



POLICY ISSUE **(Information)**

May 5, 1986

SECY-86-143

FOR: The Commissioners

FROM: Victor Stello, Jr.
Executive Director for Operations

SUBJECT: ENGINEERING EXPERTISE ON SHIFT, SEABROOK STATION, UNIT 1.

PURPOSE: To inform the Commission of the staff's evaluation of engineering expertise on shift for the Seabrook Station, Unit 1

BACKGROUND: On October 28, 1985, the Commission published a Policy Statement on Engineering Expertise on Shift (50 FR 43621) to reassert the Commission's belief that engineering and accident assessment expertise must be available to the operating crew at all nuclear power plants. In this policy statement, the Commission noted a preference for a combined Senior Reactor Operator/Shift Technical Advisor (SRO/STA) position. Part of the educational training criteria for such a position is a Bachelor's degree in engineering, engineering technology, or science.

The applicant for the Seabrook Station, Unit 1 has indicated that each Shift Superintendent shall possess a Senior Reactor Operator's license and the training and qualifications of a Shift Technical Advisor. Thus, the Shift Superintendent would fulfill the SRO/STA position. Each of the SRO/STA candidates proposed for the Seabrook Station holds either a degree of Bachelor of Science, Liberal Studies, issued by the Regents College of the University of the State of New York, or a degree of Bachelor of Professional Studies issued by Memphis State University. As such, the degrees do not literally meet the guidance of the Policy Statement, since they are not in engineering, engineering technology, or a related physical science.

Contact:
S. Israel, NRR
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DISCUSSION:

The applicant has submitted a summary of the minimum technical courses taken for academic credit by each of the proposed SRO/STA candidates. These include courses in mathematics, physics, radiation biology, chemistry, thermodynamics, materials, instrumentation, mechanics, fluids, computer technology, and electrical power systems as noted in the enclosure to this paper.

A review of the courses indicates that they cover a wide range of subjects that are relevant to a nuclear power plant. This breadth in course work exceeds the minimums permitted by the Policy Statement.

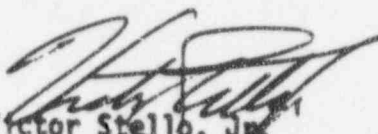
A review of degree requirements for engineering and physical science majors of several schools indicates that the minimum technical or scientific course work ranges from about 50 to 80 percent of the total student load. The 81 credits of technical courses noted in the enclosure fall within this range of accepted practice.

CONCLUSION:

Our review of the minimum technical content of the formal college level education of the SRO/STA candidates at Seabrook Station, Unit 1 indicates that the scope and magnitude of this training is equivalent to that envisioned by the Policy Statement. Consequently, we are of the opinion that the SRO/STA candidates who have Bachelor's degrees that include this level of technical course work satisfy the formal education criteria of the Policy Statement.

NOTE:

The staff intends to accept the Seabrook SRO/STA candidates as meeting the intent of the Commission guidance.


Victor Stello, Jr.
Executive Director
for Operations

Enclosure: Ltr dtd 2/14/86
fm Public Service of New Hampshire



George S. Thomas
Vice President-Nuclear Production

Public Service of New Hampshire
New Hampshire Yankee Division

February 14, 1986

SEN-943
T.F. B7.1.3

United States Nuclear Regulatory Commission
Washington, DC 20555

Attention: Mr. Vincent S. Noonan, Project Director
PWR Project Directorate No. 5

- References: (a) Construction Permits CPPR-135 and CPPR-136,
Dockets Nos. 50-443 and 50-444
- (b) USNRC NUREG-0896, "Safety Evaluation Report
(SER), Related to the Operation of Seabrook
Station, Units 1 and 2," dated March 1983
- (c) "Nuclear Regulatory Commission Policy Statement
on Engineering Expertise on Shift," dated
October 22, 1983

Subject: Shift Technical Advisor (STA); TMI Action Plan Item
I.A.1.1 (SER Outstanding Issue No. 16)

Dear Sir:

In reference (b) NRC staff indicated that their approval of the Seabrook Station Shift Technical Advisor (STA) proposal was pending completion of their review. As noted in our PSAR, Seabrook Station has elected to combine the STA position with either the Shift Superintendent or Unit Shift Supervisor. This provides the on-shift engineering and accident assessment expertise recommended by NUREG-0737, Action Plan Item I.A.1.1. In addition to meeting the Item I.A.1.1 guidelines, we believe that the proposed dual position meets the recommendations and objectives of the Commission's recent Policy Statement on Engineering Expertise on Shift [Reference (c)].

Understanding the benefits of a dual-role position for the STA, Seabrook Station has developed an intensive, stringent and formal educational training program in conjunction with the Memphis State University Center for Nuclear Studies. The program courses, as depicted in Table 1, represent technical degree work in the areas of engineering, mathematics and physical sciences. In addition, the Seabrook STA curriculum included communications, stress management and humanities courses as shown in Table 2. Individuals completing this program hold an accredited degree from the Regents College of the University of the State of New York and/or Memphis State University.

