

New Hampshire Yankee

Ted C. Feigenbaum
Senior Vice President and
Chief Operating Officer

NYN-90073

March 15, 1990

United States Nuclear Regulatory Commission
Washington, DC 20555

Attention: Document Control Desk

References: (a) Facility Operating License NPF-67
Docket No. 50-443

(b) Testimony of Ralph Nader and Robert D. Pollard presented to
Committee on Interior and Insular Affairs, Subcommittee on
General Oversight and Investigations, March 14, 1990

Subject: Response to Late-Filed Allegations

Gentlemen:

In response to a request by members of the NRC staff during a telephone conversation on March 14, 1990, New Hampshire Yankee (NHY) is providing the following information regarding late-filed allegations made in Reference (b).

New Hampshire Yankee has conformed with the Institute of Nuclear Power Operations (INPO) policy of not making INPO reports public. However, since in this case the reports have essentially been made public via Reference (b), NHY is providing the NRC with copies of the three INPO reports specifically cited in Reference (b) as Enclosure 1 to this letter. Additionally, Enclosures 2, 3, and 4 provide a status update of NHY's action for each INPO finding or observation, and a correlation, if any, of the INPO finding with the late-filed allegations. A cross-reference of the INPO Report to the allegation testimony is provided in Enclosure 5. The three INPO reports are:

- ° Trip Report of Special Assistance Visit to Seabrook Station, January, 1988 (report dated February 8, 1988).
- ° Evaluation of Public Service Company of New Hampshire, New Hampshire Yankee Division's Corporate Support and Monitoring of Seabrook Station, October 2 through 6, 1989 (report dated December 26, 1989).
- ° Evaluation of Seabrook Station, September, 1989.

As you know, INPO was founded as a cooperative effort among all utilities that own nuclear plants to promote excellence in plant operation. As a condition of membership, utilities agree to subject their operations to review by INPO evaluations teams. The INPO evaluation teams make findings and issue recommendations that are based upon performance standards of excellence rather than regulatory requirements.

New Hampshire Yankee Division of Public Service Company of New Hampshire
P.O. Box 300 • Seabrook, NH 03874 • Telephone (603) 474-9521

9003200300 900315
CF ADOCK 05000443
CDC

IX 54
11

These INPO assistance visits are, of course, over and above the approximately 30,000 man hours of inspection performed by the NRC, and NHY's independent reviews and self-assessments.

In Reference (b) the allegers attempt to describe selected issues within the INPO reports. The allegers characterized these issues as "serious safety deficiencies." The allegers have mischaracterized the nature of the INPO findings. The INPO recommendations are intended to assist the utility in ongoing efforts to improve all aspects of its nuclear programs. INPO's goal is to assist any member utility in achieving the highest standards of excellence in nuclear plant operation. Their findings and recommendations are based on best practices, rather than minimum acceptable standards or requirements. Accordingly, areas where improvements were recommended are not necessarily indicative of unsatisfactory performance.

In some cases the allegers have gone so far as to selectively quote portions of the INPO report out of context to misrepresent NHY's response [see Reference (b) page 14 "PSNH Response" versus page 6 of INPO Corporate Evaluation.]

It is INPO's policy that in the course of an evaluation, if INPO observes a situation that is reportable in accordance with The Code of Federal Regulations, INPO will encourage the utility to report the situation. If the utility does not report the occurrence, INPO will do so in compliance with federal law. In the course of the INPO evaluations and assist visits at Seabrook Station no such situations occurred. The conclusions in the allegers testimony are unfounded. Their conclusions are based on the authors' misconceptions of the INPO evaluation process and their selective interpretation of INPO's finding and recommendations.

New Hampshire Yankee has reported and will continue to report to the NRC any violation of NRC regulations. Therefore, the INPO findings and recommendations are not indicative of unsatisfactory performance but are suggestions to assist NHY in enhancing programs and practices to achieve excellence in plant operations.

We have reviewed each of the INPO findings in the three attached reports, and have determined that our existing programs and practices related to each item exceed regulatory requirements. In many cases, the findings discussed in the three cited INPO reports have been completely addressed and closed out. However, in some cases we have ongoing actions to provide enhancements to our programs and managerial controls. We have reviewed each of the ongoing actions from the referenced INPO reports and have determined that there are no existing safety issues or concerns and no issues that would prevent the safe, conservative startup and operation of Seabrook Station upon issuance of a full-power operating license.

United States Nuclear Regulatory Commission
Attention: Document Control Desk

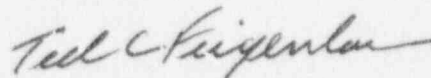
March 15, 1990
Page three

Additionally, we have reviewed the INPO reports from the INPO Construction Evaluations of 1983 and 1984, the Station and Corporate Assistance Visits of 1986 and 1987 and the Emergency Preparedness Assistance Visits of 1986 and 1987. We have determined that there are no open items from any of these reports that present a safety concern or would prevent the safe and conservative operation of Seabrook Station. We have prioritized our INPO open item and allocated our resources to achieve a comprehensive action plan to support INPO's and New Hampshire Yankee's mutual goal of excellence in plant operations. Some items, such as long term facility enhancements, have been incorporated into our overall planning process and factored into our one year and five year plans as appropriate. Through this management process we are dedicating the appropriate resources to support safe plant operation and meet our long term goals.

New Hampshire Yankee (NHY), as Agent for the Joint Owners of Seabrook Station, certifies that Seabrook Station Unit 1 is ready for the issuance of a full-power operating license. All design, construction and preoperational testing activities have been completed as required to support the issuance of a full-power operating license. In addition, all applicable licensing commitments and NRC requirements have been met. NHY is prepared with equipment, programs, procedures and properly trained operating personnel to begin a conservative power ascension testing program and subsequent power operation.

Should you require additional information regarding this matter please do not hesitate to contact me at (603) 474-9521.

Very truly yours,



Ted C. Feigenbaum

United States Nuclear Regulatory Commission
Attention: Document Control Desk

March 15, 1990
Page four

cc: Mr. William T. Russell
Regional Administrator
United States Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

Mr. Victor Nerses, Project Manager
Project Directorate I-3
United States Nuclear Regulatory Commission
Division of Reactor Projects
Washington, DC 20555

Mr. Noel Dudley
NRC Senior Resident Inspector
P.O. Box 1149
Seabrook, NH 03874

New Hampshire Yankee
March 15, 1990

Enclosure 1 to NYN-90073

INPO Reports

- ° Trip Report of Special Assistance Visit to Seabrook Station, January, 1988 (report dated February 8, 1988)
- ° Evaluation of Seabrook Station, September, 1988
- ° Evaluation of Public Seabrook Company of New Hampshire, New Hampshire Yankee's Corporate Support and Monitoring of Seabrook Station, October 2 through 6, 1989, (report dated December 26, 1989)



Institute of
Nuclear Power
Operations

Suite 1500
1100 Circle 75 Parkway
Atlanta, Georgia 30339
Telephone 404 953-3600

GST
GRG
TLH
JAM
File 1100
File 0700

March 2, 1988

Mr. George S. Thomas
Vice President, Nuclear Production
New Hampshire Yankee Division
Public Service Company of New Hampshire
P. O. Box 300
Seabrook, New Hampshire 03874

Dear *George* Mr. Thomas:

This letter documents the results of INPO's special assistance visit conducted at the Seabrook Station on January 25-29, 1988. The purpose of the visit was to provide technical expertise during an emergency preparedness performance assessment.

The results of the visit were discussed with appropriate members of the assessment team and plant staff on January 29, 1988. In accordance with our policy, the team returned to INPO and discussed their thoughts with other experienced personnel and department management before providing these recommendations in writing.

Enclosed is a copy of our trip report. It is provided to you independent of INPO's evaluation program and is intended solely for your use as desired.

In response to your request for a briefing on the results of this visit, Ron Seiberling and Colby Wells will meet with you on Wednesday, March 9, at 2:30 p.m. in your offices to discuss this information in more detail.

I hope you find this information useful. Please do not hesitate to contact me at (404) 953-5356, or have your staff contact Ron Seiberling, manager, Emergency Preparedness Department at (404) 953-7646 on this matter.

Sincerely,

for W. R. Kindley
W. R. Kindley
Director
Corporate Support Division

WRK:jjc

Enclosures: (as stated above)

cc/w: D. E. Moody
Z. T. Pate
P. M. Beard, Jr.

RECEIVED
MAR - 7 1988
PRODUCTION



Institute of
Nuclear Power
Operations

Date February 8, 1988
To W. R. Kindley
From R. K. Seiberling
Subject **TRIP REPORT - SPECIAL ASSISTANCE
VISIT TO SEABROOK STATION**

Memorandum

Prepared by C. E. Wells
Reviewed by C. C. Fuller
Approved by S. F. Stoll

I. BACKGROUND AND PURPOSE

A special assistance visit was made to Seabrook Station at Seabrook, New Hampshire, January 25-29, 1988, at the request of George S. Thomas, vice president, Nuclear Production.

Three people from INPO Emergency Preparedness were asked to participate in an audit of the Seabrook Emergency Preparedness and Public Affairs Division. Steve Stoll, Colby Wells, and Cherie Fuller were provided. Other members of the audit team included two technical specialists from Yankee Atomic, and two representatives of the Seabrook Quality Assurance Department.

II. BACKGROUND AND ON-SITE ACTIVITIES

An INPO emergency preparedness evaluator, Colby Wells, had previously observed a drill of the Media Center on 12/1/87 and of the Emergency Operations Facility and Media Center during an evaluated exercise on 12/16/87.

This special assistance visit involved working with the utility quality assurance staff in conducting an audit of the Emergency Preparedness and Public Affairs Division. The audit was performed under the guidelines of INPO 85-014, Generic Guidance for Emergency Preparedness Review.

Audit personnel were subdivided into three working groups. In no instance were INPO personnel solely responsible for team findings, but the scope of work assigned did require independent research and interviewing, leading to separate findings in some instances.

INPO personnel were asked to participate in review of the following program areas (as per INPO 85-014):

- o Organization
- o Emergency Plan/Procedures
- o Training
- o Drills/Exercises

RECEIVED
MAR - 7 1988
PRODUCTION

- o Notification
- o Public Information

An entrance meeting was held on January 25, documents were reviewed and interviews were held throughout the week, and an exit meeting was conducted on January 29, 1988.

The following people attended the exit meeting on January 29:

George S. Thomas, Vice President, Nuclear Production
James MacDonald, Radiation Assessment Manager
Neal A. Pillsbury, Independent Review Team Manager
Bruce J. Mizzau, Emergency Plan Facility Engineer
Jeff Crafts, Manager Projects & Performance
Terry Harpster, Director, Emergency Preparedness
Patrick D. Casey, Supervisor of Drills and Exercises
S. Joseph Ellis, Manager, Response/Implementation
Jeff Warnock, Nuclear Quality Manager
Peter J. Stroup, Director - Response & Implementation - New Hampshire
Yankee-Emergency Preparedness
Timothy A. Cotter, New Hampshire Yankee - Manager of Emergency
Preparedness
Theodore L. Wiebold, Nuclear Quality Auditor
Cecelia F. Esposito, Nuclear Quality Group (audit team)
Frank W. Bean, Nuclear Quality Group (audit team)
Al Parker, Senior Quality Assurance Engineer (audit team)
Thomas P. Fuller, Quality Assurance Department Senior Engineer (audit team)

Seabrook Station senior managers have not yet been fully apprised of the audit team's finding and recommendations, but were receptive to team overview comments made at the exit meeting. Personnel contacted are listed in Attachment A.

III. SUMMARY

This report addresses only those issues which resulted from INPO personnel observations and reviews. Issues that were primarily identified by others on the team will be addressed in the internal audit team report.

The following significant recommendations were among those discussed:

- o Adhere to approved Station policy on procedure modifications. Revisions to onsite procedures are being accomplished through the use of an unapproved change control program, administered by the EP group outside of the normal process.

- o Ensure adequate coordination and control of emergency public information and education activities. Responsibility and accountability for those activities have not been clearly assigned. Changes to the program are being made without appropriate approvals.
- o Improve training of the emergency plan and supporting procedures to ensure compliance with station training procedures. Currently the emergency preparedness training programs are not being developed or implemented in accordance with the Station Training Manual Procedures.
- o Provide records of required program activities. Program documentation is not being adequately maintained.

IV. DISCUSSION AND RECOMMENDATIONS FOR IMPROVEMENT

A. ORGANIZATION

Strengthen overall direction and management of emergency preparedness program. Develop responsibilities and authorities for each management, supervisory and professional position that are clearly defined and understood. The command hierarchy, reporting chains and working relationships are not clearly defined or understood among personnel involved with the program. Responsibility for review and retrieval of documentation is not clearly defined, resulting in the inability to retrieve information in a timely manner.

1. Several New Hampshire Yankee personnel interviewed did not know their complete assigned duties and responsibilities and indicated they had not ever seen their position descriptions. They further indicated they were now performing duties which they stated were outside of their normal duties.
2. Position descriptions are not available for all major positions outlined in the present organization chart. Those position descriptions obtained had not been approved and in some cases two different position descriptions existed for the same position.
3. There is no document, form, or system in place that describes all the duties and responsibilities of the Radiological Assessment Manager. This position has many duties and reviews assigned by procedures. Interviews and follow-ups on document reviews indicated several of these tasks were not being done or documented.
4. While the plan and implementing procedures were readily available for review, additional related documents were not. Written verification of required quarterly reviews, position descriptions, and other documentary evidence of mandatory program activities are not being adequately maintained.

B. EMERGENCY PLAN/PROCEDURES

Revise the Emergency Plan and emergency plan implementing procedures in accordance with approved station procedures to correct errors and conflicting information and ensure they accurately reflect current desired practices. The emergency plan in some instances is not consistent with the emergency plan implementing procedures and/or business as it is being conducted. Some emergency plan responsibilities are not being carried out. Revisions to emergency plan implementing procedures are not being done in accordance with station procedure.

1. A review of the letters of agreement found in the emergency plan, appendix D, indicates five out of seven have not been reviewed and updated on an annual basis. Section 11.3 indicates emergency public information has been distributed annually since 1986 when in fact it has never been distributed. Appendix G does not indicate the existence of emergency plan implementing procedure ER 1.0 "Classification of Emergencies at Zero Power." Appendix E does not reflect changes to the public notification system.
2. Revisions to on-site procedures are being accomplished through the use of an unauthorized change control program, administered by the emergency preparedness group outside of the approved process. Changes can be made and approved, training can be performed, and these procedures can be used for drills and/or exercises without having gone through the process outlined in ER 8.4 which includes final approval by the Vice President, Nuclear Operations. Interviews and document reviews indicated that "short cuts" are being used to speed up even this process and user impacts are not being considered. No documentation exists for this unauthorized process.

C. TRAINING

Ensure emergency preparedness training complies with approved station training procedures. Many training department procedures are not being followed in the development or administration of the emergency preparedness training program.

1. Emergency preparedness training programs do not currently comply with the requirements specified by procedure. Procedure 2005 - Training Records specifies that each individual is to have a training file, which contains documentation of all training received by that individual. Contrary to this procedure, emergency preparedness training records are filed by module number and date, and are not reflected in an individual's

training file. Lesson plans are not in compliance with Procedure 2010 - Instructor Guide Format. The format of several emergency preparedness lesson plans differs significantly from that specified by procedure. Procedure 2014 - Instructor Qualification contains well defined selection criteria, and clearly specifies the qualification program to be used to qualify training instructors. Emergency preparedness training instructors are not being qualified, or selected in accordance with the criteria specified in this procedure.

2. No documentation exists to certify that EAL's are being reviewed annually with State and local governmental authorities as required by applicable regulations. Interviews with the cognizant instructor indicate classification was reviewed with the state of New Hampshire officials, but not EAL's. No instruction of local officials was offered or conducted.
3. Emergency preparedness training is not adequately coordinated to ensure that all appropriate training is completed as required. No single person is assigned overall responsibility for ensuring that all emergency response personnel receive appropriate specified training. Training for Emergency Response Organization security personnel is conducted by the security organization. Short term emergency director training was conducted as part of the operator requalification program in the past, but interviews indicated they do not plan to continue such training. Emergency preparedness staff were unaware of that training gap.
4. The required reading program, which ensures all emergency response organization personnel are aware of procedure changes, was discontinued last fall. No plans are in process to reestablish the program and no alternative means of informing the entire emergency response organization of current and changing procedures is being implemented.

D. PUBLIC INFORMATION

Strengthen coordination and management of various elements of the emergency public information program. Review and coordination between individuals responsible for segments of the program is sometimes lacking entirely and seldom documented in retrievable fashion. There are multiple and in some cases significant discrepancies between the plan and the implementing procedures, and among the implementing procedures. Documentation of certain required program activities does not exist.

1. Strengthen and clarify assignment of responsibility and accountability for the emergency public information and education program. Coordination and cooperation between the emergency preparedness and the corporate communications staffs needs significant improvement.
 - a. Changes are made by the emergency planning staff to Media Center procedures without review or concurrence by Corporate Communications personnel who operate that facility.
 - b. Corporate Communications personnel do not review public education materials designated for distribution to EPZ residents. Further, they do not have copies of, or the opportunity to review, changes to the emergency plan which is the base document for the Media Center operation.
 - c. Offsite emergency planning personnel who write plan and education materials for state (New Hampshire) approval have never seen the onsite implementing procedures, even though those procedures have multiple references to offsite interface.
2. Correct the multiple discrepancies in the plan and procedures. Implement a review process which more effectively curtails such discrepancies in future changes.
 - a. The plan, Section 11.3, states that public information materials are reviewed and distributed annually to residents within the plume EPZ. These materials have never been distributed.
 - b. Media Center operations, by procedure, rely upon access to the Short Term Emergency Director to establish information credibility. However, the procedures for Notification of Unusual Event, Alert, Site Area Emergency, and General Emergency do not assign the Short Term Emergency Director any responsibility to be available to or provide information to the Media Center personnel. Lack of this support significantly hampered media center operation during observed drills.
3. Ensure documentation of required program elements is readily available. Annual media training was conducted in February 1986 and in December 1987. No documentation exists for the 1986 training, and no documentation of training content exists for 1987 training. Attendance sheets and an agenda do exist although copies of those documents were not available for review.

