI/ANS-3.1-2014¹ defines 'active status' as: "*Actively performs the functions of a reactor operator or senior operator on a minimum of seven 8-hour shifts or five 12-hour shifts per calendar quarter.*" However, it does not specify which required licensed positions require an 'active status.' This information was also omitted from DG-1329. Nevertheless, 10 CFR Parts 50 and 55 are clear on this matter.

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10 CFR 55.53 states:

(e) If a licensee has not been actively performing the functions of an operator or senior operator, the licensee may not resume activities authorized by a license issued under this part except as permitted by paragraph (f) of this section. To maintain active status, the licensee shall actively perform the functions of an operator or senior operator on a minimum of seven-8 hour or five 12-hour shifts per calendar quarter.

10 CFR 50.54 states:

(l) The licensee shall designate individual to be responsible for directing the licensed activities of licensed operators. These individuals shall be licensed senior operator pursuant to part 55 of this chapter.

Plant administrative controls are expected to ensure compliance with 10 CFR 55.53(e), 'active status.' Nevertheless, the TS required OM/AOM license holders at some plants do not currently appear to be in compliance with 10 CFR 55.53(e), 'active status.' -This may require a regulatory response outside the scope of this public comment.

Request 5: Please confirm and revise DG-1329 to specify each required holder of an operator or senior operator's license shall comply with 10 CFR 55.53(e). Because the 'active status' requirement was omitted in ANSI/ANS-301-2014 (and DG-1329), it should be made clear in RG 1.8 rev. 4. -particularly as it applies to the OM/AOM license requirement.

ANSI/ANS-3.1-2014 4.5.4 Instructor:¹

The individual with the full-time duties and responsibilities for instructing personnel or developing training materials.

Minimum experience for the position:

Related experience shall include: 2 yr,

Nuclear power plant experience 0.25 yr.

Special requirements:

(2) Instructors of licensed personnel who provide instructions on the simulator shall hold, or shall have held, a senior operator's license or have been certified for equivalent senior operator knowledge.

The Special Requirements of a simulator instructor appear to differ from current standards that require these instructors to hold a senior reactor operator's license or, hold a senior reactor operator's certification and participate in an annual requalification program.

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The Special requirement, "shall have held a senior operator's license," describes a past qualification. This is certainly experience, but in this context, it appears to infer it is a qualification. Is this the intent? Does a having held a senior operator's license --that expired some time ago-- forever qualify an individual to teach license holders?

NUREG-0737 Clarification of TMI Action Plan Requirements (1980) states:

d. Training center and facility instructors who teach system, integrated responses, transient and simulator courses shall demonstrate their competence to NRC by successful completion of a senior operator examination.

e. Instructors shall be enrolled in appropriate requalification programs to assure they are cognizant of current operating history, problems, and changes to procedures and administrative limitations.

Request 6: Please revise DG-1329 to clarify ANSI/ANS-3.1-2014, 4.5.4 Instructor, Special requirements (2).

In closing, the Three Mile Island meltdown is credited by experienced operators and engineers as the 'best thing that has happened to nuclear power' --because it drove regulatory actions that have undoubtedly prevented worse nuclear accidents. Any deviations from the standards, rules or regulations implemented as the result of the accident at Three Mile Island should be questioned and openly evaluated.

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