

**NORTHEAST UTILITIES**



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WESTERN MASSACHUSETTS ELECTRIC COMPANY  
HOLYOKE WATER POWER COMPANY  
NORTHEAST UTILITIES SERVICE COMPANY  
NORTHEAST NUCLEAR ENERGY COMPANY

C Denton

cys: Dircks

Stello

Roe

GCunningham

General Offices • Berlin, Connecticut

P.O. BOX 270

Rehm

HARTFORD, CONNECTICUT 06141-0270  
(203) 665-5000

E. JAMES FERLAND  
PRESIDENT AND CHIEF OPERATING OFFICER

June 13, 1985

Mr. William J. Dircks  
Executive Director for Operations  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Mr. Dircks:

In a May 14, 1985 memorandum from Commissioner Zech to yourself, five questions were posed regarding SECY-85-150, Final Policy Statement on Engineering Expertise on Shift. As you are aware, following several Commission meetings on this subject during October and November of 1984, the Commission directed the Staff to develop a proposed final Policy Statement in coordination with the Nuclear Utility Management and Human Resources Committee (NUMARC) for their consideration. A substantial cooperative effort between the Staff and industry went into the development of the proposed final Policy Statement. The Staff's proposed final Policy Statement was endorsed by an overwhelming majority of the NUMARC Executive Group at its February 27, 1985 meeting, as reported to you in NUMARC's March 7, 1985 letter. This proposal was presented by the Staff as Enclosure A to SECY-85-150.

The Staff provided us with a copy of Commissioner Zech's May 14, 1985 memorandum, and requested that NUMARC provide its perspectives on the questions raised. NUMARC's responses, which are based on interactions with the Staff during development of the proposed final Policy Statement, are attached. In addition to responding directly to the five questions, we would like to emphasize that we believe that the training programs which could be utilized in lieu of an engineering degree to qualify an individual as a Shift Technical Advisor provide a level of mental discipline and perspectives comparable to that of a formal bachelors degree program. The structure of proposed paragraph b(2) of option 1 allows utilities to customize a program to the individual trainees and assures that formal educational perspectives are emphasized for those individuals lacking that background. The tables attached in response to question (3) provide additional detail on this point.

The issue of providing engineering and accident assessment expertise on shift has been the subject of considerable discussion both within the NRC and the nuclear industry. We are confident that the proposed final Policy Statement is responsive to the issue being addressed, and we urge the Commission to endorse it so that we may move forward with our programs in the near term.

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PDR COMMS NRCC  
CORRESPONDENCE PDR

If, after reviewing this response, either you or the Commission have additional questions or concerns, the appropriate representatives from NUMARC and I are available to address them at your convenience.

Very truly yours,

A handwritten signature in dark ink, appearing to read 'E. J. Ferland', written over a horizontal line.

E. J. Ferland  
Chairman, NUMARC Working Group on  
Engineering Expertise on Shift

cc: Chairman Nunzio J. Palladino  
Commissioner Thomas M. Roberts  
Commissioner James K. Asselstine  
Commissioner Frederick M. Bernthal  
Commissioner Lando W. Zech, Jr.  
Mr. V. Stello, Jr.  
Mr. H. R. Denton

Question 1:

Does the expertise referred to mean 4 years of experience as an SRO or 4 years of experience as a licensed operator (RO and SRO)?

Response:

The intent of the proposed experience requirement in paragraph b(2) of Option 1 is that the individual have 4 years of licensed experience at the RO or SRO level. Note, however, that in addition to the 4 years of licensed experience this individual must first obtain an SRO license before he could qualify as an STA.

Question 2:

INPO STA and SRO program guidelines are stated to be acceptable to satisfy the requirements of a training program. It is my understanding that guidelines are suggested elements for a program and are not requirements. With regards to the educational suggestions in the program guidelines, which, if any of the guidelines are considered the minimum requirements? For instance, are there minimum formal education prerequisites?

Response:

The STA and SRO guidelines are based on typical job position requirements and trainee backgrounds. In general, the accreditation process requires that the guidelines be followed except that a utility's program content can be modified based on the results of a plant-specific job analysis and the actual entry-level knowledge and skills of trainees. In addition to a high school diploma the guidelines recommend, and accreditation requires, post-secondary education level instruction in a number of subjects that may be obtained either through training or formal education. The recommendations presented in the INPO guidelines identify those areas of education and training considered necessary to effectively accomplish the specific job function. However, for individuals with previous qualifications (e.g. - education and/or training in a college or university, power plant, or military facility) portions of the guidelines could be waived on a case-by-case basis when the candidate has demonstrated an acceptable level of knowledge in the area to be waived. Additional details of the specific guidelines are provided in the response to question (3), below.

Question 3:

I would like to know the specific differences between what is recommended in the INPO SRO and STA guidelines. What additional specific guidelines above those suggested for an SRO apply to the STA?