Further, the media call out list should be reviewed quarterly along with all other notification call lists. No documentation of this review is available. This call out list is not included as an attachment to the Media Center implementing procedures, or available in the emergency preparedness division.

CEW:jjc

ATTACHMENT

A. Personnel Contacted

George Gram, Executive Director of Emergency Preparedness and Community Relations
Jim MacDonald, Radiological Assessment Manager
Terry Harpster, Director of Emergency Preparedness
Pat Casey, Supervisor of Drills and Exercises
Rick Mays, Drills and Exercises
Fred Staccia, Training Program Coordinator (EP)
Dennis Pachulski, Lead Trainer Onsite Emergency Response Organization
Kathy VonWald, New Hampshire/Maine Support Organizations
Mike Bovino, Senior Planner Onsite and Planning Staff
Tony Callendrello, New Hampshire Planning Staff Hearing Support
Evalyn Fisher, New Hampshire Planning Staff
Sue Perkins, Activity Coordinator
Paul Frechette, Senior Planner
Dick Winn, Director, Corporate Communications
David Scanzoni, Manager News Services



Institute of
Nuclear Power
Operations

Suite 1500
1100 Circle 75 Parkway
Atlanta, Georgia 30339-3064
Telephone 404 953-3600

December 26, 1989

Mr. John C. Duffett
President and CEO
Public Service Company of
New Hampshire
1000 Elm Street
Manchester, NH 03105

Dear Mr. Duffett:

As requested and authorized by Mr. Ted C. Feigenbaum's letter dated December 18, 1989, attached are the results of INPO's evaluation of Public Service Company of New Hampshire, New Hampshire Yankee Division's corporate support and monitoring of Seabrook Station, conducted from October 2 through 6, 1989. Copies of previous drafts should be returned at this time.

In accordance with INPO's Evaluation Release Policy, this letter and the attachment are provided to you and INPO's Board of Directors. If you should decide to provide copies to the NRC, or to otherwise release the attachment outside your organization, we request that you notify INPO in advance.

To follow the timely completion of the improvements included in the responses, INPO requests a written status report by June 1990. A final update will be requested six weeks prior to the next evaluation. We appreciate the excellent cooperation and response from all levels of your organization.

Sincerely,

A handwritten signature in dark ink, reading "Zack T. Pate", is written over a horizontal line.

Zack T. Pate
President

ZTP/bm
Attachment (as stated)

EXECUTIVE SUMMARY

The Institute of Nuclear Power Operations (INPO) conducted an evaluation of Public Service Company of New Hampshire, New Hampshire Yankee Division's corporate support and monitoring of Seabrook Station from October 2 through 6, 1989.

As a basis for the evaluation, INPO used the December 1987 Performance Objectives and Criteria for Corporate Evaluations; these were applied in light of the experience of INPO's team members, INPO's observations, and good practices within the industry. Information was gathered from discussions, interviews, reviews of documentation, and the concurrent Seabrook Station evaluation.

Several beneficial practices and accomplishments were noted, including the following:

- o the positive attitude and stability of the staff
- o efforts to enhance teamwork and excellence throughout the organization and, in particular, the effective engineering and technical support interface
- o effective independent reviews performed by the Independent Review Team that draw on the experience within the Yankee organization, are of sufficient depth and scope to identify substantive problems, and that result in recommendations that are well accepted by the organization

In addition, improvements were recommended in a number of areas. The following are considered to be the most significant areas in need of improvement:

1. Corporate management needs to communicate expectations for standards of performance in some important areas:
 - a. Timely action has not been taken by the corporate organization to address and resolve some important problem areas that could affect station operation. (Finding 1.2A-1)
 - b. The goals and objectives program needs to be more effectively used to support the achievement of the organization's priorities.
 - c. Corporate direction of materials management activities has been insufficient to provide effective and timely support of plant materiel needs. (Finding 2.2A-1)
2. Corporate and station managers and supervisors are often not held accountable for timely completion of assigned actions or improvements to the station. (Finding 1.2A-2)

3. Consistent direction needs to be provided to the New Hampshire Yankee organization to facilitate the nuclear station's transition from the support role they held during construction, to that of the principal department requiring support during power operation. (Finding 1.1B-1)

Findings and recommendations are listed under the applicable performance objectives. Findings describe conditions that detract from meeting the performance objectives. Particularly noteworthy conditions that contribute to meeting performance objectives and that are unique are identified as good practices. It would not be productive to list as good practices those things that are commonly done properly in the industry since this would be of no benefit to New Hampshire Yankee or to INPO's other member utilities. As a result, most of the findings highlight conditions that need improvement.

The recommendations are intended to assist the utility in ongoing efforts to improve all aspects of its nuclear programs. In addressing these findings and recommendations, the utility should, in addition to correcting or improving specific conditions, pursue underlying causes and issues.

INPO's goal is to assist member utilities in achieving the highest standards of excellence in nuclear plant operation. The corporate findings and recommendations are based on apparent New Hampshire Yankee needs and on best practices, rather than minimum acceptable standards or requirements. Accordingly, areas where improvements were recommended are not necessarily indicative of unsatisfactory performance.

The findings and recommendations listed herein were presented to New Hampshire Yankee management at an exit meeting on October 18, 1989. Findings, recommendations, and responses were discussed on December 1, 1989, and the responses are considered satisfactory.

To follow the timely completion of the improvements included in the responses, INPO requests a written status report by June 1990. A final update will be requested six weeks prior to the next evaluation.

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
NEW HAMPSHIRE YANKEE DIVISION

Response Summary

As the operating agent for Public Service Company of New Hampshire's Seabrook Station, New Hampshire Yankee finds the Institute of Nuclear Power Operations' (INPO) evaluation of our corporate support and monitoring of the station to be both insightful and useful. New Hampshire Yankee supports the overall goals of INPO and the nuclear industry in assuring safe and reliable electrical production using nuclear technology. We are pleased that INPO observed some beneficial practices and accomplishments during their evaluation. We also appreciate the findings and observations of the INPO team where they noted areas for improvements. New Hampshire Yankee is committed to improving our programs and procedures to correct these areas of weakness. Specifically, New Hampshire Yankee will strengthen its programs and the implementation of company policies in the following areas:

1. Communication of corporate management expectations associated with standards of performance will be improved overall and specifically in the following areas:
 - o taking timely actions to address and effectively resolve problem areas that could affect station operation
 - o ensuring the achievement of the organization's priorities through more effective utilization of the New Hampshire Yankee Goals and Objectives Program
 - o providing effective and timely support of the plant materiel needs through stronger corporate direction of the materials management activities
2. Personnel accountability measures for corporate and station managers and supervisors will be strengthened. These measures will specifically include the timely and effective accomplishment of their assigned actions and identification of improvements within their areas of responsibility.
3. Clear and consistent direction to the overall New Hampshire Yankee organization will be provided to complete the transition of the production organization from the support role that it held during construction, to that of the principle organization requiring support during power operation.

In summary, New Hampshire Yankee supports both INPO and the industry in the pursuit of excellence in nuclear power plant operations. We believe that the implementation of the improvements committed to in this evaluation will help us in that effort.

ORGANIZATIONAL STRUCTURE

PERFORMANCE OBJECTIVE A. The corporate organization is established in such a manner that the functions, assignments, responsibilities, and reporting relationships of individuals are clearly defined, understood, and effectively implemented. All major aspects of the nuclear operation are encompassed, with emphasis on line management control of safety and reliability.

Finding (1.1A-1)

A lack of nuclear station experience exists at the corporate manager level and in key corporate staff positions. Only one member of the corporate staff at the director level has nuclear station experience, and one other has current operational experience from another utility. This reduces the operational perspective in the corporate organization and restricts available career paths for station employees. Contributing to this is a perception that currently exists among corporate employees that station experience is not an important factor in career advancement.

Recommendation

Establish career development for selected corporate and station personnel, including rotation between the two organizations, to gain added experience and perspective at the corporate level. Revise corporate policies to include nuclear station experience as an important factor in employee development and advancement.

Response

Career development, for selected corporate and station personnel, will be enhanced through the implementation of a Key Manager Development Program. This program will be introduced in January 1990, and will be supplemented with a corporate and station position rotation program that will be established and implemented by June 1990.

Greater use will be made of station personnel in the conduct of Independent Review Team tasks to provide station employees with broader corporate experience and influence. In line with the New Hampshire Yankee promote-from-within philosophy, the Job Posting and Key Management Development Programs will emphasize the importance of station operating experience. Revised job descriptions, which will indicate a preference for station experience for appropriate corporate positions, will be completed by September 1990.

PERFORMANCE OBJECTIVE B. The corporate organization effectively supports the station(s) and minimizes the assignment of duties to the station staff(s) not directly related to day-to-day plant management.

Finding (1.1B-1)

Consistent direction needs to be provided to the New Hampshire Yankee organization to facilitate the nuclear station's transition from the support role it held during construction, to that of the principal department requiring support during power operation. The station has not taken a leadership role in the management of day-to-day activities. Contributing to this is that, until recently, the focus of corporate management has been on external factors associated with licensing the Seabrook Station. Additionally, some responsibilities assigned to the production organization do not directly support its mission and impact existing resources. Examples of these areas are the review and implementation of vendor manuals, implementation of design changes, and procurement engineering.

The following areas require additional corporate emphasis or resolution for the station to complete preparations for power operations:

- a. The solid radioactive waste handling group has not been staffed. As a result, procedure development and waste handling personnel training have not been completed despite the impending power ascension testing. (See Finding 2.10A-1)
- b. Additional assistance in preparing and revising procedures has not been provided to the operations department despite requests for assistance since 1987. During the recent Seabrook Station evaluation, weaknesses were identified in the technical content and human factors of operations department procedures.
- c. Maintenance training was recently cancelled due to insufficient resources in the maintenance department to complete both scheduled work and training. The training department cancelled additional training due to its priority on preparing for accreditation of the maintenance training programs. Senior plant and corporate management were not aware of these decisions or the impact on the maintenance department's readiness for power operations.

Recommendation

Define the operational responsibilities and priorities of the station to the entire New Hampshire Yankee organization. Review the existing division of responsibilities to identify areas where work can be transferred from the production

organization. Provide additional corporate support to resolve outstanding issues impacting the preparations for startup, such as those identified above.

Response

The responsibilities of the production organization, and other New Hampshire Yankee organizations that support the production organization, are included in the New Hampshire Yankee manual system. These responsibilities will be reinforced and further defined on an ongoing basis. New Hampshire Yankee senior production management will chair regular meetings with appropriate station supervision and corporate support supervision. At these sessions, production priorities will be clearly and unambiguously defined, and the necessary support to resolve problem areas and negative trends will be identified and allocated. These weekly meetings will be held at the station beginning in December 1989.

In November 1989, a Materials Management Task Force was established to resolve existing problems and to identify organizational realignments to assure an efficient long-term materials program structure that will effectively support station operations. The new Radioactive Waste Handling Group and the new Operations Support Group are scheduled to be staffed by December 1989. In addition, a review of existing organizational responsibilities will be conducted. This review will include, but not necessarily be limited to, the review and implementation of vendor manuals, implementation of design changes, and procurement engineering. The review will identify and, if necessary, will result in the reassignment of activities currently assigned to production that could be more appropriately performed by other New Hampshire Yankee support organizations. These reviews will be completed by June 1990, and any identified responsibility realignments will be implemented by September 1990.

MANAGEMENT INVOLVEMENT AND COMMITMENT

PERFORMANCE OBJECTIVE A. Corporate management directs, monitors, and assesses nuclear station operations and provides support, guidance, and assistance to attain and enhance safe and reliable operation. Corporate managers assigned responsibilities for nuclear matters have direct involvement in significant decisions that could affect their responsibilities. Management commitment to the operation of the nuclear station(s) in a safe and proper manner is evident from personal involvement, interest, and knowledge.

Finding (1.2A-1)

Timely action has not been taken by the corporate organization to address and resolve some important problem areas that could

affect station operation. In several cases, these problems were previously identified from within the organization, but corrective action was not adequately implemented. Corporate management's focus in the past on the many unique licensing and regulatory issues associated with the Seabrook Station contributed to the lack of timely action. Examples of significant problem areas are as follows:

- a. During the recent Seabrook Station evaluation, several significant weaknesses were identified in the operating experience program. These included weaknesses in the application of industry operating experience, as well as the use of in-house experience. For example, 25 significant operating experience report recommendations were found to be not satisfactorily implemented, a number considerably higher than typically seen at other utilities. Problems were also found in the use of in-house experience due to an inadequate threshold and mechanism for identifying in-house events. Corporate managers were aware of weakness in the operating experience program, but have not implemented effective corrective action.
- b. Procedure adherence problems were repeatedly identified in the executive summaries of semiannual quality assurance trend reports since 1987. However, management action to address this problem was not initiated until early in 1989, and was not effective in preventing an event in June 1989 that was, in part, attributed to nonadherence to a test procedure. Additionally, some weaknesses in the adherence to station policies and procedures was observed during the recent Seabrook Station evaluation. For example, vendor manuals are routinely used in place of approved procedures contrary to station requirements.
- c. A number of check valve failures have occurred at the station, including failures in the residual heat removal system, diesel generator jacket cooling water system, and containment building spray system. The significance of check valve problems was reported to the industry in Significant Operating Experience Report 86-3, "Check Valve Failures or Degradation," issued in October 1986, and emphasized in a subsequent INPO letter to senior corporate management. Despite the check valve failures at Seabrook and the above correspondence, an effective check valve preventive maintenance program is not yet in place. Additionally, a design review of check valves is not scheduled to be completed until April 1991.

Recommendation:

Take action to address important problem areas, including those identified above. Monitor the effectiveness of the corrective actions implemented to verify that improved performance is achieved.

Response

New Hampshire Yankee has initiated formal reviews to identify open issues and problem areas to be addressed prior to full power operation. Each issue will be reviewed by New Hampshire Yankee senior management, assigned a completion schedule, and tracked until closure. This review will be performed by December 1989. For the longer term, senior management is meeting with employees on a weekly basis to obtain feedback regarding operational or organizational issues, and to provide additional monitoring of the effectiveness of corrective actions implemented.

The Operating Experience Program will be strengthened to assure effective and timely implementation. Action plans have been developed for the 25 significant operating experience report recommendations that have not been resolved. A goal has been established for new SOERs issued in 1990 to assure timely implementation of industry operating expense. In addition, the current procedure for review of in-house operating events will be revised to ensure these events are thoroughly investigated and corrective actions completed in a timely manner. As part of this revision, the initiating threshold for event reviews will be lowered to conform with corporate management expectations. These actions will be complete by February 1990.

Procedure compliance training has been conducted for nearly all site personnel and will be completed by December 1989. An initial review of training effectiveness has been completed, and a followup evaluation will be conducted by February 1990.

A task team has been established to address vendor manual issues, and a comprehensive check valve design and monitoring program is under development. Corrective actions associated with these issues will be fully implemented by December 1990, and October 1990, respectively.

Finding (1.2A-2)

Corporate and station managers and supervisors are often not held accountable for timely completion of assigned actions or improvements to the station. Examples of problems noted are as follows:

- a. Approximately one-quarter of approximately 1,250 items on the integrated commitment tracking system are past due. Many involve quality deficiencies and lessons learned from industry operating experience. In many instances, personnel are not held accountable for completing items on time. Due dates are sometimes established without the concurrence of managers responsible for the tasks, contributing to the problem. As a result, the tracking system is not fully effective as a management tool.
- b. Although many of the New Hampshire Yankee goals and objectives for 1989 will not be accomplished due to changes in senior management priorities, responsibilities for these goals have not been formally removed or modified. As a result, a lack of accountability and loss of credibility have developed toward the goals and objectives program. Based on a recent status report, 29 of 47 corporate goals (62 percent) will not be achieved in 1989.
- c. Managers and supervisors are not consistently held accountable for completing annual personnel performance appraisals in a timely manner. For example, 48 percent of the annual appraisals for exempt personnel in the station staff are overdue. (See Finding 2.6B-1 for additional details.)
- d. A number of issues identified in this and the recent station evaluation are similar to those identified in the 1986 and 1987 INPO corporate and station visits. For example, recommendations were provided for improving equipment tagging, independent verification of valve lineups, evaluating in-house operating experience, and improving worker industrial safety practices. Although some improvements in these areas are evident, problems continue to exist. In many cases, responsible individuals were not held accountable to verify that the improvements were effective.

Recommendation

Strengthen measures to hold personnel accountable for their areas of responsibility. This should include verification that desired actions in areas such as those noted above are effectively accomplished.

Response

A Core Values and Work Ethic Program has been instituted as a foundation for strengthening overall attention to detail, accountability, and general corporate management expectations regarding high quality work with appropriate attention to commitments, cost control, and work effectiveness.

Performance will be reflected in performance appraisals that will be done on a yearly basis. Specific criteria have been included in the New Hampshire Yankee manuals and formally presented to employees.

The integrated commitment tracking system will be revised to implement a new priority system, tighter controls on commitment date changes, and closer tracking of progress. A weekly review of the integrated commitment tracking system will be conducted with station and corporate managers. These changes will be implemented by December 1989.

Accountability for established goals will be emphasized in writing to all managers by December 1989, and goals status reporting will be improved to permit closer corporate management monitoring of progress. The goals program will be reviewed on a quarterly basis to assure that established goals are consistent with senior management priorities. Goals will be formally modified or removed, as necessary, based on this review.

