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TO:

Chairman

FOR SIGNATURE OF : ** GRN ** CRC NO: 03-0795

DESC:

Request the NRC Consider an Amendment to the 1985
Commission Policy Statement on Engineering
Expertise on Shift

ROUTING:

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Burns/Cyr

DATE: 12/17/03

ASSIGNED TO: CONTACT:

NRR Dyer

SPECIAL INSTRUCTIONS OR REMARKS:

For Appropriate Action.

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December 9, 2003

The Honorable Nils J. Diaz
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dear Mr. Chairman:

On behalf of the Nuclear Regulatory Services Group (NRSG), we are writing to request that the Nuclear Regulatory Commission consider an amendment to the 1985 *Commission Policy Statement on Engineering Expertise on Shift*.¹ Specifically, we propose that the Commission amend that Policy Statement to provide a reasonable alternative to the present bachelor's degree requirement for the Shift Technical Advisor (STA) position. The justification for this proposed change to the Policy Statement is provided in the Attachment to this letter.

As discussed in the Attachment, the many improvements that have been implemented since the STA position was created in the post-TMI era justify a modification of the educational requirements for the STA function. These improvements include:

- Accredited systems-approach-to-training programs and standardized Generic Fundamental Examinations that ensure operators meet NRC standards for fundamental knowledge in physical, engineering and analytical principles.
- Use of site-specific simulators that make it possible to test operator analysis and response on any credible accident scenario.
- Increased shift staffing of Control Rooms and Technical Specification requirements that ensure adequate staffing of command and control personnel.

¹ The NRSG is a consortium of power reactor licensees represented by the law firm of Ballard Spahr Andrews & Ingersoll, LLP. The members of the NRSG are American Electric Power, Detroit Edison Company, Nuclear Management Company, Oglethorpe Power Corporation, PSEG Nuclear, and Rochester Gas and Electric Corporation.

The Honorable Nils J. Diaz

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- Use of symptom-based Emergency Operating Procedures, as well as Severe Accident Management Guidelines that provide guidance for actions to mitigate the consequences of beyond design basis accidents.
- Emergency Response Organizations that provide key personnel who must be able to report within specific timeframes to the Technical Support Center and provide engineering and management support to Control Room operators, including transient and accident analysis and response functions.

In light of these changes, it is appropriate for the NRC to permit an alternative to the degree requirement for the STA in certain circumstances. To this end, the NRSG proposes that the Commission amend the 1985 *Commission Policy Statement on Engineering Expertise on Shift* to add as an acceptable alternative the use of a non-degreed Senior Reactor Operator (SRO) in the combined SRO/STA position who meets the education and operating experience criteria for the operations shift supervisor specified in ANSI/ANS-3.1-1993, *Selection, Qualification, and Training of Personnel for Nuclear Power Plants*. This change can be made by amending the Policy Statement to add the following as one of the listed educational alternatives for the combined SRO/STA position:

High school degree or higher and experience equivalent to the minimum experience requirements specified for the operations shift supervisor function in ANSI/ANS-3.1-1993, 4.4.1.

This amendment to the STA educational alternatives in the Policy Statement is appropriate to permit the combined SRO/STA position to be filled by a non-degreed SRO who possesses an equivalent level of expertise based on training and operating experience. This change would also reduce unnecessary regulatory burden by allowing licensees to use increasingly scarce engineering resources more judiciously while continuing to maintain safety.

We appreciate the Commission's consideration of this proposed regulatory improvement. Should the NRC have any questions or need additional information, please contact us.

Sincerely,



Daniel F. Stenger

Counsel for the Nuclear Regulatory Services Group

Enclosure

cc: The Honorable Edward McGaffigan, Jr., Commissioner, NRC
The Honorable Jeffrey S. Merrifield, Commissioner, NRC
Dr. William D. Travers, Executive Director for Operations, NRC
Samuel J. Collins, Deputy Executive Director for Reactor Programs, NRC
James E. Dyer, Director, Office of Nuclear Reactor Regulation, NRC

ATTACHMENT

Proposed Amendment of Educational Requirements for Shift Technical Advisor (STA) Position

Background on STA Position

The NRC created the STA position after the 1979 Three Mile Island Unit 2 accident as part of the NUREG-0737 actions. The purpose of the STA was to ensure that a qualified person would be on duty to provide engineering and accident assessment advice to the Shift Supervisor in the event of abnormal or accident conditions. As described in NUREG-0737, Item I.A.1.1., an STA

shall have a bachelor's degree or equivalent in a scientific or engineering discipline and have specific training in the response and analysis of the plant for specific transients and accidents. The STA should also receive training in plant design and layout, including the capabilities of instrumentation and controls in the control room.

