



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

April 7, 1992

Docket No. 50-271

Mr. Warren P. Murphy
Senior Vice President-Operations
Vermont Yankee Nuclear Power Corporation
R.D.5, Box 169
Ferry Road
Brattleboro, Vermont 05301

Dear Mr. Murphy:

SUBJECT: COLLATERAL DUTIES OF SHIFT ENGINEER (SHIFT TECHNICAL ADVISER) AS
FIRE BRIGADE LEADER (TAC NO. M80365)

Over the past year and a half, a series of meetings and letters concerning the collateral duties of the Shift Engineer (SE), also known as the Shift Technical Adviser (STA), has occurred. Your position is that, if an event involves a fire, the STA would serve as the fire brigade leader rather than performing those functions identified for the STA in a Commission policy statement. You have maintained the position that this approach best used the STA's knowledge and expertise.

The staff has further reviewed the assignment of the STA as Fire Brigade Leader at Vermont Yankee. The staff's evaluation concludes that the use of the STA as a member of the fire brigade is not compatible with the "accident assessment" duties and responsibilities of the STA since these duties and responsibilities may be required as a result of an event caused by a fire in the plant. However, the NRC staff is reviewing the STA policy on a generic basis as a result of experience and understanding gained since implementation of the STA policy. Pending completion of this review, the NRC position on the role and implementation of the STA remains unchanged and is stated in the NRC "Policy Statement on Engineering Expertise on Shift," published in the Federal Register (50 FR 43621) on October 28, 1985. In light of this review, the

NRC FILE CENTER COPY

100082

9204210042 920407
PDR ADOCK 05000271
H PDR

DFo1
111

Mr. Warren P. Murphy

- 2 -

April 7, 1992

NRC staff plans no further action on your practice of using the SE as Fire Brigade Leader at this time. Depending on the outcome of the staff's generic review of this matter, we may request you to modify your practice in the future.

Sincerely,

Original signed by
James G. Partlow
Associate Director for Projects
Office of Nuclear Reactor Regulation

Enclosure:
Policy Issue (Information) paper,
"Implementation of the Shift
Technical Advisor at Nuclear
Power Plants"

cc: See next page

*See previous concurrence

OFC	: PDI-3/LA	: PDI-3/PM	: NRR/LHFB*	: NRDD/DLPQ*	: NRR/D/DLPQ*	:
NAME	: MRush	: PSeers:mw	: JWermiel	: CThomas	: JRoe	:
DATE	: 4/2/92	: 4/7/92	: 03/19/92	: 03/16/92	: 03/16/92	:

OFC	: NRR:ADT*	: PDI-3/DIRA*	: ADR*	: DRPE*	: ADP	:
NAME	: WRussell	: VNerses	: JCalvo	: SVarga	: JPartlow	:
DATE	: 03/18/92	: 03/18/92	: 03/19/92	: 03/23/92	: 4/3/92	:

4/3/92

OFC	: DD:RR	:	:	:	:	:
NAME	: FMT:ag:la	:	:	:	:	:
DATE	: 4/3/92	:	:	:	:	:

DOCUMENT NAME: VYM80365.N02

DISTRIBUTION:

Docket File No. 50-271

NRC&Local PDRs

PDI-3 reading file

S. Varga

J. Calvo

V. Nerses

P. Sears

M. Rushbrock

OGC

ACRS(10)

R. Lobel

J. Linville, RI

J. Partlow

J. Wermiel

J. Roe

W. Russell

F. Miraglia

C. Thoma:

Mr. L. A. Tremblay, Senior Licensing
Engineer

cc:

Mr. J. Gary Weigand
President & Chief Executive Officer
Vermont Yankee Nuclear Power Corp.
R.D. 5, Box 169
Ferry Road
Brattleboro, Vermont 05301

Mr. John DeVincentis, Vice President
Yankee Atomic Electric Company
500 Main Street
Bolton, Massachusetts 01740-1398

Regional Administrator, Region I
U. S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, Pennsylvania 19406