Personnel will be held accountable for completion of corporate and station findings by use of the improved integrated commitment tracking system. Accountability for completion of performance appraisals will be assured by requiring that performance appraisals be a prerequisite to annual wage and salary actions.

MAINTENANCE AND OUTAGE MANAGEMENT

PERFORMANCE OBJECTIVE A. Corporate management ensures maintenance activities at the nuclear station(s) are effective in maintaining equipment in a high state of readiness and in good materiel condition to support safe and reliable plant operation.

Finding (2.1A-1)

Corporate monitoring of some aspects of station maintenance activities has been insufficient to identify problems and provide the support needed to achieve timely corrective action. Maintenance performance problems that persist include use of vendor manuals during the performance of safety-related work contrary to station policy, an increasing backlog of maintenance work, insufficient maintenance worker productivity, and inadequate scheduling of maintenance tasks. Contributing to this problem is a lack of clearly defined responsibilities for performing reviews, trending, and evaluating maintenance data for identification and implementation of corrective actions. Examples in this area include the following:

- a. The semiannual trend analysis report generated by the Nuclear Quality Group is limited to reviews of station quality assurance, quality control, NRC, and other quality-related problem reports. The analysis does not include reports generated by station planning and scheduling, reports from the cost control group in Production Services, or Independent Review Team results.
- b. In discussions with a quality assurance manager, it was noted that inappropriate vendor manual use by maintenance personnel performing work in the field had been previously identified in several surveillance reports. The manager was unaware that similar problems with incorrect use of vendor manuals during field work still exist, as identified in the recent Seabrook Station evaluation.
- c. The Maintenance Group Activity Report for February 1989 identified that all maintenance training was cancelled until June 1989 to prepare for INPO accreditation of the non-license training programs. During the recent Seabrook Station evaluation, management was unaware that maintenance training had been cancelled.
- d. Some corporate managers interviewed indicated they relied on the station manager to monitor maintenance activities and were not aware of some problem areas needing maintenance improvements. For example, the September 28, 1989 Production Maintenance Report indicated that the cumulative maintenance worker productivity for corrective maintenance performance was inadequate when compared to the projected performance standard. Additionally, the recent Seabrook Station evaluation identified that maintenance activities are often ineffectively coordinated or deferred as a result of inadequate scheduling.

Recommendation

Assign corporate responsibilities for monitoring maintenance activities to support the timely identification and resolution of problems and adverse trends. Improve the use of station and corporate generated reports to identify areas needing improvement and to monitor the effectiveness of corrective actions. Followup on identified problems, including those noted above. INPO 85-038, Guidelines for the Conduct of Maintenance at Nuclear Power Stations, should be used in this effort.

Response

Specifically focused corporate monitoring and trending of maintenance activities and data will be established by March 1990. Existing reports generated by both the station and corporate organizations will be reviewed and improved as

necessary by June 1990. These reports will be used to verify that areas needing improvement are identified, and to monitor the effectiveness of corrective actions in progress. INPO 85-038, Guidelines for the Conduct of Maintenance at Nuclear Power Stations, will be used in this effort.

MATERIEL AND OUTSIDE SERVICES

PERFORMANCE OBJECTIVE A. Corporate materiel management ensures that parts and materiel are purchased and maintained in a quality manner and are available when needed.

Finding (2.2A-1)

Corporate direction of materials management activities has been insufficient to provide effective and timely support of plant materiel needs. High backlogs of materials management-related work prevent materials from being ordered, received, and processed in a timely manner. As a result, consumables and spare parts are often not available to support plant maintenance and design change installation. Contributing to these deficiencies are a lack of clearly defined expectations by corporate management for performance of the materials management activities and in effective coordination and communications between the groups performing materials management functions. Elements of this problem include the following:

- a. A significant backlog of work related to materials procurement activities exists. Examples include the following:
 1. Approximately 290 speed memos, documenting material order problems, are in backlog awaiting processing. The trend of the speed memo processing backlog is increasing. The average processing time for speed memos is approximately 133 days.
 2. Over 900 purchase requisitions for materials are in process. Of the 900, over 400 requisitions are on hold awaiting speed memo resolution or responses from vendors. The balance of purchase requisitions are awaiting buyer action. Additionally, during interviews, it was reported that some requisitions have been outstanding for correction and resolution since 1986.

3. There is a six to seven week backlog of materials awaiting receipt inspection. As a result, some materials arriving on site are not processed and included in the station inventory in a timely manner. Additionally, unnecessary calls to vendors are sometimes made to locate material already received. Other receipt inspection problems include frequently changing work priorities to resolve problems with vendor billings, and the inability of receiving clerks to spend time processing surplus construction materials for use as station stock.
- b. Spare parts and consumables are unavailable for issue at the stores window approximately 6 percent of the time. Station work planners frequently do not check the computerized stock status for necessary consumable materials before assigning work, resulting in some job delays. Additionally, corporate design engineering groups developing bills of materials for installation of station design changes do not normally include lists of consumable materials necessary to implement the design work.
- c. Expectations for the performance of the materials management area have not been established or communicated by corporate management. For example, goals for availability of spare parts and consumables at the issue window have not been determined. Two managers responsible for major materials management activities stated they were frustrated because corporate management's expectations for performance of materials management functions had not been established or defined. Problems noted by these managers included stock-outs for spare parts and consumables and processing time for material receipt inspections.
- d. Activities of station and corporate departments involved with processing purchase requests, purchase orders, and receiving and issuing materials are ineffectively coordinated. The Materials Requirements Department initially handles all purchase requisitions, and is directed by the station planning and scheduling manager. The inventory organization receives and issues materials, but reports to and is directed by the corporate production services organization. The purchasing group places the orders with the vendors, and reports to the corporate Office of Administrative Services. Monitoring and direction of the groups' actions,

goals, and objectives are separate and often not coordinated or directed to ensure parts are available in a timely manner.

It is recognized that several efforts to review and improve materials management activities are in progress or planned. These efforts include the currently active Materials Task Force, plans to assign a full-time quality assurance engineer to the material receiving area, and plans for an examination of the materials management program by an Independent Review Team.

Recommendation

Provide stronger corporate direction of materials activities. Prioritize and resolve materials management program weaknesses, including those noted above. Continue with activities to review the materials management program, identify problems, and implement corrective actions. INPO 85-038, Guidelines for the Conduct of Maintenance at Nuclear Stations, should be used in this effort.

Response

In November 1989, a Materials Management Task Force was established. As part of this task force and on an interim basis, all procurement activities will report to one individual within the production organization.

This task force has been assigned the responsibility of resolving existing problems, including those noted above, and identifying organizational realignments that will assure an efficient, long-term materials program structure that effectively supports station operations. INPO 85-038, Guidelines for the Conduct of Maintenance at Nuclear Power Stations will be used in this effort. The results of this task force will be documented, and an action plan to address the problems will be issued, by June 1990. In addition, expectations for performance within the materials management area will be formally established in the goals program. This will be completed by February 1990.

HUMAN RESOURCES

PERFORMANCE OBJECTIVE B. Corporate management provides for the career development of selected personnel, recognizing the importance of nuclear plant operational experience for nuclear managers.

Finding (2.6B-1)

Some important aspects of the professional and career development program need to be more effectively implemented. Problems exist with the conduct of performance

appraisals and with identification and development of candidates for succession to key positions. For example, periodic personnel performance appraisals are frequently not conducted in a timely manner. Currently, 35 percent of performance appraisals of exempt personnel are overdue. Contributing to this is that periodic status reports to management do not indicate the total length of time appraisals are overdue. Efforts to hold managers accountable for completing appraisals on time have been ineffective. Additionally, identification and development of candidates for succession to important positions has not occurred in some areas. Some managers stated they had no viable candidates for succession to their positions. Other managers identified potential candidates with development needs but had not acted to address those development needs. It is recognized a formal succession planning program has been recently approved, but not yet implemented.

Recommendation

Hold managers accountable for timely completion of performance appraisals of their subordinates at the frequency specified by corporate policy. Implement the approved succession planning program, and periodically assess its effectiveness.

Response

Performance appraisal tracking and policy revisions will be implemented by December 1989. A revised performance appraisal procedure will assist managers who are responsible for timely completion. Periodic status reports will be issued to executive management. Salary increases for employees will be processed only after receipt of completed performance appraisals.

A Key Management Development Program will be introduced in January 1990, and the initial implementation will be completed in April 1990. A progress review will be held after six months, and the process will be reinitiated annually.

RADIOLOGICAL PROTECTION

PERFORMANCE OBJECTIVE A. Corporate management ensures radiological protection activities at the nuclear station(s) are effective in minimizing radiation exposure, preventing the spread of contamination, and minimizing the generation of radioactive waste.

Finding (2.10A-1)

Insufficient management attention has been given to the development and implementation of a radioactive waste handling program. As a result, although generation of

radioactive waste has begun and the plant expects to begin power ascension in the near future, key segments of the radioactive waste program are not in place. Examples include the following:

- a. Responsibilities for processing solid radioactive waste are unclear. The corporate radiological protection organization is assigned responsibility for radioactive material shipments by procedure. However, based on an interface agreement approved in July 1989, the principal health physicist considers this responsibility to have been shifted to the station maintenance utilities manager. The utilities manager considers the interface agreement to be contingent upon staffing the utilities/radioactive waste organization (staffing positions not yet approved) and has not accepted radioactive material processing and shipment responsibilities. As a result, neither group is modifying procedures to accomplish the shift in responsibilities.
- b. Reorganization and staffing to create the proposed utilities/radioactive waste organization is incomplete. As a result, progress is not being made in training and procedure revisions, and development of long-term plans for interim radioactive waste storage pending resolution of final waste disposal options have been delayed.
- c. The radioactive waste minimization committee has not met in over 2 years, and has not addressed existing station practices that contribute to unnecessary generation of radioactive waste. Management oversight has not been effective in identifying and correcting this problem. Recently, the responsibility of the radioactive waste minimization committee chairman was transferred to the utilities manager; however, resources are not yet available to support these new responsibilities.
- d. Plans and milestones have not been communicated for the temporary storage of radioactive waste prior to availability of facilities for long-term storage. Despite the long lead times involved for some temporary facilities, plans have not been implemented. Various managers in the plant and corporate organizations have communicated different plans for interim storage of radioactive waste ranging from flatbed trailers parked in the protected areas to a new storage building.

Recommendation

Develop and implement the radioactive waste program. This

should include verifying that responsibilities are clearly defined, adequate staffing and resources are provided, and procedure revisions and personnel training are completed in time to handle the expected volumes of waste to be generated during power ascension. Additionally, a definite plan should be decided upon, communicated, and pursued to address on-site storage of radioactive waste until permanent disposal is possible.

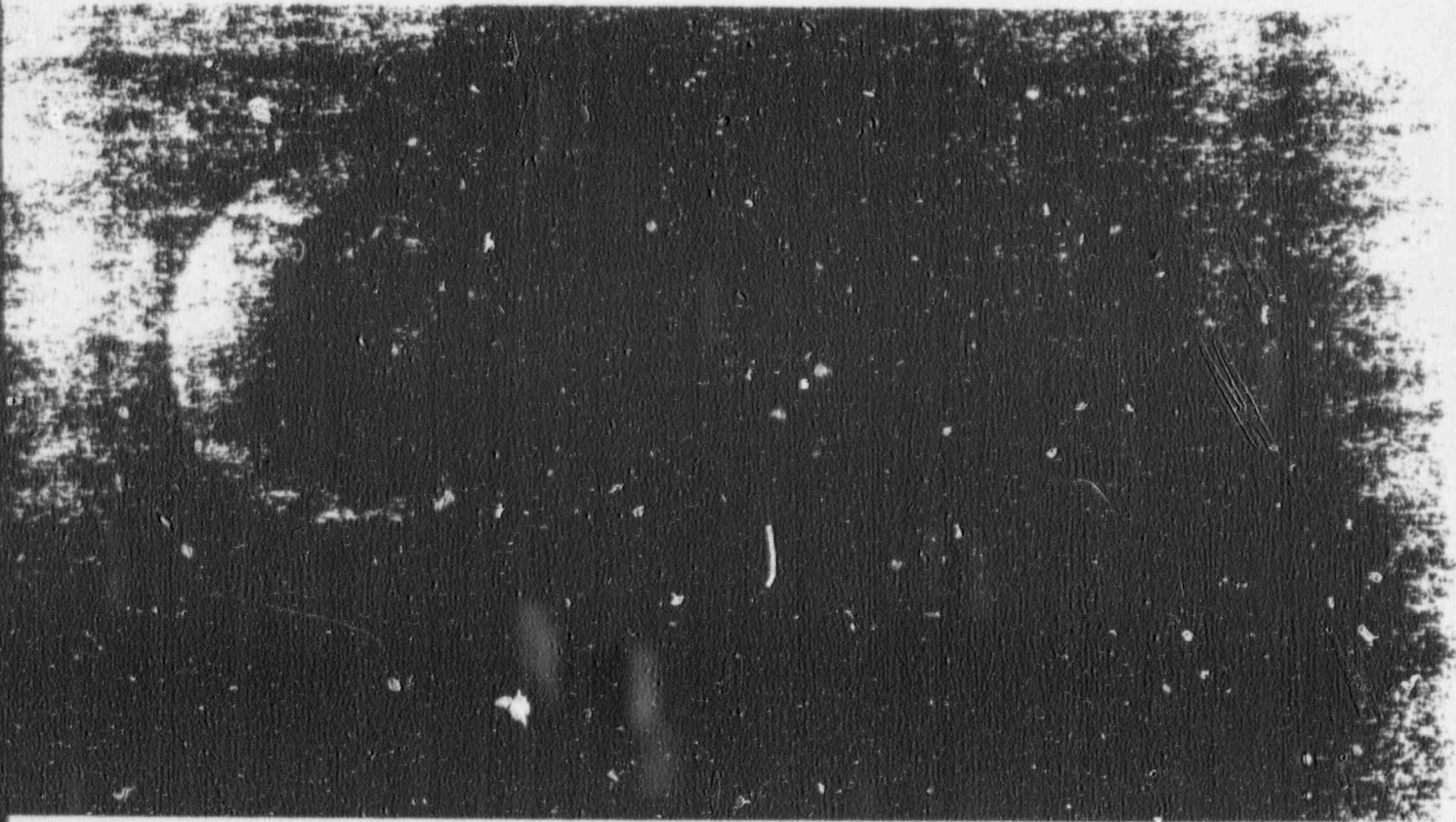
Response

A comprehensive radioactive waste program will be developed by January 1990. This program will clearly define the responsibilities, resources, and procedures necessary to handle expected volumes of radioactive waste. Steps are being taken to fill radioactive waste technician positions. Temporary storage of solid low level waste will be in place by April 1990. A training program for radioactive waste technicians has been established and will be fully implemented in the first quarter of 1990.

SEPTEMBER 1989 EVALUATION
RESTRICTED DISTRIBUTION

SEABROOK STATION

PUBLIC SERVICE COMPANY OF
NEW HAMPSHIRE



EVALUATION
of
SEABROOK STATION

Public Service Company of New Hampshire

Copyright 1989 by Institute of Nuclear Power Operations. All rights reserved. Not for sale. Reproduction of this report without the written consent of INPO is expressly prohibited. Unauthorized reproduction is a violation of applicable law.

The persons and organizations that are furnished copies of this report should not deliver or transfer this report to any third person, or make this report or its contents public, without the prior agreement of INPO and the member of INPO for whom the report was written.

September 1989

CONTENTS

Purpose and Scope	1
Executive Summary	2
Response Summary	5
Organization and Administration	6
Operating Experience Review	10
Technical Support	17
Operations	25
Maintenance	32
Radiological Protection	40
Chemistry	44
Outstanding Response Actions from Previous Evaluations	Appendix I
Additional Supporting Details	Appendix II

PURPOSE AND SCOPE

INPO conducted an evaluation of site activities to make an overall determination of plant safety, to evaluate management systems and controls, and to identify areas needing improvement. Information was assembled from discussions, interviews, observations, and reviews of documentation.

The INPO evaluation team examined station organization and administration, operations, maintenance, technical support, training and qualification, radiological protection, chemistry, and operating experience review. The team also observed the actual performance of selected evolutions including surveillance testing. As a basis for the evaluation, INPO used its April 1987 Performance Objectives and Criteria for Operating and Near-term Operating License Plants; these were applied and evaluated in light of the experience of team members, INPO's observations, and good practices within the industry.

INPO's goal is to assist member utilities in achieving the highest standards of excellence in nuclear plant operation. The recommendations in each area are based on best practices, rather than minimum acceptable standards or requirements. Accordingly, areas where improvements are recommended are not necessarily indicative of unsatisfactory performance.

RESTRICTED DISTRIBUTION

Copyright 1989 by Institute of Nuclear Power Operations. All rights reserved. Not for sale. Reproduction of this report without the written consent of INPO is expressly prohibited. Unauthorized reproduction is a violation of applicable law.

The persons and organizations that are furnished copies of this report should not deliver or transfer this report to any third person, or make this report or its contents public, without the prior agreement of INPO and the member of INPO for whom the report was written.

EXECUTIVE SUMMARY

The Institute of Nuclear Power Operations (INPO) conducted an evaluation of Public Service Company of New Hampshire's Seabrook Station during the weeks of September 11 and 18, 1989. The station is located near Seabrook, New Hampshire. Seabrook is a single unit, four-loop Westinghouse pressurized water reactor plant rated at 1,150 MWe. Low power testing was completed June 22, 1989. The unit was shutdown for modification work during the evaluation.

The following beneficial practices and accomplishments were noted:

- o Dedicated personnel who exhibit a positive approach to their job.
- o A sense of teamwork between groups at the working level.
- o Experienced personnel in key management and supervisory positions.
- o Innovative approaches to problem solving such as testing techniques for motor-operated butterfly valves.