Response:

The STA guideline recommends approximately 250 contact hours of instruction in mathematics, physics, chemistry and college level fundamental education beyond that specified in the SRO guidelines, for a total of about 800 contact hours in these areas. The exact number of contact hours is dependent on the actual entry level knowledge of trainees. Summaries of the content of the STA and SRO program guidelines are attached.

The STA guideline specifies fewer contact hours in the areas of plant-specific technology, systems, operations, and procedures than does the SRO guideline. The recommended contact hours for training in management and supervisory skills and administrative controls are comparable, with slightly more training in these areas recommended in the SRO guideline. The guidelines for simulator training for STAs and SROs are approximately the same.

It should be recognized that the current STA guideline was developed in 1981 and has not been revised since that time, whereas the licensed operator guidelines have been revised to reflect the results of industry-wide job and task analysis and the increased recognition of the need for on-shift engineering expertise and accident diagnosis capabilities. The industry's approach, as reflected in these guidelines, has been to regard the STA as an interim position (as was indicated when it was first required) and to upgrade the engineering expertise of shift operators (RO and SRO). Thus, the licensed operator guidelines currently reflect an increased emphasis on engineering and accident assessment expertise beyond that which was present at the time the STA position was conceived. This is reflected in the industry commitment developed through NUMARC regarding diagnostics training.

There is another significant difference in the qualifications of an SRO and of the proposed combined SRO/STA: An SRO may have as little as 1 year of actual licensed operator (RO) experience before becoming a licensed SRO; the SRO/STA will have at least 4 years of such experience. During 4 years of licensed duties, an operator observes and experiences a wide range of normal, abnormal and emergency situations in the plant and in continuing simulator training. The operator also receives continuing formal instruction in subjects that enhance his engineering expertise and accident diagnostic capabilities during continuing training.

Question 4:

It is my impression that a utility could not consider an STA qualified by invoking paragraph b(2) of Option 1 until the STA program has been accredited and the individual has successfully completed it. I would like to be sure that this impression is correct. In addition, which utilities currently have accredited STA programs and when do you suspect a utility could invoke this option to qualify an STA?

Response:

Commissioner Zech's impression is consistent with our understanding of the proposed final Policy Statement, with the clarification that an individual can complete the program prior to accreditation, as discussed below. Many utilities have been implementing STA training programs that meet the INPO guideline for several years, and the proposed Policy Statement would allow credit for completion of this training program prior to INPO accreditation. Individuals who completed either SRO or STA training that changed significantly as a result of the accreditation process would be required to receive instruction in any new topics added to the program. This would be accomplished through continuing training during the next training cycle. The above discussion is fully consistent with the Staff's proposed policy statement and our discussions with the Staff during its development.

The following STA programs are accredited:

- o Oconee - Duke Power Company
- o Sequoyah - Tennessee Valley Authority
- o V.C. Summer - South Carolina Electric and Gas
- o Farley - Alabama Power Company
- o Three Mile Island 1 - GPU Nuclear
- o Salem - Public Service Electric and Gas Company
- o Susquehanna - Pennsylvania Power and Light
- o McGuire - Duke Power Company

A utility could not invoke paragraph b(2) of Option 1 to qualify an individual in the dual role (SRO/STA) until, as a minimum, the proposed Policy Statement is approved by the Commission, its' SRO and STA programs are accredited, and its "candidates" have successfully completed the training required by both accredited programs. Following issuance of a final Policy Statement, the time that would be required to utilize paragraph b(2) of Option 1 would vary between utilities depending on the qualifications of the individuals selected to fill the combined SRO/STA position. Some utilities have been implementing training programs which provide engineering expertise and accident assessment capability to the shift crew for several years, in which case this option could be utilized almost immediately following accreditation. For a utility just beginning to structure a program for a combined SRO/STA position, it is expected that 2 to 3 years could be required to complete implementation.

Question 5:

I assume subparagraph b(2) meant to refer to PWR or BWR operator and supervisor programs. If this is not correct, I would appreciate an explanation.

Response:

This assumption is correct. The version of the Staff's proposed final Policy Statement which NUMARC endorsed (Enclosure H to SECY-85-150) specifically referenced the "BWR Control Room Operator, Senior Control Room Operator and Shift Supervisor Qualification" guideline as acceptable. A typographical error in Enclosures A and D to SECY-85-150 is apparently responsible for this misunderstanding.