R. K. Gad, III
Ropes & Gray
One International Place
Boston, Massachusetts 02110-2624

Mr. W. P. Murphy, Senior Vice President,
Operations
Vermont Yankee Nuclear Power Corporation
R.D. 5, Box 169
Ferry Road
Brattleboro, Vermont 05301

Mr. Richard P. Cedano, Commissioner
Vermont Department of Public Service
120 State Street, 3rd Floor
Montpelier, Vermont 05602

Public Service Board
State of Vermont
120 State Street
Montpelier, Vermont 05602

Chairman, Board of Selectmen
Town of Vernon
Post Office Box 116
Vernon, Vermont 05354-0116

Vermont Yankee

G. Dana Bisbee, Esq.
Office of the Attorney General
Environmental Protection Bureau
State House Annex
25 Capitol Street
Concord, New Hampshire 03301-6937

Mr. James Pelletier
Vice President - Engineering
Vermont Yankee Nuclear Power Corp.
P. O. Box 169, Ferry Road
Brattleboro, Vermont 05301

Resident Inspector
Vermont Yankee Nuclear Power Station
U.S. Nuclear Regulatory Commission
P. O. Box 176
Vernon, Vermont 05354

Chief, Safety Unit
Office of the Attorney General
One Ashburton Place, 19th Floor
Boston, Massachusetts 02108

Mr. David Rodham, Director
Massachusetts Civil Defense Agency
400 Worcester Road
P.O. Box 1496
Framingham, Massachusetts 01701-0317
ATTN: James Muckerheide

Mr. Raymond N. McCandless
Vermont Division of Occupational
and Radiological Health
Administration Building
Montpelier, Vermont 05602



January 21, 1992

POLICY ISSUE
(Information)

SECY-92-026

For: The Commissioners

From: James M. Taylor
Executive Director for Operations

Subject: IMPLEMENTATION OF THE SHIFT TECHNICAL ADVISOR AT NUCLEAR POWER PLANTS

Purpose: To keep the Commission informed of the current role and use of the shift technical advisor (STA) at nuclear power plants, describe staff concerns with the implementation of the STA position based on recent events studied by AEOD and a survey conducted by NRR, and advise the Commission of proposed staff actions. This paper addresses the Commission's request in the August 14, 1991 Staff Requirements Memorandum.

Background: On September 25, 1985, the Commission approved the final Policy Statement on Engineering Expertise on Shift. The Commission issued this policy statement to ensure that adequate engineering and accident assessment expertise is provided to the operating staff at each nuclear power plant. The policy stresses the importance of "providing engineering and accident assessment expertise on shift," and defines "accident assessment" as "immediate actions needed to be taken while an event is in progress." It notes that requirements concerning the STA should improve the ability of shift operating personnel to recognize, diagnose, and effectively respond to plant transients or other abnormal conditions. On February 13, 1986, the staff issued Generic Letter 86-04, "Policy Statement on

NOTE: TO BE MADE PUBLICLY AVAILABLE
IN 10 WORKING DAYS FROM THE
DATE OF THIS PAPER

Contacts:
Jesse A. Arildsen, NRR
49-21026

Eugene Trager, AEOD
49-24496

920/290258
9PP

Engineering Expertise on Shift," to provide licensees a copy of the Commission's policy statement. In the Generic Letter, the staff also requested licensees to submit their plans for implementing the position of the STA at their facilities.

The Commission's policy statement offers licensees two options for meeting the STA requirements for providing engineering expertise on shift. Option 1, the preferred option according to the policy, provides for eliminating the dedicated STA position by allowing licensees to combine one of the required onshift senior reactor operator (SRO) positions with the STA position into a "dual-role" (SRO/STA) position. The SRO/STA must hold a baccalaureate degree in engineering, engineering technology, or physical science, or hold a Professional Engineer license. Option 2 states that a licensee may satisfy the policy by placing on each shift a dedicated STA who meets the education and knowledge criteria of NUREG-0737, Item I.A.1.1, and that the STA should participate in normal shift activities.