Improvements were recommended in a number of areas. The following are considered to be among the most significant areas in need of improvement:

1. Application of lessons learned from in-house and industry experience needs attention as indicated by the following:
 - a. The station has experienced a number of recurring events due to inadequate identification and investigation of in-house operational events. (OE.2-1)
 - b. Some events have occurred at the station that could have been prevented by improved application of industry operating experience. (OE.3-1)
2. Improvements are needed in consistently exercising positive control over operational activities. (OP.2-1)
3. The ability of the turbine-driven emergency feedwater pump to respond reliably to as-demanded conditions needs to be demonstrated periodically. (TS.5-2)
4. Weaknesses in some station programs could adversely affect reliable plant operation as follows:
 - a. Many plant changes do not receive appropriate technical review and are not incorporated into plant drawings and procedures. (TS.3-1)
 - b. The station equipment tagging and isolation procedure needs improvement to ensure protection for personnel and equipment. (OP.3-1)
 - c. Many plant operating procedures contain technical deficiencies and human factors problems similar to those that have caused operator errors in the industry. (OP.5-1)

5. Monitoring of plant activities and programs by managers and supervisors is often ineffective in identifying needed improvements. Examples include the use of vendor manuals to conduct work and completion of required training. (OA.3-1)
6. In the long term, maintenance facilities appear inadequate to accommodate shop work on contaminated components and decontamination of plant equipment. (MA.8-2)

Findings and recommendations are listed under the performance objectives to which they pertain. Findings describe conditions that detract from meeting the performance objectives. Particularly noteworthy conditions that contribute to meeting performance objectives are identified as good practices and strengths. Good practices are considered sufficiently unique within the industry such that they would be useful to other utilities.

The recommendations following each finding are intended to assist the utility in ongoing efforts to improve all aspects of its nuclear programs. In addressing these findings and recommendations, the utility should, in addition to correcting or improving specific conditions, pursue underlying causes and issues. Additional supporting details for selected findings are provided in Appendix II.

The findings listed herein were presented to Public Service Company of New Hampshire management at an exit meeting on October 18, 1989; findings, recommendations, and responses were discussed on November 30, 1989, and the responses are considered satisfactory.

To follow the timely completion of the improvements included in the responses and any SOER recommendations evaluated as not satisfactory, including each red-tag SOER recommendation received subsequent to this evaluation, (see Appendix II), INPO requests a written status report by June 1990. A final update will be requested six weeks prior to the next evaluation.

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

Response Summary

As the operating agent for Public Service Company of New Hampshire's Seabrook Station, New Hampshire Yankee finds the Institute of Nuclear Power Operations (INPO) evaluation of Seabrook Station to be both insightful and useful. New Hampshire Yankee supports the overall goals of INPO and the nuclear industry in ensuring safe and reliable electrical production using nuclear technology. We are pleased that INPO observed some beneficial practices and accomplishments during their evaluation. We also appreciate the findings and observations of the INPO team where they noted areas for improvement. New Hampshire Yankee is committed to improving its methods and procedures to correct these areas of weakness. Specifically, New Hampshire Yankee will strengthen programs in the following areas:

- o Application of lessons learned from in-house and industry experience will be strengthened by ensuring that such experiences are thoroughly reviewed and completed in a timely manner and by holding individuals accountable for implementation.
- o Improvements will be made to ensure consistent exercise of positive control over operational activities by providing additional staff support within the Operations Department. This will allow operations management to focus on operational issues and activities.
- o The ability of the turbine-driven emergency feedwater pump to respond reliably to as-demanded conditions will be periodically demonstrated.
- o Weaknesses in some station operating procedures will be corrected to ensure reliable plant operation by providing additional operations staff and by utilizing feedback from the operators. The equipment tagging and isolation procedure will also be improved.
- o The monitoring of plant activities and programs by managers and supervisors will be strengthened by clearly communicating station management's expectations to all managers and supervisors and by reinstating the Supervisory Walkdown Program.
- o Maintenance facilities will be improved to accommodate shop work on contaminated components and decontamination of plant equipment by the implementation of our facilities five-year plan.

In summary, New Hampshire Yankee supports both INPO and the industry in the pursuit of excellence in nuclear power plant operations. We believe the implementation of the improvements committed to in this evaluation report will help us in that effort.

ORGANIZATION AND ADMINISTRATION

STATION ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: Station organization and administration should ensure effective implementation of policies and the planning and control of station activities.

Finding (OA.1-1)

Insufficient management direction in some areas has resulted in problems continuing to exist. Additionally, management expectations are not clearly understood at all levels of the organization. Examples are as follows:

- a. Responsibilities for the review and disposition of industry and in-house operating experience reports have not been established. This has resulted in ineffective corrective actions for some plant events and recurrence of some significant events at the station. (See Finding OE.3-1.)
- b. Expectations of station management for the minimization of radioactive waste have not been effectively communicated. Several supervisors stated that they had not received guidance on minimizing radioactive waste and, as a result, worker practices generate unnecessary waste. (See Finding RP.1-1.)
- c. Management expectations for the implementation of the station goals is not being carried out in some areas. For example, two departments that were directed by management to establish goals for 1989 to support the plant goals, have not developed goals. Additionally, many of the goals that have been established, have been ineffectively communicated to the supervisors, foremen, and workers. Consequently, these individuals are not aware of management's expectations resulting from the station goals program.

Recommendation

Clearly define expected performance standards in areas such as those noted above and communicate them to all levels of the station staff. Develop and implement an effective goals and objectives program that addresses areas of needed improvement. INPO 86-019 (Good Practice OA-103), Management Objectives Program, may be of assistance in this effort.

Response

Management expectations for employee responsibilities related to the disposition of industry operating experience and the minimization of radioactive waste will be presented to

appropriate employees by March 1990. Additionally, an effective goals and objectives program will be developed and established by February 1990. This program will clearly define expected performance standards to all levels of the station staff and will include all station departments. The goals program will include, but not be limited to, the areas of industrial safety, reliability, ALARA, minimizing radwaste generation, and the disposition of industry and in-house operating experience reports. INPO 86-019 (Good Practice OA-103), Management Objectives Program, will be used as an aid in this program development.

MANAGEMENT ASSESSMENT

PERFORMANCE OBJECTIVE: Management and supervisory personnel should monitor and assess station activities to improve all aspects of station performance.

Finding (OA.3-1)

Monitoring of plant activities and programs by managers and supervisors is often ineffective in identifying needed improvements. Additionally, some problems implementing station policy have not been communicated to senior station management. Examples are as follows:

- a. Senior station managers were unaware that vendor manuals are used to conduct station activities contrary to station policy. Interviews with instrument and control technicians indicated that vendor manuals are routinely used to troubleshoot and repair process equipment. Vendor manuals do not receive the equivalency of station operating review committee approval, and a program is not in place to keep the manuals up-to-date.
- b. The extent of worker deviation from station industrial safety policies was not known by managers and supervisors. (See Finding OA.5-1.)
- c. Many managers were unaware that a significant number of station supervisory personnel have not received initial behavioral observation training in fitness-for-duty and that others are beyond the expiration date for requalification training. (See Finding OA.8-1.)

- d. Supervisory monitoring of day-to-day station activities is infrequent. One manager stated incorrectly that supervisors were expected to monitor plant activities only once monthly.

Recommendation

Increase the presence of managers and supervisors in the work spaces to ensure that personnel meet the performance standards expected of them.

Response

Station management's expectations of supervisors and managers regarding their presence in station work areas will be restated and reemphasized. This restatement will describe management's overall expectations for the monitoring of plant activities and programs and the expected feedback to senior management. This restatement will be completed and implementation initiated by December 1989. The station will also reinstitute, by January 1990, its program for supervisory walkdowns based on INPO 87-023, Plant Inspection Program. Follow-up and monitoring of this effort will be ongoing.

INDUSTRIAL SAFETY

PERFORMANCE OBJECTIVE: Station industrial safety programs should achieve a high degree of personnel safety.

Finding (OA.5-1)

Personnel often do not wear required personnel safety equipment. Many personnel, including supervisors, were observed not wearing eye protection, hard hats, and ear protection where required by station policy. For example, two electricians were observed working on the residual heat removal system without eye protection, and one of these workers worked below a scaffold without a hard hat. Personnel were also observed working at heights or climbing without required safety belts. A worker was observed walking on piping for the SF6 bus ducts approximately 20 feet above the ground without a safety harness. One lost-time accident at the station in 1989 was a back injury due to a fall from a cabinet.

Recommendation

Emphasize the importance of adherence to station industrial safety policies and procedures. Improve the monitoring and enforcement of industrial safety requirements by station supervision, hold supervisors accountable for the performance of their subordinates.

Response

The importance of adherence to the industrial safety policies and procedures will be reemphasized by redistribution of the company's policy to all New Hampshire Yankee employees. At that time, a progressive disciplinary action process will be announced. The industrial safety performance of each worker will be reviewed as part of the annual performance appraisal. In addition, the performance appraisals of supervisors will include a review of the industrial safety performance of those workers reporting to that supervisor. Line managers and supervisors will closely monitor adherence to industrial safety requirements and provide correction or coaching as appropriate. The overall monitoring of the industrial safety program will be performed by the executive safety committee. The redistribution of the industrial safety policy is scheduled for February 1990.

FITNESS-FOR-DUTY PROGRAM

PERFORMANCE OBJECTIVE: The fitness-for-duty program should identify persons who are unfit for their assigned duties as a result of drug or alcohol use, or other physical or psychological conditions, and remove them from such duty and from access to vital areas of the plant. In addition, the program should provide for a drug-free working environment.

Finding (OA.8-1)

Behavioral observation training for supervisory personnel has been ineffectively implemented. Initial training has not been conducted for many managers and supervisors. These managers and supervisors have been assigned to the site or corporate office for a significant period of time and supervise personnel with access to protected areas of the plant. In addition, requalification training for some other managers and supervisors has not been conducted as required.

Recommendation

Ensure managers and supervisors are appropriately trained to detect abnormal behavior of personnel.

Response

Effective December 1989, New Hampshire Yankee will implement the new fitness-for-duty program. To ensure effectiveness of this new program, supervisor attendance at behavior observation training is a requirement for protected area badging. As of January 1990, badges will be pulled for anyone deficient in this training. As part of our ongoing training program, annual fitness-for-duty and behavior observation refresher training will be a requirement for protected area badging renewal.

OPERATING EXPERIENCE REVIEW

IN-HOUSE OPERATING EXPERIENCE REVIEW

PERFORMANCE OBJECTIVE: In-house operating experiences should be evaluated, and appropriate actions should be undertaken to improve safety and reliability.

Finding (OE.2-1)

The station has experienced a number of recurring events due to inadequate identification and investigation of in-house operational events. The following problems were found:

- a. Root cause analyses of station events and recommended corrective actions have frequently not been adequate to prevent the recurrence of events. The following are examples of events that have recurred due to inadequate corrective actions:
 1. On three occasions between September 1986 and October 1988, the refueling water storage tank was drained to the reactor coolant system via the residual heat removal suction piping. The evaluation of the first event did not identify any potential procedural problems. The second event was not identified for investigation in the station's in-house operating experience program. The evaluation of the third event, which was determined to be caused by procedure inadequacy, identified numerous procedures that required revision to prevent this event from recurring.
 2. Between August 6 and September 9, 1989, water was inadvertently drained from the refueling water storage tank or the condensate storage tank on three occasions. The first event was due to a valve being open that was thought to be danger-tagged shut. The second event was due to not performing a required valve lineup. The third event occurred while restoring eight valves that were discovered to be previously mispositioned.
 3. On three occasions between November 1987 and June 1989, an inverter used for balance-of-plant loads, ED-I-4, caused transients to station instrumentation. The evaluation of the first event recommended observing the inverter to determine a permanent solution. The second event caused a steam generator blowdown isolation but was

not identified for investigation in the station's in-house operating experience program. The third event occurred during low power testing and caused a steam generator blowdown isolation, blowout of the blowdown tank manway gasket, and a loss of instrumentation. A failure of this inverter at power would trip the main feedwater pumps and cause a reactor trip.

- b. Several recent station events were not investigated in the station's in-house operating experience program. The following are examples of events that were not identified for investigation:
1. During low power testing, the residual heat removal system was overpressurized, causing a relief valve to lift, when four cold leg injection check valves failed to close. The four safety injection accumulators discharged 500 gallons of water before the check valves were reseated.
 2. The A emergency feedwater pump turbine experienced an overspeed condition on three occasions during startup testing due to problems with the governor.
 3. Electrical breakers to the safety injection accumulator discharge valves were found closed (energized) when the valve operators were required to be de-energized by technical specifications. The governing procedures gave conflicting guidance on the required position of these breakers.

A contributing cause of the recurring events is that some important event investigations were initiated, but not completed.

Recommendation

Ensure station events are identified and thoroughly investigated in a timely manner to determine the root causes and necessary corrective actions. The guidance in INPO 89-005, Guidelines for the Use of Operating Experience, should be of assistance in this effort.

Response

The station information report (SIR) procedure will be revised or a new reporting method will be developed to ensure that in-house operating events, such as those noted, will be investigated thoroughly and completed in a timely manner. As part of this investigation, a determination of the root causes and necessary corrective actions will be made. In addition, the

initiating threshold for event review will be lowered to conform with corporate management's expectations. INPO 89-005, Guidelines for the Use of Operating Experience, will be utilized in this procedure revision. This procedure will be updated and implemented by February 1990.

INDUSTRY OPERATING EXPERIENCE REVIEW

PERFORMANCE OBJECTIVE: Significant industry operating experiences should be evaluated, and appropriate actions should be undertaken to improve safety and reliability.

SOER STATUS

The status of Significant Operating Experience Report (SOER) recommendations is as follows:

Total number of recommendations issued to date	417
Number previously evaluated as satisfactorily implemented or not applicable	286
Number reviewed this evaluation (including 46 previously reviewed and evaluated as satisfactorily implemented or not applicable)	118
o Number satisfactorily implemented	76
o Number not satisfactorily implemented (4 red tab)	25
o Number not applicable	0
o Number pending - awaiting decision (0 red tab)	0
o Number pending - awaiting implementation (4 red tab)	17

The following recommendations have not been satisfactorily implemented and further actions are needed. Five of these recommendations, previously considered by INPO to have been satisfactorily addressed, have been reopened as subsequent review has determined that the action taken was not effective; e.g., subsequent actions removed procedural requirements or deleted necessary training or the action intended was not completed.

<u>SOER Recommendation Number</u>	<u>Topic</u>
81-9, rec. 2b	Maintenance on instrument air filter elements
82-9, rec. 1	Procedures for monitoring and trending hydrogen gas usage
82-12, rec. 5, red tab	Training for plant personnel on preventing miscellaneous objects from being left in steam generators
82-13, rec. 11 (reopened)	Chronic contamination by organic chemicals
82-13, rec. 12 (reopened)	Training employees on chemical intrusion into the reactor coolant system
82-13, rec. 13 (reopened)	Caution contractors on uncontrolled chemical usage

82-15, rec. 1	Seasonal reminders on freeze protection for critical instrumentation
82-15, rec. 2	Procedures on freeze protection for critical systems
82-15, rec. 3	Seasonal reminders to operations concerning freeze protection of safety-related equipment
82-15, rec. 4	Training on cold weather operations
82-15, rec. 5	Recalibration of thawed equipment prior to returning to service
82-15, rec. 6	Examination of thawed equipment prior to returning to service
83-8, rec. 10, red tab	Procedures for incorporating safety-related vendor data into preventive maintenance programs
83-8, rec. 12, red tab	Technical staff and manager/supervisor training on safety classification determinations
83-9, rec. 7	Operability testing for manually seated or backseated motor-operated valves
84-3, rec. 5	Preventive maintenance program for check valves in the auxiliary feedwater system
84-7, rec. 3 (reopened)	Recovery from the pressure locking/thermal binding of gate valves
84-2, rec. 2 (reopened)	Valve position and procedure compliance training
86-1, rec. 3	Periodic testing of auxiliary feedwater pumps
86-2, rec. 1	Motor-operated valves with single rotors
86-3, rec. 1	Preventive maintenance procedures for check valves
86-3, rec. 2	Check valve design review

88-1, rec. 3	Training on the importance and potential for common mode failures of instrument air systems
88-2, rec. 6, red tab	Reactor startup procedure premature criticality monitoring
88-3, rec. 2	Residual heat removal operations procedures

(See Appendix II, p.1 for further details)

Finding (OE.3-1)

Some events have occurred at the station that could have been prevented by improved application of industry operating experience. Implementation of corrective actions to prevent occurrence of events described in significant operating experience reports (SOER) is frequently not effective or timely. Responsible station personnel are often not held accountable for timely and effective implementation of corrective actions. As a result, the station has experienced events similar to those identified in industry operating experience documents. Examples are as follows:

- a. SOER 82-15, "Freezing of Safety-Related Equipment," recommends that critical system instrumentation and equipment that may be affected by severe cold weather be reviewed to identify needed modifications. The control building ventilation system has iced-over several times during adverse weather conditions due to freezing rain and snow being drawn into the intake filters.
- b. SOER 85-2, "Valve Mispositioning Events," recommends that operations, maintenance, and supervisory personnel be trained in procedures used to position and verify valve positions. On five occasions from July 1988 through September 1989, water from the refueling water storage tank or the condensate storage tank was inadvertently transferred due to mispositioned valves.
- c. SOER 86-3, "Check Valve Failure or Degradation," recommends that preventive maintenance procedures be established to identify existing and incipient failures of check valves in appropriate systems. The safety injection cold leg injection check valves and

the residual heat removal cold leg injection check valves have recently experienced failures. The failure of the latter valves resulted in lifting the residual heat removal safety relief valves and discharging 500 gallons of borated water from the safety injection accumulators.