When the STA position was created, the NRC envisioned that a dedicated STA would only be necessary until longer-term goals were achieved. The long-term efforts included shift staffing increases, upgrades in training and qualification programs, Control Room modifications, human factors improvements, procedural upgrades, and development of emergency response organizations to augment on-shift capabilities during abnormal conditions. As the NRC stated in NUREG-0737, Item I.A.1.1.:

The need for the STA position may be eliminated when the qualifications of the shift supervisors and senior operators have been upgraded and the man-machine interface in the control room has been acceptably upgraded.

Even though the use of an STA was intended to be a short-term solution for control room crew augmentation, the NRC effectively made the STA a permanent fixture in Control Rooms of commercial reactors through adoption of the 1985 *Commission Policy Statement on Engineering Expertise on Shift*, 50 Fed. Reg. 43,621 (October 28, 1985)(hereinafter referred to as the "Policy Statement"). The Policy Statement provided two options for meeting the minimum shift staffing requirements of 10 C.F.R. § 50.54(m)(2) and the recommendation for an STA in NUREG-0737, Item I.A.1.1.: (1) a dual role SRO/STA, combining one of the required licensed Senior Reactor Operator positions and the STA position or (2) a dedicated STA as described in NUREG-0737, Item I.A.1.1.

According to the Policy Statement, the combined SRO/STA position is satisfied by assigning an individual with the following qualifications to each operating shift crew as one of the SROs (preferably the Shift Supervisor) required by 10 C.F.R. § 50.54(m)(2)(i):

- a. Licensed as a senior operator on the nuclear power unit(s) to which assigned; and

- b. Meets the STA training criteria of NUREG-0737, Item I.A.1.1, and one of the following educational alternatives:
- (1) Bachelor's degree in engineering from an accredited institution;
 - (2) Professional Engineer's license obtained by the successful completion of the PE examination;
 - (3) Bachelor's degree in engineering technology from an accredited institution, including course work in the physical, mathematical, or engineering sciences; or
 - (4) Bachelor's degree in a physical science from an accredited institution, including course work in the physical, mathematical, or engineering sciences.

Under the Policy Statement, then, any SRO who would function as the STA is effectively required to hold a bachelor's degree in one of the specified disciplines.²

The Commission indicated in the Policy Statement that the dual-role position was the preferred option, stating "in the long term, the Commission would prefer that the STA be combined with the Shift Supervisor in the dual-role position." The Policy Statement also provided that "Licensee proposals different than the two options described above will be considered by the staff on a case-by-case basis."

Justification for Amending STA Educational Requirements

An amendment to the educational alternatives provided in the Policy Statement is appropriate to permit the STA position to be filled by non-degreed SROs who have an equivalent level of expertise based on training and operating experience. As indicated above, during the post-TMI period, the NRC identified a specific deficiency in the technical readiness of Control Room operating crews to manage abnormal and emergency conditions. The deficiency was primarily rooted in education and training and in particular focused on fundamental engineering knowledge among the operators. Conditions have changed since that time and the concerns that led to the creation of the STA position have been resolved by the following improvements:

- Accredited systems-approach-to-training (SAT) programs and standardized Generic Fundamental Examinations now ensure that all operators meet NRC standards for fundamental knowledge in physical, engineering and analytical principles, including reactor theory, components, and thermodynamics. On-shift

² Licensees typically have requirements or commitments in their licenses, Technical Specifications, or Final Safety Analysis Reports to have a dual SRO/STA or a dedicated STA on shift.

SROs receive effectively the same specialized training that designated STAs receive, including training in accident recognition and response.