Summary:

The AEOD studies and staff survey of STA implementation resulted in the following determinations:

- ° At 14% (15) of the plants, the dedicated STAs' responsibilities did not include significant involvement in shift activities.
- ° At 18% (20) of the plants, the dedicated STAs are assigned in an "on-call" status, spending much of their time outside the control room. This may not be having the intended effect when consultation is required during events.
- ° At many plants, STAs train independently from their assigned operating crews which may adversely affect the STAs' ability to interact with the operating crew during an event.
- ° At several plants, plant personnel appeared to lack confidence in the dedicated STA.
- ° At plants with a dual-role STA, switching from an SRO position to the STA function may adversely impact control room resources needed for other activities during an event.

- ° At some plants, the placement of the STA in the organization may not be appropriate to ensure that the STA function is properly utilized.

Discussion:

Events studied by AEOD have highlighted concerns with the implementation of the STA position as described in the Commission's policy statement. These events prompted the staff to survey STA practices at individual plants in May of 1991. This survey disclosed some diversity in STA implementation practices. The survey results also showed that some licensees had not implemented the changes to their STA practices that they intended to make to address the Commission's policy statement and that were reported in SECY-86-231.

The staff's survey indicated that 32 operating units use the dual-role STA from option 1 of the Commission's policy statement exclusively. The Commission preferred this approach because it would help ensure that engineering expertise on shift was held by licensed senior reactor operators, who were thoroughly familiar with all aspects of plant operation. Using the dual-role position also ensures that the STA has extensive experience at this plant, is fully integrated into the crew's "on-shift" activities and training, and may be considered a more credible source of information by the crew.

The staff's survey indicated that 79 operating units use a dedicated STA on shift, which follows option 2 from the Commission's policy statement. The policy states that the dedicated STA should "assume an active role in shift activities," and specifically encourages that the STA review plant logs, participate in shift turnover activities, and maintain an awareness of plant configuration and status. At all units using a dedicated STA, the STA's responsibilities do not include both reviewing plant logs and participating in shift turnover activities. The staff continues to believe that these activities are necessary to ensure that the STA knows the current configuration and status of the plant in order to provide timely engineering expertise in response to plant transients or abnormal conditions.

The staff's survey also showed that at 20 of the 79 operating units using dedicated STAs, STAs are assigned in an "on-call" status, spending much of their assigned time outside of the control room. In some cases STAs are in 24 hour on-call status and are provided sleeping facilities within the plant. These STAs report to the control room

when notified of the occurrence of an event requiring engineering expertise. The staff recognizes that dual-role STAs and dedicated STAs may also not be in the control room at all times. The on-call STA is generally required to report to the control room within 10 minutes of the initiation of an off-normal event. Although the on-call status is neither specifically addressed in the Commission's Policy Statement nor clearly defined in other NRC documentation, the staff had accepted this practice since it believed that the practice would allow the STA to perform the intended function of providing engineering expertise during an event. However, this does not appear to meet the intent of option 2 of the Commission's Policy Statement. In addition, the survey pointed out several cases in which the technical specifications for the plant indicate that the STA is an on-shift position when, in practice, the STA is on-call and is not performing as a member of the on-shift crew. The staff is pursuing this issue with the individual affected licensees.

The staff has noted that many licensees train STAs independently from their assigned operating crews. The staff believes that simulator training for a crew is most effective when it is conducted in a manner that best replicates the actual conditions expected in the plant. This approach is specified in the Examiner Standards (ES-601, Rev. 6). Therefore, the STA assigned to a shift should participate actively in that shift's simulator training. Similarly, during licensed operator requalification examinations, the STA should participate with the crew in simulator evaluations. The Operator Licensing Branch is conducting a survey in each region to determine the manner in which the licensees are using their STAs during the dynamic simulator portion of the licensed operator requalification examinations in order to determine the need for improvements in this area.