Corrective actions taken in response to 118 SOER recommendations were reviewed during the evaluation. Of these, 25 station responses were determined to be not satisfactory due to either insufficient progress being made, or the actions taken not being implemented completely or effectively. Details are contained in Appendix II.

Review of significant event reports (SER) is frequently not complete or timely as indicated by the following.

- a. Five SERs, one 1987 and four 1988, were closed out without being reviewed for applicability and appropriate corrective actions.
- b. Five 1988 SERs have not received initial screening for applicability.

Recommendation

Improve the effectiveness and timeliness of implementation of lessons learned from industry operating experience. Periodically monitor implementation of identified corrective actions and their effectiveness. Hold personnel accountable for completion of assigned actions.

Response

The New Hampshire Yankee industry operating experience review program will be improved and strengthened to ensure effectiveness and timeliness in the implementation of lessons learned from industry operating experience. A schedule has been developed for the review and implementation of outstanding SOERs and SERs. The backlog of open SOERs will be reviewed and corrective actions determined by October 1990. Personnel will be held accountable for completion of assigned actions by means of an improvement to the integrated commitment tracking system. Progress on completion of these items will be monitored by the executive director of nuclear production.

In addition, a goal has been established within appropriate organizations requiring new SOERs issued in 1990 to be reviewed and corrective actions determined within 90 days of assignment for red tab SOER recommendations and 180 days for all other SOER recommendations. If, due to the nature of the SOER recommendation, these time frames are not practical, the executive director of nuclear production will specify an appropriate due date.

TECHNICAL SUPPORT

PLANT MODIFICATIONS

PERFORMANCE OBJECTIVE: Plant modification programs for permanent and temporary modifications should ensure proper design, review, control, implementation, and documentation of plant design changes in a timely manner. (NTOL: During start-up, all changes made as a result of system or component testing should be controlled under formal modification programs.)

Finding (TS.3-1)

Many plant changes do not receive appropriate technical review and are not incorporated into plant drawings and procedures. The lack of adequate design review and documentation has resulted in plant events and reportable conditions. The following examples were noted:

- a. Some plant changes are not included in the configuration control process. For example, at least five temporary sump pumps were observed to be in use, but are not controlled as temporary plant changes, despite a recent plant event that was caused by use of a temporary sump pump in the turbine building that bypassed an effluent release monitor.
- b. Some temporary modifications and changes made during the startup program that have been converted to permanent installations do not include the same level of supporting plant procedures or technical documentation as originally installed equipment. For example, the Centac air compressor, temporarily installed during startup, does not have a controlled vendor manual or maintenance procedures even though it is now considered a permanent installation.
- c. Some temporary vendor supplied equipment attached to and used as permanent plant systems has not received an adequate technical review. For example, a bulk nitrogen tank truck is connected to the plant nitrogen header and used to maintain header pressure. The connection point is shown on plant drawings and controlled by an operating procedure, but a technical assessment of continued use of this method has not been made. Previously, copper contamination of the steam generators was traced to impurities picked up from temporary hoses used to connect the truck to the header. Existing procedures do not provide precautions or limitations that may prevent a recurrence.

- d. Excluding temporary modifications required to support the power ascension test program, there are 64 outstanding temporary modifications with some installed more than four years ago. Fifty-two of these 64 require design engineering decision to be made permanent or to cancel. Twenty-one are being worked or are scheduled to be completed by 1990; however, 10 are not scheduled for completion until 1991 or later, and 21 have no dates currently established.

It is recognized that the plant has a program in place to minimize the use of future temporary modifications and is attempting to significantly reduce the current backlog.

Recommendation

Assess the current scope of the temporary modification program and implement improvements to ensure appropriate control is maintained over changes to plant configuration. INPO 85-016 (TS-412), Temporary Modification Control, may be helpful in this review. In addition, review previously installed temporary modifications or startup changes made as engineering change authorizations that have been made permanent to ensure appropriate plant maintenance procedures and vendor technical information are available. Continue to reduce the backlog of existing temporary modifications.

Response

An assessment of the current scope of the temporary modification program will be performed by March 1990. As part of this assessment, existing controls will be enhanced to further ensure plant configuration control. INPO 85-016 (Good Practice TS-412), Temporary Modification Control, will be utilized in this review. In addition, previously installed temporary modifications that have been made permanent will be reviewed to ensure that maintenance procedures and vendor technical information are accurate. This effort will be completed by June 1990.

PLANT PERFORMANCE MONITORING

PERFORMANCE OBJECTIVE: Performance monitoring activities should optimize plant reliability and efficiency.

Finding (TS.5-1)

Preventative maintenance measures have not been established to identify check valve performance problems or degradation in some important systems. Recent plant check valve problems, including a case of seat leakage that resulted in the residual

heat removal system suction piping overpressurization and two stuck open volume control tank nitrogen supply check valves, demonstrate the need for such measures. The following problems were noted:

- a. Some important check valves that industry experience has shown to be susceptible to failure are only tested by demonstrating that they open and close. They are not leak checked or inspected. This limited testing is required by the plants in-service testing and inspection program. Dependence on the in-service testing and inspection program to monitor valve condition may not identify degraded internal conditions such as worn hinge pins, loose or missing non-pressure retaining parts or erosion of internal surfaces. These conditions have been identified as precursors to functional valve failure at other plants. Examples of check valves that are only tested to open and close include the following:
 1. emergency feedwater pump discharge check valves
 2. residual heat removal pump discharge check valves
 3. check valves in the emergency diesel generator air start and cooling water systems
- b. Test and inspection requirements have not been specified for 64 of the 220 valves listed in the check valve monitoring program.
- c. The check valve monitoring program instruction does not contain specific acceptance criteria for inspections. Industry experience has shown that quantitative acceptance criteria for wear of internal parts is necessary to ensure check valve reliability.
- d. The check valve monitoring program instruction does not contain provisions for adjusting testing frequency based on analysis of test results.

Additionally, a design review of check valve installations to ensure their appropriateness has not been conducted. These issues were addressed in SOER 86-3 promulgated in October 1986 and emphasized in an INPO letter of March 1987 to utility executive points of contact.

Recommendation

Include important check valves in preventive maintenance efforts as recommended by SOER 86-3. Establish inspection and testing based on industry and plant experience. Conduct a

design review of check valves for applicability. Use the results of this design review to further improve the preventive maintenance of check valves. EPRI Report NP-5479, "Application Guidelines for Check Valves in Nuclear Power Plants," may be of use in this effort.

Response

A review of the current check valve design and monitoring program will be conducted and completed by October 1990. This effort will include the following:

- o an assessment of the appropriate preventive maintenance measures such as inspections and leak checks for the check valves in the current monitoring program
- o an assessment of acceptance criteria and provisions to revise test frequencies based upon inspection results
- o a design review of check valves for applicability with respect to EPRI Report NP-5479 and INPO SOER 86-3.

Where feasible, check valve preventive maintenance and monitoring improvements will be completed as part of this program development effort. It is anticipated that certain aspects of the program improvements will be dependent upon the results of the design review for applicability. These activities will be scheduled for completion as the results of this effort become known. Preventive maintenance on selected check valves will be performed prior to the completion of the first refueling outage.

Finding (TS.5-2)

The ability of the turbine-driven emergency feedwater pump to respond reliably to as-demanded conditions needs to be demonstrated periodically. The plant has experienced numerous problems with emergency feedwater system reliability such as water hammer, failure of the turbine steam admission valves to operate properly, and turbine overspeed trips. In addition, pump surveillance tests do not provide assurance that the system will perform reliably or equipment degradation will be identified. Examples of problems include the following:

- a. The startup testing of the turbine-driven emergency feedwater pump in June 1982 did not demonstrate an on-demand start. Although successful quick starts were demonstrated previously, system modifications had been made and the system was not in a normal idle condition prior to the starts.

- b. The station's experience with turbine-driven emergency feedwater pump problems involving steam supply valves, governor oscillations, and overspeed trips demonstrate the need for periodic testing that simulates demand conditions. The quarterly turbine-driven emergency feedwater pump test procedure does not address the following items:
 - 1. operability of the turbine governor ramp-up feature and the capability of the turbine governor to control the start-up transient-- Governor problems in the industry have led to overspeed trips of turbine-driven pumps.
 - 2. proper sequencing of the steam supply valves under demand conditions
 - 3. operation of the steam trap drain system under demand conditions
 - 4. evaluation of as-found turbine speed--Absence of this information could mask a turbine speed governor problem.
 - 5. acceptance criteria for vibration, differential pressure, flow, and speed
- c. The turbine-driven pump overspeed trip mechanism is not periodically tested. Failure of this mechanism has caused system over-pressurization incidents at other plants.
- d. Industry experience with similar turbine steam supply design configurations suggests the need for an additional evaluation to enhance long-term reliability of the system as indicated by the following:
 - 1. The plant has experienced a number of problems with the use of two normally closed, air-operated turbine steam supply valves in series including failure of valves to open, and uneven valve stroking and leakage that have resulted in some overspeed trips.
 - 2. The use of an eight-second turbine ramp-up to full speed makes the turbine more susceptible to overspeed trips than other turbines in the industry which typically use 10-12 second ramp-ups. The plant experienced five overspeed trips in June 1989 with this 8-second ramp-up.

3. The station uses a steam trap system that must, on-demand, drain sufficient condensate to prevent turbine overspeed trips. A plant with a similar design recently experienced an overspeed trip on an operational demand because the traps did not remove a sufficient amount of condensate.

Recommendation

Revise surveillance testing procedures such that system performance is adequately demonstrated to identify equipment degradation. Specify testing requirements for the overspeed trip mechanism. Include quarterly starting of the pump under demand conditions after the system has been returned to normal idle conditions.

Perform post-modification testing to verify system response under design requirements such as loss of electrical power and instrument air.

Utilize industry operating experience to re-evaluate the use of two normally closed steam supply valves and the requirement to establish full flow within 60 seconds. Make design changes if appropriate.

Response

The turbine-driven emergency feedwater pump will be tested to demonstrate governor ramp-up, governor startup control, sequencing of steam supply valves, and operation of the steam trap drain system during post-modification testing scheduled for January 1990. Evaluation of the as-found turbine speed and acceptance criteria for vibration, differential pressure, flow and speed will be included in surveillance procedures by January 1990. A method of testing the overspeed trip mechanism will be evaluated by June 1990. The overspeed trip mechanism will be tested periodically consistent with vendor recommendations and technical specification requirements.

A start of the pump under demand conditions, from an initial idle condition, will be performed during plant heatup in January 1990. An evaluation of quarterly starts of the turbine-driven emergency feedwater pump and related equipment, under demand conditions, will be performed by March 1990. Surveillance procedures will be revised to require quarterly testing if supported by this evaluation.

In addition, a reevaluation of the use of two normally closed steam supply valves and the requirement for full flow within 60 seconds will be conducted by March 1990.

Results of the reviews discussed above will be summarized in the six-month status report.

Finding (TS.5-3)

Performance monitoring of some important equipment may not detect long-term degradation. Undetected degradation of some important equipment can lead to unexpected failures. Examples include the following:

- a. The residual heat removal, emergency feedwater, containment building spray, and safety injection pump tests do not require fixing either differential pump pressure or flow to allow trending of the other parameter. This practice could mask a pump trend because changes in the data could be due to either system and/or pump changes.
- b. The residual heat removal pumps are tested at low flow, about 20 percent design flow, through a recirculation path. Data from these tests may not be representative of pump performance at demand conditions. Pump deficiencies could be masked because the pump is operating in a relatively unstable region at low load. Monitoring pump performance while the residual heat removal system is operating could provide more representative pump performance data.
- c. Acceptance criteria for emergency diesel generator data have not been established to indicate when corrective actions should be taken to ensure equipment reliability.

Recommendation

Review and modify test procedures for important safety-related equipment to ensure that tests effectively assess equipment performance.

Response

All surveillance testing is currently conducted in strict compliance with ASME XI code requirements. A review of the current program and procedures will be performed to assure that proper trending of equipment parameters occurs. Acceptance criteria for emergency diesel generator data will be established. An evaluation will be performed to determine the feasibility of changing the technical specifications to allow for a residual heat removal pump testing configuration that will yield a higher flow region. The evaluation and review will be completed by July 1990.

DOCUMENT CONTROL

PERFORMANCE OBJECTIVE: Document control systems should provide accurate, legible, and readily accessible information to support station requirements.

Finding (TS.7-1)

Unapproved vendor technical manuals are being used to perform various maintenance activities. In addition, some of the manuals lack sufficient technical direction for the conduct of maintenance activities. The following problems were noted:

- a. Some maintenance activities are not addressed by approved procedures resulting in workers using vendor manuals to troubleshoot equipment such as the plant process computer and radiation monitors. Additionally, some work requests reviewed specifically directed the technician to use the vendor manual rather than provide approved work procedures.
- b. An initial review to ensure that plant procedures incorporate vendor operations and maintenance recommendations has not been performed in some cases. Additionally, vendor manuals are not periodically reviewed and updated to incorporate current industry and vendor experience.

Management expectations described in Preventive and Corrective Maintenance Procedure MA.2-1 are that plant procedures or detailed work instructions are to be used in the conduct of plant activities and that vendor manuals are to be used for reference only.

Recommendation

Reevaluate station policy concerning use of vendor manuals. Develop procedures for appropriate maintenance activities or review, approve, and control selected manuals for the conduct of maintenance activities. Ensure selected vendor manuals reflect the most recent revisions. Consider contacting equipment suppliers on a periodic basis to ensure manuals are current. INPO 87-009 (Good Practice DE-102), Control of Vendor Manuals, may be helpful in this review.

Response

The New Hampshire Yankee program for vendor manuals is presently being revised and strengthened. Part of this revision will define which vendor manuals will be available for use, how they can be used and what review process must be completed. Full implementation of this program is scheduled for December 1990.

OPERATIONS

CONDUCT OF OPERATIONS

PERFORMANCE OBJECTIVE: Operational activities should be conducted in a manner that ensures safe and reliable plant operation. Reactor safety should be a foremost consideration in plant operations. Management policies and actions should actively support this operating philosophy.

Finding (OP.2-1)

Improvements are needed in consistently exercising positive control over operational activities. Plant events indicate shift personnel need to pay closer attention to detail and that more direct involvement by operations management and supervision is needed during plant evolutions. The following are examples of problems noted:

- a. In September 1989, approximately 200 gallons of water was drained from the refueling water storage tank (RWST) to the spent fuel pool while performing a system lineup. A modified lineup approved by the unit shift supervisor was used that resulted in a gravity flow path from the RWST to the spent fuel pool because of the sequence of valve operations specified.
- b. In August 1989, while water was being pumped from the spent fuel pool to the RWST, approximately 50 gallons drained to the A residual heat removal vault. Operators thought the valve from the RWST was danger tagged shut, but did not realize that the governing tagout had been modified and the valve had been opened. This allowed water to drain through a drain valve the operators thought was isolated from the flow path.
- c. In August 1989, approximately 2,000 gallons of water was drained from the condensate storage tank to the floor drains via three open drain valves. A tagging order was being modified to allow wet layup of the condensate and feedwater system when the draining occurred. The prerequisite valve lineup for the layup procedure, which would have verified closure of the drain valves, had not been performed prior to commencing modification of the tagging order.
- d. In July 1988, the valve from the RWST to the suction of the A RHR pump was opened while the valves from a reactor coolant system (RCS) loop hot leg were open. The alarm occurred and the operator shut the valve. In the one minute it took the valve to shut, 5,000 gallons of water drained from the RWST to the RCS.

- e. In October 1988, during the performance of a surveillance test, the valve from the RWST to the suction of the B RHR pump was opened while the valves from an RCS loop hot leg were open. The alarm occurred and the operator shut the valve. In the one minute it took the valve to shut, 7,000 gallons of water drained from the RWST to the RCS, raising pressurizer level from 25 percent to 80 percent.
- f. During performance of a natural circulation test in June 1989, pressurizer level decreased below the value in the test procedure requiring a manual reactor scram. The reactor was not scrammed as required but was operated for some period outside the limits established by the governing procedure. Although management was observing the test, they did not direct that the reactor be tripped. Additionally, measures were not taken to ensure that sufficient training for the natural circulation test was conducted or that comprehensive briefings were held with appropriate operations personnel prior to commencing the test.

Recommendation

Re-emphasize station policy that establishes the Operations Department as the lead organization for plant operational evolutions, including startup testing. Increase operations management involvement in operational activities to identify and correct weaknesses in operating practices. Provide operators with a clear understanding of the following:

- a. the need for attention to detail
- b. the need for positive supervisory/management control of operational activities
- c. developing an inquisitive attitude, that helps identify adverse consequences and corrective actions if evolutions do not occur as planned

Response

The executive director of nuclear production has initiated meetings with licensed shift members during their training weeks to reinforce the need for attention to detail, and to reemphasize the role of the Operations Department. An organizational change has been approved to supply more staff support within the Operations Department and allow more operations management involvement in operational activities. This organizational change will be staffed in December 1989.

The policy on establishment of operations as the lead organization for all operating evolutions including testing has been verbally communicated within the station organization and will be reemphasized in writing by December 1989.

PLANT STATUS CONTROLS

PERFORMANCE OBJECTIVE: Operations personnel should be cognizant of the status of plant systems and equipment under their control and should ensure that systems and equipment are controlled in a manner that supports safe and reliable operation.

Finding (OP.3-1)

The station equipment tagging and isolation procedure needs improvement to ensure protection for personnel and equipment. The following problems were noted:

- a. Station procedure MA 4.2, "Equipment Tagging and Isolation," does not require danger tags on control switches when removing a component from service. For example, tagging order 89-3029 directed that the breakers for the steam generator bottoms pumps be opened, but the pump's control switches were not tagged out. Although extension control tags are used on control switches to advise operators that a component is tagged out, they are not required as part of component isolation.

Failure to tag out a component's control switch can result in personnel injury or equipment damage if someone attempts to operate the component's electrical supply breaker while it is being removed or returned to service.