- Site-specific simulators have significantly enhanced the training environment, making it possible to test operator analysis and response on any credible accident scenario for the plant. Simulators are a fundamental tool in the NRC's licensing examinations for initial and continuing operator training.
- Increased shift staffing of Control Rooms has been implemented and requirements have been added to Technical Specifications for all licensees to ensure adequate staffing of command and control personnel (SROs and Shift Managers/Supervisors). See Standard Technical Specifications at Section 5.2.2.a. At single unit sites, for example, two SROs are required to be on duty at all times while the reactor is operating.
- Symptom-based Emergency Operating Procedures (EOPs) have been implemented and are exercised regularly in operator training and examinations. Further, plant-specific Severe Accident Management Guidelines (SAMGs) are now in place. The SAMGs go beyond the EOPs and provide guidance to the site Technical Support personnel for actions to mitigate the consequences of beyond design basis accidents. The SAMGs are used regularly during Emergency Plan Drills and Exercises.
- Emergency Response Organizations now provide key personnel who must be able to report within specific timeframes to the Technical Support Center (TSC) and provide engineering and management support to Control Room operators. The Emergency Response Organizations are thus readily available to augment the on-shift capabilities during abnormal conditions and provide transient and accident analysis and response functions.

In short, the many changes over the past two decades – including improvements in shift staffing and training, procedures, and emergency response – have addressed the underlying goals of the STA requirement and obviate the need to have a degreed engineer on-shift serving as the dedicated STA or dual SRO/STA. Most SROs today are capable of providing the necessary expertise on accident recognition and response based on their training and operating experience. Accordingly, the NRC should amend the guidelines of the Policy Statement to permit an alternative to bachelor's degree requirement for the STA function.

An acceptable educational alternative to permit use of a non-degreed dual-role SRO/STA would be the education/experience criteria specified for the operations shift supervisor in ANSI/ANS-3.1-1993, *Selection, Qualification, and Training of Personnel for Nuclear Power Plants*. ANSI/ANS-3.1-1993, section 4.4.1, provides that the shift supervisor must possess a high school diploma, hold an SRO license for the unit(s) assigned, and have a minimum of three years of power plant experience, which must include three years of nuclear power plant experience. During the years of nuclear power plant experience, the individual must have participated in licensed operator activities at an operating nuclear power plant during the following periods: (1) six months with at least six weeks of operation above 20% power; (2)

startup from a subcritical state to 20% power; (3) shutdown from greater than 20% power to subcritical; and (4) startup preparations following a fueling or refueling outage.

The NRC has endorsed the qualification and training criteria of ANSI/ANS-3.1-1993, including those for the shift supervisor function, with certain additions, exceptions and clarifications, in Regulatory Guide 1.8, Rev. 3, "Qualification and Training of Personnel for Nuclear Power Plants" (May 2000).

As an alternative to the degree requirement for STAs, the Commission should allow a licensed senior operator meeting the education/experience criteria of ANSI/ANS-3.1-1993 for the shift supervisor function to satisfy the criteria for the combined SRO/STA position. This change can be made by revising the Policy Statement to add the following provision as one of the listed educational alternatives for the combined SRO/STA position:

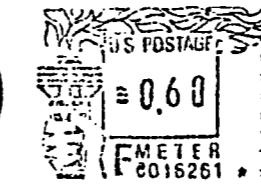
High school degree or higher and experience satisfying the minimum experience requirements for the operations shift supervisor function in ANSI/ANS-3.1-1993, 4.4.1.

This change would further the agency's goal to reduce unnecessary regulatory burden, while maintaining safety. Such individuals, although not degreed engineers, would still be required (1) to be licensed as an SRO on the unit; (2) to complete all necessary STA training; and (3) to possess special operating experience and education in accordance with a recognized consensus standard in ANSI/ANS-3.1-1993. This change would assist licensees in making judicious use of degreed engineers. The NRC should also make corresponding revisions to Regulatory Guide 1.8, Rev. 3 to recognize this alternative to the degree requirement for STAs.

Conclusion

For the foregoing reasons, the NRC should amend the 1985 *Commission Policy Statement on Engineering Expertise on Shift* to add an alternative to the existing degree requirement for the STA position. The approved alternative should permit a non-degreed SRO who meets defined education, training and operating experience criteria to serve as the dual-role SRO/STA.

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