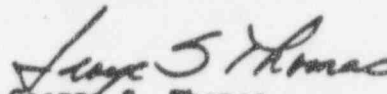
The Regents College degree represents an accredited curriculum in nuclear technology courses under the degree of Bachelor of Science (B.S.), Liberal Studies. The Memphis State University degree represents an accredited curriculum in nuclear industrial operations under the degree of Bachelor Professional Studies (B.P.S.). Though these degrees are not explicitly titled "engineering", we believe the degrees and course work satisfy the Commission's Policy Statement, under Option 1, Alternative 3.

Table 1 shows that the minimum number of technical courses taken by Seabrook's STA's are as extensive as those taken under a typical engineering or engineering technology curriculum. The Seabrook STA program ensures that an individual has substantial knowledge and understanding of the physical and mathematical sciences and the principles of engineering, as they relate to the operations of a nuclear facility. Moreover, as illustrated in Table 3, Seabrook would typically have at least two individuals per shift who qualify for the dual-role position. This ensures that an adequate number of dual-role licensed staff are available to provide engineering expertise at Seabrook Station when needed.

In summary, we agree with the Commission's desires to have technically qualified persons on shift, and we appreciate the Policy Statement's acknowledgment of programs that meet the intent of their Policy Statement on a "case-by-case" basis. We believe that the Seabrook Station STA Program provides the engineering expertise on shift delineated as Option 1, Alternative 3 of the Policy Statement. It would be appreciated if your staff, in possible conjunction with the Commissioners' Staff, would resolve this Open SER issue, so as not to affect the present course of action taken by the Seabrook Station STA Program. A response to our position would be appreciated by February 28, 1986.

Should you have any questions regarding this matter, please do not hesitate to contact us.

Very truly yours,


George S. Thomas

GST/cjb

Enclosures

cc: Atomic Safety and Licensing Board Service List

TABLE 1

MINIMUM TECHNICAL COURSES TAKEN FOR ACADEMIC CREDIT
BY ALL SEABROOK STA'S

<u>COURSE TITLE</u>	<u>NUMBER OF CREDITS</u>	<u>COURSE LEVEL (s)</u>
College Algebra	3	lower
Calculus I	4	lower
Calculus II	<u>4</u>	lower
Mathematics Total	11	
General Physics	4	lower
General Physics	4	lower
Nuclear Physics	3	upper
Reactor Physics	3	upper
Radiation Biology	3	upper
Chem. for Reactor Tech.	3	lower
Thermodynamics	<u>3</u>	upper
Physical Science Total	23	
Intro. to Instrumentation	3	lower
Industrial Materials	3	upper
Corrosion Chemistry	3	upper
Nuclear Heat Mechanics	3	upper
Chemical Thermodynamics	3	upper
Physics of Fluids	3	upper
Computer Technology	3	upper
Advanced Reactor Physics	3	upper
Stress Mechanics	3	upper
Electrical Power Systems	3	upper
Reactor Operation & Licensing	3	upper
Mitigating Core Damage (b)	1	upper
Transient & Accident Analysis (b)	1	upper
U.S. Navy Technical Training Courses (c)	<u>12</u>	upper & lower
Engineering Science Total	47	
Overall Total	81	

TABLE 1

(continued)

Footnotes for Table 1

- (a) Upper level courses are designed for degree candidates in the third or fourth year of university work; lower level courses are designed for degree candidates in the first year of university work.
- (b) This course, designed by Westinghouse for PWR plants, was given at Seabrook by Westinghouse instructors. The course is recommended for one credit, upper level, by the American Council on Education. The Seabrook STA's would qualify for this credit toward a four-year, university degree in nuclear technology.
- (c) Except for two Seabrook STA's who have engineering degrees, all other STA's have had technical work in U.S. Navy technical training courses. Memphis State University has granted credit for this technical training. The 12 credits indicated are the minimum number of U.S. Navy technical training credits earned by any of the STA's, other than the two with engineering degrees.

TABLE 2

COURSES IN COMMUNICATIONS, STRESS MANAGEMENT, AND HUMANITIES
TAKEN FOR ACADEMIC CREDIT BY ALL SEABROOK STA'S

<u>COURSE TITLE</u>	<u>NUMBER OF CREDITS</u>	<u>COURSE LEVEL</u>
Communications	6	lower
Stress and Human Behavior	3	upper
Technology and Change	<u>6</u>	upper
TOTAL	15	

TABLE 3

SEABROOK STA TRAINED INDIVIDUALS PER SHIFT (d)

<u>SHIFT</u>	<u>DEGREED^(a) INDIVIDUALS</u>	<u>TOTAL ON SHIFT</u>	<u>% OF SHIFT DEGREED</u>
A	2	4	50%
B	3 ^(b)	4	75%
C	2	5	40%
D	2	4	50%
E	2 ^(b)	4	50%
<u>F</u>	<u>3</u>	<u>5</u>	<u>60%</u>
TOTALS: 6	14 ^(c)	26	54%

(a) Degree is a Bachelor of Science in Liberal Studies from Regents College of the University of the State of New York.

(b) One (1) individual, in addition to holding the degree noted in (a) above, has a Bachelor of Professional Studies specializing in Nuclear Industry Operations from Memphis State University (i.e., holds two degrees).

(c) Three (3) additional licensed individuals hold a degree from either Regents or MSU, but they are not expected to be used for shift duty, and they have not been taken credit for in this table.

(d) Figures are as of February, 1986.