- b. Procedure MA 4.2 does not contain guidance for the proper sequence of component isolation and restoration. The following are examples of sequencing problems that were noted:
 1. The tagging orders for residual heat removal pump 1-RH-P8A (89-1882) and charging pump 1-CS-P2A (89-3119) directed that their suction valves be closed before their discharge valves. Industry experience has shown that this practice could result in equipment damage or personnel injury from overpressurization of the suction piping.

2. Tagging order 89-2031 directed that the B service air compressor discharge valve be shut before the electrical supply breaker was opened. Standard industry practice is to first de-energize a component's prime mover to prevent the component from being started while it is mechanically isolated.
 3. Tagging order 89-3119 directed that charging pump 1-CS-P2A electrical supply breaker be opened and racked out prior to positioning and tagging its control switch. This creates the possibility of the breaker being remotely operated while the worker is attempting to rack the breaker out.
- c. Procedure MA 4.2 requires audits of tagging orders on an annual basis or following a refueling outage. This frequency is insufficient to ensure that potential tagging problems are identified in a timely manner. Standard industry practice is to audit tagging orders on at least a quarterly basis.

Recommendation

Include requirements in procedure MA 4.2 for tagging component control switches. Include guidance in MA 4.2 for the proper sequence of removing a component from service and returning it to service. Conduct tagging order audits on a frequency that assures timely identification of potential tagging problems. INPO 85-017, Guidelines for the Conduct of Operations at Nuclear Power Stations, and 87-002 (Good Practice OP-203), Tagging Procedures for the Protection of Personnel, Components, and Systems, should be of assistance in this effort.

Response

A review and revision of station procedure MA 4.2 will be accomplished. INPO 85-017, Guidelines for the Conduct of Operations at Nuclear Power Stations, and 87-002 (Good Practice OP-203), Tagging Procedures for the Protection of Personnel, Components, and Systems, will be used as part of this effort. This review and revision will include the requirement to tag component control switches, the sequence of component removal and return to service and the frequency of tagging order audits. The review of the current procedure with suggested modifications will be completed by June 1990. The subsequent procedure revisions and training will be completed by September 1990.

Finding (OP.3-2)

The independent verification program needs upgrading to include all components important for reliable plant operation. Additionally, program requirements need improvement to ensure that independent verification is performed when appropriate. The following problems were noted:

- a. Many components important for reliable plant operation are not included in the component configuration list as indicated by the following examples:
 1. The position of the turbine-driven emergency feedwater pump steam admission valves (MS-V127, 128, 393, 394, and 395) are not independently verified. Mispositioning of these valves could result in failure of the system to automatically start if required.
 2. Excess letdown valves CS-HCV-123, CS-V172, and CS-V175 are not independently verified. Excess letdown is necessary to control pressurizer level during a loss of normal letdown.
- b. Independent verification is not performed in modes 5 and 6 for components that are not required to be operable in these modes. Standard industry practice is to perform independent verification on all specified components in all modes to ensure that the status of safety-related and other significant systems is consistently tracked and known.
- c. Independent verification is not performed when removing a component from service for maintenance because it is not required by operations procedure OP 10.1, "Component Configuration Control," under these circumstances. This is contrary to the station management manual which requires that independent verification be performed when a "system or component is being removed from service under a tagging order." Industry experience has shown that failure to independently verify components when removing them from service can result in the wrong component being disabled.

Recommendation

Upgrade the component configuration list to include all components necessary for reliable plant operation. Upgrade procedure OP 10.1 to require independent verification in all modes and when removing a component from service. INPO documents 85-017, Guidelines for the Conduct of Operations at Nuclear Power Stations, and 87-003 (Good Practice OP-214), Independent Verification, should be of assistance in these efforts.

Response

INPO 85-017, Guidelines for the conduct of Operations at Nuclear Power Plants, and INPO 87-003, Independent Verification, will be reviewed and the need to change or modify existing practices will be determined. The evaluation and determinations will specifically include reconsideration of the components included on the component configuration list, the independent verifications to be performed during modes 5 and 6 and the independent verification requirements associated with removing a component from service. These reviews and determinations, including changes or modifications to existing practices, will be completed by May 1990. A summary of the reviews and resulting actions will be provided in the six-month status report.

OPERATIONS PROCEDURES AND DOCUMENTATION

PERFORMANCE OBJECTIVE: Operations procedures and documents should provide appropriate direction and should be effectively used to support safe operation of the plant.

Finding (OP.5-1)

Many plant operating procedures contain technical deficiencies and human factors problems similar to those that have caused operator errors in the industry. The following problems were noted:

- a. Many procedures provide insufficient technical guidance to assure consistent performance of required actions. For example, OS1000.10, "Operation at Power," directs the operator to monitor operation of the feedwater heaters, but does not identify specific parameters to be monitored. OS1201.01, "RCS Leak," directs the operator to shut down the continuous on-line purge system, but does not provide instructions either in the body of the procedure or by reference to another procedure.
- b. Some procedures provide improper technical guidance. For example, OS1000.07, "Approach to Criticality," directs alternate operator actions if criticality is achieved at greater than 500 percent milli-rho (PCM) above the estimated critical position (ECP). The more appropriate approach would be to direct these actions before exceeding 500 PCM

above the ECP if criticality is not achieved. In addition, OS1000.07 directs the operator to begin control rod withdrawal prior to giving instructions limiting reactor startup rate.

- c. Many notes and cautions contain instructions that should be included in procedure steps. For example, the caution preceding step 2 in ON1233.01, "Loss of Condenser Vacuum," directs the operator to trip the turbine if condenser vacuum is less than 25 inches of mercury after load reduction to 360 MWe. Instructions contained in notes and cautions could be overlooked if notes and cautions are scanned.
- d. Some notes and cautions are placed after the steps to which they apply. For example, in OS1000.01, "Chemical and Volume Control System Makeup Operations," steps 6.7.11 and 6.8.12 direct the operator to place the boric acid blender in service. The notes that follow advise the operator that valve leakage may cause changes in reactor coolant system boron concentration. Placing notes and cautions after steps may result in the operator not being aware of important information until after a step is performed.

Recommendation

Correct problems such as those noted above during the periodic review process. INPO 84-020 (Good Practice OP-210), Review of Operations Department Procedures, could be of assistance in this effort.

Response

In order to assure accurate and reliable procedures, feedback from all Operations Department personnel is considered vital. A memorandum to all shift superintendents will be issued by December 1989 to highlight the need for this feedback. The operations procedure group, which is currently being established, will review all recommendations for improvement of operations procedures. INPO 84-020 (Good Practice OP-210), Review of Operations Department Procedures, will be reviewed as part of this effort.

Routine enhancements to operating procedures will be accomplished during the bi-annual review process. Full implementation is expected by December 1991.

MAINTENANCE

MAINTENANCE ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: The maintenance organization and administration should ensure effective implementation and control of maintenance activities.

Finding (MA.2-1)

The materiel condition of some plant equipment and piping is degraded due to corrosion. In addition, many equipment deficiencies are not identified in the work control system. The following are examples of problems noted:

- a. The original protective coating for the main condenser water boxes and circulating water inlet and outlet pipes has been removed due to problems with adhesion. As a result, these components have extensive surface corrosion pitting.
- b. All circulating water pump suction and discharge piping and flange bolts are rusting. General deterioration of protective coatings on piping, flanges and equipment mounting bedplates is evident.
- c. The majority of exposed surfaces on the component cooling piping inside the containment building are covered with flaking corrosion deposits.
- d. Most surfaces in the chlorination building including pumps, valves, and piping are corroding badly due to chemical residue and lack of protective coating.
- e. Nearly 50 percent (18 of 38) of a sample of equipment deficiencies checked were not identified in the work control system. Examples of deficiencies not in the work control systems include the following:
 1. excessive boric acid crystal buildup on core spray and residual heat removal system valves
 2. excessive packing leakage from valves
 3. seat leakage on several valves
- f. Equipment deficiencies are not routinely identified or tagged in the field. A formal system or process for marking materiel discrepancies has not been developed. This contributes to uncertainty of station personnel as to which equipment deficiencies have been identified for corrective action. A deficiency tag program is planned for implementation by the first refueling outage.

It is recognized that a recoating program is in progress currently focused on the primary auxiliary building.

Recommendations

Place additional emphasis on identifying and correcting plant equipment and piping corrosion problems. Review the adequacy of existing work scope and schedules for the recoating program. Establish clear expectations for identifying equipment deficiencies, and convey these standards to station personnel. Complete plans for implementation of a deficiency tagging program. INPO 85-038, Guidelines for the Conduct of Maintenance at Nuclear Power Stations, should be used in this effort. Also, INPO 87-023 (Good Practice MA-312), Plant Inspection Program and INPO 83-045 (Good Practice MA-301), Plant Materiel Deficiency Identification, may be of assistance in this area.

Response

The station currently has a five-year plan to paint all building areas. Implementation of this plan was started in February 1989. A review of the schedule and resources assigned to this program will be completed by April 1990. The results of this review and resulting actions will be provided in the six-month status report.

Station management will stress the importance of routine reporting of problems using the work request system. The Seabrook Station Management Manual (SSMM) will be reviewed and changed as necessary to ensure that management expectations of station personnel are clear. These changes will be completed and the station will reinstitute by January 1990 its program for supervisory walkdowns which is based on INPO 87-023. The new program will assure that reported deficiencies are resolved in a timely manner. A deficiency tagging system based on INPO 85-038 and INPO 87-045 will be added to the work control program. This system will complement and enhance routine reporting and supervisory walkdown reporting. These changes will be made by September 1990.

WORK CONTROL SYSTEM

PERFORMANCE OBJECTIVE: The control of maintenance work should support the completion of tasks in a safe, timely, and efficient manner such that safe and reliable plant operation is optimized.

Finding (MA.3-1)

Inadequate scheduling of maintenance activities often results in job deferrals, delays, and inefficiency. Current scheduling

generally does not include routine maintenance tasks such as technical specification surveillances, many preventive maintenance activities, and a high percentage of corrective maintenance work list items. In addition, the availability of spare parts is often not confirmed prior to scheduling work activity. Problems noted include the following:

- a. Many preventive maintenance activities are not scheduled. This sometimes results in repetitive equipment clearances or deferral of the activity. For example, the 1A RHR pump motor preventive maintenance actions were recently deferred because they were not accomplished during the A train outage due to a scheduling oversight.
- b. Individual maintenance shop work lists contain large numbers of corrective maintenance activities that are not scheduled. As a result, the majority of these tasks are not visible to plant management or to the operations work control center. Interviews with operations work control center personnel indicated a general unfamiliarity with tasks that were not currently in progress. Consequently, these pending tasks receive low priority and support. Work list items are generally treated as fill-in work.
- c. Spare parts are not routinely verified to be available and staged prior to scheduling maintenance work. As a result, many jobs are started and subsequently stopped due to the lack of spare parts and materials as indicated by the following examples:
 1. Work on a cable spreading room return fan could not be performed when planned due to a required part (motor starter) being held by a non-conformance report.
 2. Work on an SMB-000 motor-operated valve could not be performed as planned due to a tee vent not being available.
 3. Capping of spare cables inside a shutdown panel had to be deferred due to lack of cable end caps.

Recommendations

Improve maintenance scheduling to reduce deferrals and coordination problems. Expand the scope of the scheduling process to include technical specification surveillances, preventive maintenance, and corrective maintenance activities requiring coordination, interface, and support. Ensure availability of spare parts and consumables prior to scheduling activities. INPO 85-038, Guidelines for Conducting Maintenance at Nuclear Power Stations, should be used in this area.

Response

A requirement will be added to the scheduling programs to include, in the P-2 scheduling network, any maintenance activities that require tagging. This change will serve to ensure that the operations work control desk and other support functions are aware of upcoming planned work. INPO 85-038, Guidelines for the Conduct of Maintenance at Nuclear power Station, will be reviewed for scheduling guidance, and changes in scheduling practices will be made as necessary. These changes will be made by July 1990.

Current programs require pre-staging of materials for installation of design changes. Pre-staging of materials for known work to be done for forced outages and planned maintenance outages will be required by January 1990.

Pre-staging will be done for spare parts and jobs requiring large quantities of consumables. Consumable quantities normally carried in inventory will not be pre-staged.

MAINTENANCE FACILITIES AND EQUIPMENT

PERFORMANCE OBJECTIVE: Facilities and equipment should effectively support the performance of maintenance activities.

Good Practice (MA.8-1)

The station has developed an effective diagnostic test system for motor-operated butterfly valves. The system uses strain gauge technology to measure valve operating shaft forces. The system has also been successfully used on rising stem motor-operated valves under laboratory conditions. The compactness and repeatability of the system are improvements over equipment commonly used in the industry. Other advantages include the following:

- a. Less valve actuator disassembly is required for system set-up and test.
 - b. Test equipment set-up time is reduced by at least 50 percent.
 - c. Strain gauges may be left on the motor-operated valve between tests.
-

Finding (MA.8-2)

In the long term, maintenance facilities appear inadequate to accommodate shop work on contaminated components and decontamination of plant equipment. Shop work on contaminated equipment is currently performed either in temporary enclosures or areas in the "cold" shop are zoned for contaminated work with the result that clean work areas are over crowded. The decontamination room is only equipped for manual decontamination of small components. In addition, limited space is available for tool issuance and storage. The following additional problems were noted during tours:

- a. Recent work on the 1B residual heat removal pump required zoning of approximately half of the maintenance shop as a contaminated area. This reduced work capability within the remaining shop space.
- b. The only decontamination equipment currently installed in the decontamination room is a two-basin sink to be used for manual decontamination of relatively small items. Commonly used equipment such as ultrasonic cleaners, freon cleaners, and/or abrasive cleaners is not available to support major decontamination efforts.
- c. The instrument and control shops are cramped and overcrowded. Sufficient storage space is unavailable for vendor manuals, test equipment, and tools. Also, areas have not been allocated for contaminated instrument work.
- d. Interim facilities for electrical maintenance are planned for an existing temporary building. This facility will not support work on large electrical components including many plant motors and circuit breakers and will have limited utility services.
- e. Issue points for both contaminated and clean tools have insufficient storage and staging capacities. These areas are congested and contain specialty tools, measuring and test equipment, consumable supplies and heavy rigging equipment. Normally, these items are separated for ease of identification and handling. Plant personnel have difficulty identifying and retrieving needed equipment. Additional tools and rigging were stored in work areas throughout the plant.

A five-year plan has been developed, but specific approvals and scheduling to correct these deficiencies need to be developed.

Recommendation

Over time, provide additional permanent maintenance shop and decontamination facilities. Ensure that plans provide adequate facilities to support extended plant operation and major outages. INPO 85-038, Guidelines for the Conduct of Maintenance at Nuclear Power Stations, and EPRI NP-4350, Human Engineering Design Guidelines for Maintainability, should be used in establishing these facilities.

Response

A five-year plan has been developed to provide permanent, expanded maintenance and decontamination facilities. Those facilities scheduled for implementation in 1990 have been included in the budget and those projects slated for implementation in future years will receive final approval as current analyses and engineering activities for these facilities are completed. The analyses will include consideration of extended plant operations and major outage requirements. In addition, guidance contained in INPO 85-038, Guidelines for the Conduct of Maintenance at Nuclear Power Stations, and EPRI NP-4350, Human Engineering Design Guidelines for Maintainability, will be used in the analyses.

MAINTENANCE PERSONNEL KNOWLEDGE AND PERFORMANCE

PERFORMANCE OBJECTIVE: Maintenance personnel knowledge and performance should support safe and reliable plant operation.

Finding (MA.10-1)

Maintenance work assignments are made without reference to **task qualification of workers**. Industry experience has shown that this practice may result in tasks being performed incorrectly. In addition, deficiencies were noted in the qualification process and content of continuing training. The following problems were observed:

- a. Work assignments are based on the supervisor's knowledge of worker capabilities rather than on task qualification of workers. While few performance problems by maintenance personnel were observed, industry experience has shown that this practice can result in assigning people to perform tasks in the plant for which they are unqualified.
- b. Approximately 60 percent of the on-the-job training qualification standards for initial training of maintenance groups have not been developed. Examples of tasks for which qualification standards are not complete include the following:

1. use of volumetric flow unit by the measuring and test equipment calibration group
2. performance of environmentally qualified wire splices by instrumentation and control technicians and electricians
3. maintenance of relief valves by mechanical maintenance personnel

In addition, maintenance training materials presently developed are not in use.

- c. The following deficiencies were noted in the maintenance continuing training program:

1. Many topics identified by maintenance and training management in 1988 for inclusion in 1989 continuing training are not scheduled to be delivered to the respective disciplines. For example, 23 of 43 courses identified by instrumentation and controls supervision for continuing training to upgrade the knowledge and skills of technicians are not scheduled to be given in 1989. These courses include training on safety-related equipment such as reactor vessel level system, loose parts monitoring system, and process control systems.

Forty of 53 courses identified by training, mechanical, and electrical supervision for inclusion in the 1989 training program are not scheduled. These include batteries, relays, advanced air conditioning and ventilation systems, reactor coolant pump seals, confined space entry, analytical instrumentation, and diesel generators.

2. Information on plant and industry operating experience is provided to maintenance personnel entirely through a required reading program. Industry experience has shown this method to be less effective than some others in conveying operating experience information.

It is recognized that developmental work is presently underway to correct several of the problems noted above.

Recommendation

Implement a qualification program for maintenance personnel and assign only personnel qualified for a task to work independently. Continue development of the initial and

continuing training material for instrumentation and control, mechanical and electrical groups. Implement the on-the-job training modules as they are approved for implementation. Implement a performance-based continuing training program that includes the topics requested by line management and lessons learned from operating experience. INPO 86-018, Guideline for Training and Qualification of Maintenance Personnel, should be of assistance in this effort.