Senior Reactor Operator

Educational and Training Requirements

- o Education Beyond High School Diploma (586 Contact Hours)
  - Mathematics
  - Physics
  - Engineering Drawings, Prints, Schematics
  - Electrical Science
  - Instrumentation and Control
  - Nuclear Physics and Reactor Theory
  - Plant Chemistry
  - Heat Transfer, Fluid Flow, Thermodynamics
  - Materials Science
  - Radiological Protection
- o Management/Supervisory Skills (60 Contact Hours)
- o Plant-Specific Technology, Systems, Operations, and Procedures (724 Contact Hours)
- o Transient and Accident Analysis (136 Contact Hours)
- o Administrative Controls (144 Contact Hours)
- o Simulator Training (110 Contact Hours)

Shift Technical Advisor

Education and Training Requirements

- o Prerequisites Beyond High School Diploma (240-285 Contact Hours)
  - Trigonometry, Analytical Geometry, College Algebra
  - Inorganic Chemistry
  - Engineering Physics
- o College Level Fundamental Education (520 Contact Hours)
  - Engineering Mathematics
  - Reactor Theory
  - Reactor Chemistry
  - Nuclear Materials
  - Thermodynamics
  - Fluid Dynamics
  - Heat Transfer
  - Electrical Sciences
  - Nuclear Instrumentation and Control
  - Nuclear Radiation Protection and Health Physics
- o Applied Fundamentals - Plant Specific (120 Contact Hours)
  - Plant Specific Reactor Technology
  - Plant Chemistry and Corrosion Control
  - Instrumentation and Control
  - Reactor Plant Materials
  - Reactor Plant Thermal Cycle
- o Management/Supervisory Skills (40 Contact Hours)
- o Plant Systems (200 Contact Hours)
- o Administrative Controls (80 Contact Hours)
- o General Operating Procedures (30 Contact Hours)
- o Transient/Accident Analysis and Emergency Procedures (30-45 Contact Hours)
- o Simulator Training (100 Contact Hours)



MEMORANDUM FOR: Commissioner Zech

FROM: William J. Dircks  
Executive Director for Operations

SUBJECT: SECY-85-150 - FINAL POLICY STATEMENT ON ENGINEERING  
EXPERTISE ON SHIFT

This memorandum responds to your request of May 14, 1985, for additional information from the staff and NUMARC on SECY-85-150, the "Final Policy Statement on Engineering Expertise on Shift." The staff forwarded your five questions to E. J. Ferland, Chairman, NUMARC Working Group on Engineering Expertise on Shift, for their response. Enclosed is their June 13th letter that provides responses to each of your questions. The staff agrees with NUMARC's statements but would like to make the following points:

- ° The staff does not disagree with the NUMARC response to your second question. While INPO has established training guidelines and criteria for accreditation, they have not established minimum formal educational prerequisites as requirements. Utility training programs are evaluated by INPO against INPO's accreditation criteria, as detailed in "The Accreditation of Training in the Nuclear Power Industry," INPO-85-002, January 1985. However, that document also states: "...if the objective is met, it is not essential that all accreditation criteria be fully met." The staff is evaluating the effectiveness of INPO accreditation in accordance with the Commission's Policy Statement. The staff believes that experience should be gained with the accreditation program before reaching conclusions on the effectiveness of INPO's guidelines and criteria.

Contact:  
C. Goodman, NRR  
492-4894

OFFICE							
SURNAME							
DATE							



- ° Regarding question three, the staff would like to point out that the STA and SRO guidelines cannot be directly compared since the guidelines do not specify course content.

William J. Dircks  
Executive Director for Operations

Enclosure:  
June 13 letter from E. J. Ferland

cc: Chairman Palladino  
Commissioner Roberts  
Commissioner Asselstine  
Commissioner Bernthal  
SECY  
OPE  
OGC

DW/IS/MEMO FOR LANDO W. ZECH, JR.

D/MR  
HDeaton  
6/24/85

EDO  
WDircks  
6/ /85

OFFICE	LQB/DHFS	LQB/DHFS	LQB/DHFS	LQB/DHFS	ActDD/DHFS	ActD/DHFS	DD/NRR
SURNAME	ISchoenfeld	CGoodman	JPersensky	for HBooher	DBeckham	WRussell	HEisenhut
DATE	6/24/85	tb 6/24/85	6/24/85	6/24/85	6/24/85	6/24/85	6/ /85



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

EDO PRINCIPAL CORRESPONDENCE CONTROL

Rec'd 5/16  
4:45

Due to  
Denton  
5/28

LAB

FROM:

6/28  
DUE: 05/31/85

EDO CONTROL: 000633  
DOC DT: 05/14/85  
FINAL REPLY:

COMMISSIONER ZECH

TO:

DIRCKS

FOR SIGNATURE OF:

\*\* PRIORITY \*\*

SECY NO:

EXECUTIVE DIRECTOR

DESC:

ROUTING:

REQUEST ADDITIONAL INFO RE FINAL POLICY STATEMENT  
ON ENGINEERING EXPERTISE ON SHIFT (SECY-85-150)

DIRCKS  
ROE  
REHM  
STELLO  
GCUNNINGHAM

DATE: 05/16/85

ASSIGNED TO: NRR

CONTACT: DENTON

SPECIAL INSTRUCTIONS OR REMARKS:

NRR Rec'd 5/16/85 - HFS

ACTION: 5/16/85  
W Russell, DHFS

Cys: DEisenhart/HDenton  
J Funches  
G Edison

Loc Gilman