AEOD's human performance study program notes examples of both the effective and ineffective use of the STA during recent events. At several plants that use dedicated STAs, plant personnel appeared to lack confidence in the STA. The staff considers the STA's credibility important to ensuring responsible consideration of STA recommendations.

The AEOD studies also identified problems with the dual-role STA function. For example, the dual-role SRO switching to assume the role of STA may leave the remaining crew with minimal resources for the required direct response functions such as crew direction,

procedures reading, and control manipulations. Also, the dual-role STA may be given additional tasks, such as event notifications, which detract from the normal STA role. This experience suggests that the dual-role STA can have difficulty simultaneously serving as part of the control room command structure implementing the emergency operating procedures and as an independent technical advisor tasked with assessing the "big picture."

The staff has also noted that the placement of the STA in the organization and the reporting structure for the STA varied among the plants. Some plants place the STAs in a separate "chain of command" from the operations staff. STAs reporting to individuals outside of operations management may promote a more objective perspective to certain operational issues. However, a separate reporting structure should be balanced with the need to ensure acceptance of the STA function by the control room operating crew. AEOD human performance studies conducted in 1991 produced additional information that the organizational structure at some sites may provide additional obstacles to the STA giving an objective, engineering-based overview of the condition of the plant in the event of an accident.

The staff recognizes that the effectiveness of the control room crew will not be assured by focusing only on the role of the STA. NRC Information Notice 91-77, "Shift Staffing at Nuclear Power Plants," issued November 26, 1991, (Enclosure 1) provides a discussion of some of the problems with control room organization. Effective response to reactor operational events requires good performance by the complete control room crew. Issues such as staffing levels, division of responsibilities, communication, teamwork, and decision-making, are integral aspects of effective crew performance. The role of the STA at individual reactor sites should be considered within the context of the primary goal of control room organizational effectiveness in responding to operating events. These broader issues are currently under staff review and are being emphasized by AEOD during the review of operating events. AEOD plans to issue a report in July 1992.

Conclusion:

The staff concludes that a number of licensees have not implemented the Commission's Policy Statement on Engineering Expertise on Shift in the intended manner. Current STA practices vary widely, and the expression "engineering expertise on shift" has a variety of interpretations by licensees.

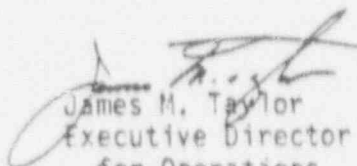
The Commissioners

- 6 -

By fall of 1992, the staff will review the STA policy and will recommend whether or not there is a need for a change in policy, proposed rulemaking, or other action to address concerns with STA implementation.

AEDD will continue to evaluate control room organizational effectiveness in responding to operating events and will issue a report in July 1992.

The Office of the General Counsel has reviewed this paper and has no legal objection.


James M. Taylor
Executive Director
for Operations

Enclosure:
As stated

DISTRIBUTION:
Commissioners
OGC
OCAA
OIG
REGIONAL OFFICES
EDO
ACRS
SECY

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, D.C. 20555

November 26, 1991

NRC INFORMATION NOTICE 91-77: SHIFT STAFFING AT NUCLEAR POWER PLANTS

Addressees

All holders of operating licenses or construction permits for nuclear power reactors.

Purpose

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice to alert addressees to problems that could result from inadequate controls to ensure that shift staffing is sufficient to accomplish all necessary functions required by an event. It is expected that recipients will review the information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems. However, suggestions contained in this information notice are not NRC requirements; therefore, no specific action or written response is required.

Description of Circumstances

On April 29, 1991, the Maine Yankee Atomic Power Plant experienced a main generator hydrogen fire. Although a senior reactor operator (SRO) and auxiliary operators from another shift were available immediately, the need to provide personnel for the fire brigade and yet perform the many actions required by the event caused a heavy workload for the control room staff. This workload contributed to the licensee's failure to notify some key emergency response personnel as specified in the licensee's procedure.