Response

A qualification manual has been developed to provide direction for consistent qualification of technicians, including maintenance personnel. The Station Maintenance Manual, Section 1.12, currently provides direction for assignment of qualified or trained personnel to accomplish maintenance tasks. This manual will be reviewed and revised as necessary to assure that only qualified personnel will be assigned to work independently. This review and revision will be completed by March 1990.

Training program development is continuing. OJT modules are being developed and OJT instructors are being trained. These modules will be implemented as they become available. Continuing training on operating experience is under development and scheduled for delivery each quarter in 1990. INPO accreditation of the mechanical, electrical, and instrument and control training is currently on schedule. INPO 86-018, Guideline for Training and Qualification of Maintenance Personnel, will be used as part of this effort.

The maintenance group has qualified instructors and evaluators for all job performance measures approved to date and is prepared to qualify instructors and evaluators for OJT training modules as they are made available for implementation.

RADIOLOGICAL PROTECTION

SOLID RADIOACTIVE WASTE

PERFORMANCE OBJECTIVE: Solid radioactive waste controls should minimize the volume of radioactive waste and ensure safe transportation of radioactive material.

Finding (RP.7-1)

Implementation of the solid radioactive waste program has been insufficient to fully support plant needs. Problems observed included the following:

- a. A program to minimize the volume of material taken into the radiologically controlled area (RCA) and to minimize the volume of dry active waste leaving the RCA has not been implemented. An excessive amount of equipment, tools, and material was observed being taken into the RCA. This includes power cords, air hoses, hand tools, chain falls, and multiple copies of procedures and work orders. After plant operation, it will be difficult to release this material as clean due to the need to survey all surfaces and the lack of facilities to decontaminate this volume of material.
- b. Tools and small equipment in the RCA are not uniquely identified to clearly distinguish them from similar items intended for non-radiologically controlled areas of the station. As a result, workers may not be aware of the potential hazard associated with the use of these tools and there is an increased potential for releasing these tools outside the RCA.
- c. Specific plans for temporary storage of all solid radioactive active waste generated at the station have not been formalized or approved. The station is currently not permitted to ship solid radioactive waste off site.
- d. Trained personnel are not available to process wet and dry radioactive waste material.

Recommendation

Implement a program to minimize the volume of material taken into the RCA and to control tools and equipment used in the RCA. INPO 89-008, Control of Tools and Equipment in Radiologically Controlled Areas, should be of assistance in this effort. Additionally, formalize plans for the temporary storage of solid low level waste generated during operation and ensure qualified personnel are available to process this waste.

Response

A comprehensive radioactive waste program will be developed by January 1990 and will include staffing and training requirements. A training program for radioactive waste technicians has been established and will be fully implemented in the first quarter of 1990.

Transfer of the chairmanship of the established radwaste minimization committee from nuclear services to station staff (Radwaste/Utilities Department supervisor) will be accomplished by January 1990. A final minimization program and final plans for temporary storage of solid low level waste will be in place by April 1990. In the interim, information will be distributed to the plant staff as to the expectations and methods to be used to minimize waste. Review of INPO 89-008, Control of Tools and Equipment in Radiologically Controlled Areas, has been accomplished. An ongoing review of potential RCA Identification methods is currently in progress. Tools and small equipment intended for "RCA USE ONLY" will be clearly identified and distinguishable from similar items intended for non-radiologically controlled areas. This marking will be completed prior to the first refueling outage currently scheduled for March 1991.

RADIOACTIVE CONTAMINATION CONTROL

PERFORMANCE OBJECTIVE: Radioactive contamination controls should minimize the contamination of areas, equipment, and personnel.

Finding (RP.9-1)

The station's contamination control program needs strengthening to prevent the spread of contamination after sustained plant operation. In addition, the potential exists for cross-contamination of personnel at the access and egress points of the radiologically controlled area (RCA). The following are examples of problems observed:

- a. There are many leaks in plant systems likely to become contaminated after plant operation. Leaks were observed in the residual heat removal, boron recovery system, safety injection, and containment spray systems. Due to limited station operation, most systems currently have little or no internal contamination. After operation, these systems may contain internal contamination.

- b. Leak containment devices and temporary equipment drain lines have been installed throughout the plant. Some of these devices are deteriorating, and others are constructed of material that could easily rupture or are not secured to ensure system leakage is directed into the floor drains. The installation of these devices is not controlled or tracked to ensure proper installation and maintenance.
- c. Many installed equipment drain lines do not terminate over the floor drains. Flow from these lines would spread onto the floor resulting in unnecessary contamination of the areas.
- d. Current traffic flow patterns and equipment placement in access control and the dress out area provide potential for cross contamination of personnel entering and exiting the RCA. The current arrangement of these facilities does not separate entry and egress. As a result, individuals entering the RCA must cross the path of potentially contaminated individuals who have not yet used the whole body friskers.

Recommendation

Take action to improve the station's contamination control program including the following:

- a. Repair known leaks in potentially contaminated systems prior to sustained plant operation.
- b. Consider instituting controls over the installation of leak containment devices and temporary equipment drain lines, including installation and tracking of installed devices and periodic monitoring to ensure integrity.
- c. Correct improperly installed drain lines using temporary or, where possible, permanently installed connections to floor drains.
- d. Implement necessary modifications to access control and dress out areas to minimize the potential for cross-contamination.

Response

All known leaks in potentially contaminated systems will be prioritized and corrected. The intent is to repair all known leaks in the RCA prior to entry into mode 4, currently scheduled for January 1990. Periodic monitoring of leak containment devices will be performed by a new procedure scheduled for development and implementation by December 1989. Additional controls are currently being incorporated into the existing RWP procedure for removal of leak containment devices. This action

is scheduled for completion and implementation by January 1990. A request for engineering services (RES) has been initiated requesting engineering to develop a generic specification and/or minor modification to allow the installation of drain lines to floor drains where possible. An RES has been submitted to engineering to modify the RCA access point and dress-out areas to provide better traffic control and limit potential for cross-contamination. Both RES responses are expected by June 1990. A permanent and final redesign of the control point will occur as part of the five-year facilities plan. Interim solutions to prevent cross-contamination will be evaluated and implemented prior to the first refueling outage.

CHEMISTRY

CHEMISTRY CONTROL

PERFORMANCE OBJECTIVE: Chemistry controls should ensure optimum chemistry conditions during all phases of plant operation.

Good Practice (CY.3-1) An effective biological monitoring program has been developed for the station circulating and service water systems. The program includes test specimens, bio-plates, and bio-boxes that are introduced into various points in the systems. On a prescribed frequency, typically weekly, the specimens are removed and screened for biomass under a microscope. Based on the results, adjustments are made to the chlorination scheme for improved control. Further, for more positive indication of treatment effectiveness, the specimens are re-inserted into their respective locations where they are reviewed at the next scheduled frequency.

The program has been effective in protecting plant components from bio-fouling and in optimizing the plant chlorination processes.

Finding (CY.3-2)

The analytical performance of some laboratory instruments and on-line chemistry analyzers is insufficient for measuring low levels of some impurities. Problems noted include the following:

- a. The station's lower limit of detection for steam generator blowdown samples is approximately ten times higher than the industry average. For example, chloride and sulfates--two corrosive contaminants that contribute to intergranular stress corrosion cracking--cannot be detected by the station using the ion chromatograph at levels below 10 and 50 parts per billion (ppb), respectively. Similarly, sodium levels cannot be detected using the atomic absorption unit with graphite furnace at levels below 12 ppb. Typical industry lower limits of detection for these impurities using the same analytical equipment are in the one to two ppb range. The station has demonstrated the ability to measure at the one to two ppb level for these contaminants in other high purity water samples (e.g., makeup water treatment system effluent). Identifying impurities in steam generator blowdown

at the one to two ppb level enhances the ability to diagnose the source and to take timely corrective action for the protection of the steam generators.

- b. Sample temperature conditioning is insufficient for on-line analyzers in the makeup water treatment system and the condenser hotwell. Typical sample temperatures in the makeup system are five degrees or more lower than the 25 degrees centigrade at which the data is reported. These colder temperatures tend to create non-conservative responses to alarm or trip setpoints for the makeup demineralizers. As temperature decreases from 25 degrees centigrade, analyzer indications will reflect a value much lower than actual, which may allow the production of inferior quality water without alarm or trip response. Additionally, hotwell sodium and cation conductivity analyzers are not equipped with sample coolers to reduce temperatures to the recommended 25 ± 2 degrees centigrade. Without proper sample temperature conditioning, these analyzers can produce readings that are biased high, thus masking real problems, such as condenser tube leaks.

Recommendation

Upgrade analytical sensitivities for routine plant sample streams with particular emphasis on the parameters noted above.
Provide sample temperature conditioning for on-line analyzers.

Response:

The Chemistry Department has changed its protocol for steam-side sampling to ensure optimum analytical sensitivities with the present laboratory equipment. Ion chromatography samples will be passed through a cation column before they are analyzed. This gives a sensitivity for chlorides and sulfates of one ppb. Sodium analyses will be run on the atomic absorption furnace which has a sensitivity of one ppb. All other analytical sensitivities will be reviewed on an ongoing basis to optimize them to the greatest extent possible. First and second line supervision is visiting operating nuclear stations in the northeast to observe their analytical methods and sensitivities. Techniques that are observed will be evaluated for use at Seabrook Station.

Chemistry has written a request for engineering services (RES) for an engineering evaluation to add sample temperature conditioning for hotwell samples piped to CPI86. Additionally, chemistry has written an RES for an engineering evaluation to add sample temperature conditioning to the water treatment system effluent samples. The results these engineering evaluations are expected by June 1990 with implementation expected no later than the first refueling outage, currently scheduled for March 1991.

APPENDIX I

OUTSTANDING RESPONSE ACTIONS FROM PREVIOUS EVALUATION(S)

Appendix I is a listing of findings from previous evaluations where corrective actions have not been completed, but are progressing on a reasonable schedule. A current status, as determined by the INPO team, is also provided.

There are no Appendix I items for this evaluation.

APPENDIX II

ADDITIONAL SUPPORTING DETAILS

Appendix II provides additional information concerning selected findings which should be useful in determining corrective action.

OPERATING EXPERIENCE REVIEW

The following Significant Operating Experience Report (SOER) recommendations were evaluated as not satisfactory and further actions are needed:

SOER 81-9 "Desiccant Carry-over to the Instrument Air System"

Recommendation 2b: Perform regularly scheduled maintenance on the downstream filter element of the instrument air system.

Present Status: Repetitive task sheets (RTS) for scheduling preventive maintenance activities have not been developed for individual component filters (i.e., for equipment in the plant). RTSs do exist for the skid mounted pre-filters and post-filters.

Actions Planned to
Close Recommendation: The Maintenance Department will develop repetitive task sheets for the downstream filter elements by March 1990.

SOER 82-9 "Turbine Generator Excitor Explosion"

Recommendation 1: Ensure procedures address monitoring and trending of hydrogen gas usage. Procedures should include guidance for actions to be taken when usage exceeds a specified level.

Present Status: Trending of hydrogen gas usage is not performed. A procedure has not been developed to address actions required when usage exceeds a predetermined level. An upper limit of gas usage has not been defined.

Actions Planned to
Close Recommendation: A hydrogen gas usage trending program will commence upon achievement of full power. The trending program will be included in the technical support monitoring program. Guidance will be provided addressing action required when usage exceeds a predetermined level.

SOER 82-12 "Steam Generator Tube Ruptures Caused by Loose Parts on Secondary Side"

Recommendation 5: Train plant personnel (including contractors) involved with steam generator repair and maintenance on the importance of preventing miscellaneous objects from being left in steam generators.

Present Status: Training has not been developed or conducted. A training development request, TDR 89-016, has been issued to develop this training program.

Actions Planned to
Close Recommendation: Training development request 89-016 is ongoing. A complete revision to the lesson plan for MA 3.3, "Housekeeping," will be developed by December 1989 for future initial training. Continuing training on this SOER will be conducted during the first quarter of 1990.

SOER 82-13 "Intrusion of Resin, Lubricating Oil, and Organic Chemicals into Reactor Coolant Water"

Recommendation 11: Consider additional process steps to remove organic contamination if chronic contamination by organics exists.

Present Status: Design change request DCR-00238, issued in 1986, has not been implemented and no implementation date has been assigned. This DCR addresses the installation of a check valve in the fuel pool drain line to prevent backflow from the floor drain system into the fuel pool.

Actions Planned to
Close Recommendation: Design coordination report 86-238 will install a check valve in the refueling cavity drain line. Implementation of the design change is scheduled for the first refueling outage (March 1991).

Recommendation 12: Train station employees on the potential adverse effects of introduction of resin, oil, and chemicals into the reactor coolant system.

Present Status: Expendable material training, including chemical control, is not included in recurring General Employee Training. Beginning in December 1989, General Employee Training will include a segment of the "whats" and "whys" of the program and will be presented to all new personnel.

Actions Planned to
Close Recommendation: Training development request 89-107 is ongoing. A complete revision to the lesson plan for MA 3.3, "Housekeeping," will be developed by December 1989 for future initial training.

Continuing training on this SOER will be conducted during the first quarter of 1990.

General Employee Training lesson plan S-35 will be revised to reference this SOER for initial and continuing training by December 1989.

Training for the Chemistry Department is in progress. This SOER recommendation will be formally incorporated into Chemistry Department continuing training by December 1990.

Recommendation 13: Caution contractor personnel about the potential effects of usage of uncontrolled chemicals.

Present Status: Training has not been conducted for contractors on the station expendable material control program, including chemical control. A revision to the station General Employee Training module has been drafted for presentation beginning in December 1989 that includes the pertinent aspects of the program.

Actions Planned to Close Recommendation: Training development request 89-107 is ongoing. General Employee Training lesson plan S-35 will be revised to reference this SOER for initial and continuing training by December 1989. This training will be provided to all contractors by May 1990.

SOER 82-15 "Freezing of Safety-related Equipment"

Recommendation 1: Review critical system instrumentation and equipment that may be affected by severe cold weather to identify needed modifications.

Present Status: The station has not developed a program to ensure adequate freeze protection of affected systems. This problem was recognized by plant management during the 1987 evaluation. This item has been tracked on the integrated commitment tracking system since 1986 as an open item.

Actions Planned to Close Recommendation: The design of critical instrumentation and equipment was reviewed for severe cold weather provisions during the construction phase subsequent to the release of NRC I&E Bulletin 79-24. Since that time, no freeze up of safety-related instrumentation or equipment has occurred as a result of a design deficiency. NHY maintains a "Freeze Log" in the control room which is reviewed annually to assess the need to modify systems or structures.

Recommendation 2: Ensure plant procedures include provisions for protecting critical systems.

Present Status: The station has not developed a program to ensure adequate freeze protection of affected systems.

Actions Planned to Close Recommendation: Procedures addressing freeze protection of critical system instrumentation and equipment have been implemented.

- Recommendation 3: Provide seasonal reminders to operations personnel concerning freezing protection of safety-related equipment.
- Present Status: The station has not developed a program to ensure adequate freeze protection of affected systems.
- Actions Planned to
Close Recommendation: A general procedure to identify plant readiness for cold weather operations is under development and will be implemented by March 1990. A reminder will be sent to operations personnel concerning freeze protection by December 1989.
- Recommendation 4: Provide continuing training on lessons learned from cold weather operation.
- Present Status: The station has not developed a program to ensure adequate freeze protection of affected systems.
- Actions Planned to
Close Recommendation: Training development request 89-284 will incorporate ongoing cold weather lessons learned at Seabrook into initial and continuing training by June 1990.
- Recommendation 5: Recalibrate thawed instrument lines prior to returning to service.
- Present Status: The station has not developed a program to ensure adequate freeze protection of affected systems.
- Actions Planned to
Close Recommendation: Standard work practice IC-006 has been issued to address maintenance guidelines to recover from frozen instrument lines or equipment.
- Training development request 89-284 will incorporate guidance into initial and continuing training by June 1990.
- Recommendation 6: All frozen equipment that has been thawed should be examined to ensure structural integrity before return to service.
- Present Status: The station has not developed a program to ensure adequate freeze protection of affected systems. This has been a problem with the control building air ventilation system. This system has iced-over during adverse weather conditions by drawing freezing rain and snow into the intake filters.

Actions Planned to
Close Recommendation: Standard work practice IC-006 has been issued to address maintenance guidelines to recover from frozen instrument lines or equipment.

Training development request 89-284 will incorporate guidance into initial and continuing training by June 1990.

SOER 83-8 "Reactor Trip Breaker Failure"

Recommendation 10: Ensure procedures are established for incorporation of safety-related vendor data and changes into preventive maintenance programs.

Present Status: Plant procedures have not been developed for Mechanical, Electrical, or I&C Departments to ensure that vendor information (manuals and updates) are incorporated into applicable procedures. This item is a past due action item in the integrated commitment tracking system (ICTS).

Actions Planned to
Close Recommendation: The New Hampshire Yankee program for vendor manuals is presently being revised and strengthened. Part of this revision will define which vendor manuals will be available for use, how they can be used and what review process must be complete. Full implementation of this program is scheduled for December 1990.

Recommendation 12: Ensure appropriate technical staff and managers/supervisors receive training to:

- a. Determine the safety classification of equipment and activities for which they are responsible.
- b. Implement QA/QC policies in procurement of parts and components and in performance of work on safety-related equipment.
- c. Conduct and review post-trip analyses.

Present Status: Training on "Classification of Structure, Systems, and Components, Seabrook Station Engineering Design Standard 37180" has not been conducted or scheduled. The standard was issued in February 1989.

Actions Planned to
Close Recommendation: Training development request 89-248 will incorporate this SOER into lesson plans for initial and continuing training by June 1990.