On June 15, 1991, at 11:50 p.m., lightning struck the switchyard at the Yankee-Rowe Nuclear Power Station. The lightning strike caused a fire, a loss of offsite power, a loss of normal telephone communication, and a reactor trip. The staff on duty experienced difficulty in its effort to concurrently classify the event, notify the required people, implement emergency operating procedures, and provide personnel for the fire brigade. The lack of staff contributed to the licensee's failure to make a timely Notification of Unusual Event to the State of Vermont and to the Commonwealth of Massachusetts. Two auxiliary operators, members of the five man fire brigade, did not respond to the fire because they were needed to start the steam driven emergency boiler feed pump. After the plant was initially stabilized, the shift supervisor sent the shift technical advisor to the central alarm station to report the plant's status to the plant manager via the loss-of-power telephone. This was done because their first attempts to report by the control room phones were unsuccessful.

9111200123


Discussion

The safe operation of a nuclear power plant and the preservation of the health and safety of the public depend on the ability of the on duty staff to respond to an event. The number of staff on each shift is expected to be sufficient to accomplish all necessary actions to ensure a safe shutdown of the reactor following an event. Those actions include implementing emergency operating procedures, performing required notifications, establishing and maintaining communications with the NRC and plant management, and any additional duties assigned by the licensee's administrative controls. Many licensees assign control room staff to be members of the fire brigade. Also, the operations staff is frequently required to support special security responses such as plant searches in response to a bomb threat. Section 50.54(m) of Title 10 of the Code of Federal Regulations addresses only minimum staffing levels for licensed personnel and does not address personnel availability for performing all of the necessary actions specified in the licensee's administrative controls and required by an event. Licensees may wish to carefully review actual staffing needs to ensure that sufficient personnel are available to adequately respond to all events. This is especially relevant to the backshift when staffing levels are usually at a minimum.

Related Generic Communications

1. NUREG-0737, "TMI Action Plan," dated October 30, 1980.
2. NRC Generic Letter 82-16, "NUREG 0737 Technical Specifications," dated September 20, 1982.
3. NRC Generic Letter 83-02, "NUREG 0737 Technical Specifications," dated January 10, 1983.

This information notice requires no specific action or written response. If you have any questions about the information in this notice, please contact the technical contact listed below or the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.


Charles E. Rossi, Director
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation

Technical contact: Jesse Arildsen, NRR
(301) 492-1026

Attachment: List of Recently Issued NRC Information Notices

LIST OF RECENTLY ISSUED
NRC INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
91-76	10 CFR Parts 21 and 50.55(e) Final Rules	11/26/91	All holders of OLs or CPs and vendors for nuclear power reactors.
91-75	Static Head Corrections Mistakenly not Included in Pressure Transmitter Calibration Procedures	11/25/91	All holders of OLs or CPs for nuclear power reactors.
91-74	Changes in Pressurizer Safety Valve Setpoints Before Installation	11/25/91	All holders of OLs or CPs for nuclear power reactors.
91-73	Loss of Shutdown Cooling During Disassembly of High Pressure Safety Injection System Check Valve	11/21/91	All holders of OLs or CPs for nuclear power reactors.
91-72	Issuance of a Revision to the EPA Manual of Protective Action Guides and Protective Actions for Nuclear Incidents	11/19/91	All holders of OLs or CPs for nuclear power reactors.
91-71	Training and Supervision of Individuals Supervised by an Authorized User	11/12/91	All NRC medical licensees.
91-70	Improper Installation of Instrumentation Modules	11/4/91	All holders of OLs or CPs for nuclear power reactors.
91-69	Errors in Main Steam Line Break Analyses for Determining Containment Parameters	11/1/91	All holders of OLs or CPs for pressurized-water reactors.
91-68	Careful Planning Significantly Reduces the Potential Adverse Impacts of Loss of Offsite Power Events During Shutdown	10/28/91	All holders of OLs or CPs for nuclear power reactors.

OL = Operating License
CP = Construction Permit