SOER 83-9 "Valve Inoperability Caused by Motor-Operator Failures"

Recommendation 7: Ensure plant procedures require an evaluation of valve operability when valves that perform safety functions must be manually seated or backseated. Declare motor-operated valves that perform a safety function inoperable if they have been either manually seated or backseated until MOV operability is verified by electrically stroking the valve.

Present Status: Plant procedure ON1090.01, "Manual Operation of Remote Valves," does not address operability of backseated valves. Also, the procedure states to use the handwheel rather than to electrically backseat valves.

Actions Planned to
Close Recommendation: Plant procedure ON1090.01, "Manual Operation of Remote Operated Valves," will be revised with respect to adding a requirement to evaluate valve operability if a valve has been manually seated or backseated. This action will be completed by June 1990.

SOER 84-3 "Auxiliary Feedwater Pumps Disabled by Backleakage"

Recommendation 5: Ensure that the preventive maintenance program includes periodic inspection or testing of all check valves in the auxiliary feedwater system.

Present Status: Emergency feedwater check valves are not tested to verify ability to prevent backflow. The present testing program only tests for flow through check valves.

Actions Planned to
Close Recommendation: Feedwater backflow that may cause steam binding of an EFW pump during EFW idle conditions is monitored by auxiliary operators using a hand-held temperature probe.

EFW pump discharge check valves FW-V-64 and 70 are individually backflow tested implicitly during periodic EFW pump surveillance testing because of the common discharge header. The backleakage through the idle train discharge check valve, if any, is not quantified during this surveillance, but acceptable forward feed flow of the running train is measured to demonstrate, among other things, adequate closure of the idle pump's discharge check valve.

Check valves FW-V-64 and 70, as well as the downstream check valves in the EFW system, will be included in the check valve monitoring program to be developed by October 1990, and implemented by the first refueling (March 1991).

SOER 84-7 "Pressure Locking and Thermal Binding of Gate Valves"

Recommendation 3: Train operations and maintenance personnel on how to diagnose and recover from the pressure locking and thermal binding valve failure mechanism.

Present Status: Training has not been provided to maintenance personnel on the elements of the recommendation. Lesson plan N1270 has been developed on this topic.

Actions Planned to Close Recommendation: Training development request 88-285 will incorporate this SOER into lesson plans. Mechanical and electrical continuing training will be completed by March 1990.

This SOER is included in auxiliary operator initial training. It will be incorporated into electrical initial training by June 1990.

SOER 85-2 "Valve Mispositioning Events Involving Human Error"

Recommendation 2: Train operators, maintenance, and supervisory personnel in procedures used to position and verify valve positions. This training should stress the need to comply with procedures and the need to identify incorrect procedures so that they can be corrected.

Present Status: Training of plant personnel has been ineffective in preventing valve mispositioning events. Numerous valve misposition events were identified through a review of station log books and station event reports.

Actions Planned to Close Recommendation: Training development request 89-286 will incorporate the recent five valve mispositioning events and generic lessons learned from industry events into continuing training for operators by May 1990.

Lesson plan 05 regarding the tagging program will incorporate lessons learned from this SOER by March 1990. This training will be provided to appropriate operations, maintenance, and supervisory personnel.

SOER 86-1 "Reliability of PWR Auxiliary Feedwater Systems"

Recommendation 3: Test auxiliary feedwater pumps periodically under conditions and configurations expected during any operational event demand. Include fast, cold starting of the pumps; simultaneous and automatic starting of all pumps; and testing of the pumps for various steam supply, condensate supply, and pump discharge flow configurations that may reasonably occur.

Present Status: On-demand start testing is performed on an 18-month basis or following a shutdown greater than 30 days. The testing is not performed on a quarterly frequency.

Actions Planned to Close Recommendations: The turbine-driven emergency feedwater pump will be tested to demonstrate governor ramp-up, governor startup control, sequencing of steam supply valves, and operation of the steam trap drain system during post-modification testing scheduled for January 1990. Evaluation of the as-found turbine speed and acceptance criteria for vibration, differential pressure, flow and speed will be included in surveillance procedures by January 1990. A method of testing the overspeed trip mechanism will be evaluated by June 1990. The overspeed trip mechanism will be tested periodically consistent with vendor recommendations and technical specifications requirements.

A start of the pump under demand conditions, from an initial idle condition, will be performed during plant heatup in January 1990. An evaluation of quarterly starts of the turbine-driven emergency feedwater pump and related equipment, under demand conditions, will be performed by March 1990. Surveillance procedures will be revised to require quarterly testing if supported by this evaluation.

SOER 86-2 "Inaccurate Closed Position Indication on Motor-operator Valves"

Recommendation 1: Identify motor-operated valves with remote position indication in which existing limit switch settings can result in a closed indication while the valve is actually partially open. Take actions where necessary to prevent premature closed indication due to limit switch settings.

Present Status: Actions have not been taken to address important non-safety related valves. Actions are planned for elimination of single motor/dual function limit switches in safety-related MOVs.

Actions Planned to Close Recommendations: Design coordination report (DCR) 86-403 is working in the field to address priority systems. Expected field completion is December 1989.

DCR 89-024, to be issued by January 1990, will address the balance of MOVs.

All field work is scheduled for completion by February 1991.

SOER 86-3 "Check Valve Failures or Degradation:

Recommendation 1: Establish preventive maintenance procedures (e.g., a test and inspection program) that identify existing and incipient failures of check valves in appropriate systems. The program should

include periodic testing, surveillance monitoring to identify seat leakage and other developing problems, and disassembly and inspection on a sampling basis to ensure check valve internals are intact and are not experiencing abnormal wear.

Present Status:

The preventive maintenance program has identified 220 check valves, but 64 have no inspection requirements. The program only addresses inspections specified by the in-service testing program. As a result, most elements in the recommendation are not addressed.

Actions Planned to
Close Recommendation:

The actions planned for recommendation 2 are the same as for SOER 86-3, recommendation 1. A review of the current check valve design and monitoring program will be conducted by October 1990. This effort will include the following:

- a. an assessment of the appropriate preventive maintenance measures such as inspections and leak checks for the check valves in the current monitoring program
- b. an assessment of acceptance criteria and provisions to revise test frequencies based upon inspection results, and
- c. a design review of check valves for applicability with respect to EPRI Report NP-5479 and INPO SOER 86-3

Where feasible, check valve preventive maintenance and monitoring improvements will be completed as part of this program development effort. It is anticipated that certain aspects of the program improvements will be dependent upon the results of the design review for applicability. These activities will be scheduled for completion as the results of this effort become known. Preventative maintenance on selected check valves will be performed prior to the completion of the first refueling outage.

Recommendation 2:

Perform design reviews on those check valve included in the station check valve preventive maintenance program. The review should determine if check valves are sized properly, are the proper types of check valves installed for the required service, and are properly oriented and located a suitable distance from upstream components that cause turbulent flow. Based on this review, initiate design changes or perform additional preventive maintenance and testing for check valves determined to be misapplied.

Present Status:

The design review has not been conducted.

Actions Planned to
Close Recommendation:

The actions planned for recommendation 2 are the same as for SOER 86-3, recommendation 1. A review of the current check valve design and monitoring program will be conducted by October 1990. This effort will include the following:

- a. an assessment of the appropriate preventive maintenance measures such as inspections and leak checks for the check valves in the current monitoring program
- b. an assessment of acceptance criteria and provisions to revise test frequencies based upon inspection results, and
- c. a design review of check valves for applicability with respect to EPRI Report NP-5479 and INPO SOER 86-3

Where feasible, check valve preventive maintenance and monitoring improvements will be completed as part of this program development effort. It is anticipated that certain aspects of the program improvements will be dependent upon the results of the design review for applicability. These activities will be scheduled for completion as the results of this effort become known. Preventative maintenance on selected check valves will be performed prior to the completion of the first refueling outage.

SOER 88-1 "Instrument Air System Failures"

Recommendation 3:

Provide training on the importance of instrument air systems and the potential for common mode failures caused by such things as particulate, hydrocarbon, and water contamination for operators and maintenance personnel who work on air systems and air-operated components.

Present Status:

A training program has not been established for maintenance and I&C personnel.

Actions Planned to
Close Recommendation:

Training development request 88-072 will incorporate this SOER into initial and continuing training for maintenance and I&C personnel by July 1990.

SOER 88-2 "Premature Criticality Events During Reactor Startup"

- Recommendation 6: Ensure the reactor startup procedure includes the following information:
- a. a section that stresses the need for conservative actions and for strict compliance with written procedures when repositioning control rods
 - b. a section that provides detailed guidance on actions to be taken when criticality will be or is achieved outside the allowable tolerance band of the estimated critical condition (when estimated critical conditions are provided) -- This guidance should include the allowable tolerance band and the correct actions to ensure adequate shutdown margin is maintained.
 - c. avoidance of activities that can distract operators and supervisors involved with the reactor startup, such as a shift turnover and surveillance testing during the approach to criticality
 - d. directions for use of all pertinent instrumentation to monitor the approach to criticality to allow errors in the estimated critical condition or problems with other instrumentation to be detected early -- Consider the use of audio count rate speakers as an aid to determine increasing flux rate.
 - e. periodic pauses during rod withdrawal to allow stabilization of neutron level and collection of data for estimating the proximity to criticality -- Count rate doubling methods or inverse count rate ratio (1/M) plots should be required for all reactor startups.

Present Status: Startup procedures OS1000.02 and OS10000.07 do not adequately control shift activities during reactor startup. In particular, guidance is not provided regarding conservative actions and strict procedure compliance addressed in item a. of the recommendation.

Actions Planned to
Close Recommendation: Operations will review plant procedures OS1000.02 and OS1000.07. Revisions will be made as appropriate to incorporate the concerns of this SOER by January 1990.

SOER 88-3 "Losses of Residual Heat Removal with Reduced Reactor Vessel Water Level
at PWRs"

Recommendation 2: Review the procedures that support residual heat removal system operation to ensure that procedure improvements necessary to support plant actions in response to SOER 85-4 have been incorporated.

Present Status: Methods (such as graphs) to determine reactor core heatup and boil-off rates as a function of reactor coolant system volume and the time since shutdown, are only partially addressed in OS1213.01. This procedure states only as a caution prior to step 1, "Loss of RHR during typical refueling conditions could result in an RCS heatup of 3 degrees to 6 degrees F per minute and RCS saturation within 20 to 30 minutes." Graphs of heatup rate are not provided.

Actions Planned to
Close Recommendation: Operations will review plant procedure OS1213.01. A revision will be made as appropriate to incorporate the concerns of this SOER by January 1990.

New Hampshire Yankee
March 15, 1990

Enclosure 2 to NYN-90073

Status Update of NHY Responses to INPO Findings

Trip Report of Special Assistance
Visit to Seabrook Station, January 1988

ISSUE: Organization. Several NHY emergency planning personnel unaware of their assigned duties and responsibilities.

INPO REFERENCE: Trip Report 2/8/88, Item IV.A.1, page 3

ALLEGED'S STATEMENT: Testimony, page 5.
"Under 'Organization,' INPO stated that: 'Several New Hampshire Yankee personnel interviewed did not know their complete assigned duties and responsibilities and indicated they had never seen their position descriptions.'"

NHY RESPONSE: Issue included as Observation 05 of Quality Assurance Audit Report No. 88-A02-01.
Issue related to the understanding that NHY's Emergency Planning staff has of its duties and responsibilities.

This observation is the result of an expectation by the auditors that the Seabrook Station emergency preparedness efforts and, therefore, the organization assigned to perform them were stable. There have been many issues that have constantly forced New Hampshire Yankee to react.

Each issue has resulted in organizational reactions and adjustments. Personnel assigned to certain functions on a given day have, out of necessity, been reassigned to the current priority task. It's likely some of the personnel interviewed as part of the basis of this observation now have entirely new assignments or possibly, are no longer here.

This item has been corrected by the development of job descriptions for Emergency Planning staff positions and the reduction in staffing to a constant workforce.

This issue is not directed toward duties and responsibilities of Emergency Responders.

ISSUE: Organization. Position descriptions for some emergency planning staff are not available.

INPO REFERENCE: Trip Report 2/8/88, item IV.A.2, page 3

ALLEGER'S STATEMENT: Testimony, page 5
[Several New Hampshire Yankee personnel] "had not ever seen their position descriptions;"

NHY RESPONSE: Issue included as Observation 05 of Quality Assurance Audit Report No. 88-A02-01.

Issue related to the understanding the NHY's Emergency Planning staff has of its duties and responsibilities.

This item has been corrected by the development of and distribution of job descriptions for Emergency Planning staff positions.

This issue is not directed toward Emergency Response position descriptions.

ISSUE: Organization. No documentation of all responsibilities of the Radiological Assessment Manager.

INPO REFERENCE: Trip Report 2/8/88, Item IV.A.3, page 3

ALLEGED'S STATEMENT: "There is no document, form, or system in place that describes all the duties and responsibilities of the Radiological Assessment Manager."

NHY RESPONSE: Issue included as Observation 04 of Quality Assurance Audit Report No. 88-A02-01.

Issue related to the number of responsibilities of a single Emergency Planning staff position.

The number of tasks assigned to the position of Radiological Assessment manager in the NPER procedures that were current at the time of the audit has been greatly reduced by revisions to appropriate procedures. This occurred during March, 1988 and now properly reflects the NHY Emergency Preparedness and Community Relations subdivision organization and the breakdown of its responsibilities. The transition to the proper responsibility assignments as a result of the emergency preparedness reorganization had not been completed at the time of the audit.

The item has been corrected by the reassignment of responsibilities to other Emergency Planning staff positions and the redefinition of the Radiological Assessment Manager position to that of the Radiological Technical Specialist in ER-8.4.

This position discussion does not deal with Emergency Response positions.

ISSUE: Organization. Inadequate documentation of mandatory
Emergency Planning program activities.

INPO REFERENCE: Trip Report 2/8/88, Item IV.A.4, page 3

ALLEGER'S STATEMENT: None

NHY RESPONSE: Issue included as Observation 04 of Quality Assurance
Audit Report No. 88-A02-01.

Issue related to the tracking of routine, programmatic
activities.

Emergency Planning staff has addressed this issue by
employing the activity tracking tools available within the
NHY system. These include: the Integrated Commitment
Tracking System, Repetitive Task Sheets and departmental
administrative procedures 90300 and 91120.

ISSUE: Emergency Plan/Procedures. Letters of Agreement

INFO REFERENCE: Trip Report 2/8/88, Item IV.B.1, page 4

ALLEGES'S STATEMENT: None

NHY RESPONSE: Issue included as Finding F4 of Quality Assurance Audit Report No. 88-A02-01.

Issue related to 5 of 7 letters of agreement not being reviewed within the previous year.

All letters of agreement have been updated and are on file. Commitment added to the Seabrook Station Radiological Emergency Plan to review letters on an annual basis and update if needed. Department procedure 90400 calls for annual review of letters of agreement.

Finding closed by NHY Nuclear Quality Group, Status Update for Audit Report No. 88-A02-01, dated 9/30/88 (SSP881288)

ISSUE: Emergency Plan/Procedures. Errors and inconsistencies in the emergency plan and procedures.

INPO REFERENCE: Trip Report 2/8/88, Item IV.B.1, page 4

ALLEGED'S STATEMENT: Testimony, page 6
"Under 'Emergency Plan and implementing procedures,' INPO noted that: 'The emergency plan in some instances is not consistent with the emergency plan implementing procedure and/or business as it is being conducted;'"

NHY RESPONSE: Issue included as Observation 01 of Quality Assurance Audit Report No. 88-A02-01.

Discrepancies between the Seabrook Station Emergency Plan and its implementing procedures were corrected in a plan revision dated April 1988 and in subsequent revisions, as appropriate.

All revisions reviewed by Change Control Team in accordance with department procedure 90300.

ISSUE: Emergency Plan/Procedures. Use of an unauthorized change control program for implementing procedures.

INPO REFERENCE: Trip Report 2/8/88, Item IV.B.2, page 4

ALLEGER'S STATEMENT: Testimony, page 6
"Revisions to on-site procedures are being accomplished through the use of an unauthorized change control program, administered by the emergency preparedness group outside of the approved process. * * * Interviews and document reviews indicated that 'short cuts' are being used to speed up even this process and user impacts are not being considered. No documentation exists for this unauthorized process."

NHY RESPONSE: Issue included as Finding F1 of Quality Assurance Audit Report No. 88-A02-01.

The Change Control Program established a Change Control Team (CCT) charged with the responsibility within the Emergency Preparedness and Community Relations subdivision to review and approve every revision to an implementing procedure within the Production and Emergency Response Manual (NPER) (as well as procedures within the Seabook Plan for Massachusetts Communities and the New Hampshire RERP) that is proposed. The CCT must review the concept represented by the proposed NPER change and, most importantly, the impact of the proposed change on the plan and procedures within the SPMC and NHRERP. This impact assessment occurs before a revision is approved by the CCT, with approval only a result of a conclusion that the revision is both needed and does not negatively impact either the SPMC or the NHRERP.

Following CCT approval, the proposed RERP procedure revision is then submitted to at least one Independent Reviewer for approval, to SORC for approval and finally to the Station Manager for approval before the revision is made to the NPER. Thus, the CCT step is upfront and additional to the normal procedure review and approval process - not a bypass.

The EP&CR subdivision procedure 90300 documenting this process was issued on 8/19/88. The finding was closed and verified by NHY Nuclear Quality Group, Status Update for Audit Report 88-A02-01, dated 9/30/88 (SSP 881288).

ISSUE: Training. Emergency preparedness training programs do not comply with other station training programs.

INPO REFERENCE: Trip Report, Item IV.C.1, page 4

ALLEGER'S STATEMENT: "Under 'Training,' INPO noted that: 'Emergency preparedness training programs do not currently comply with the requirements specified by procedure. *** Emergency preparedness training instructors are not being qualified or selected in accordance with the criteria specified in [a procedure containing well-defined criteria for selecting and training emergency preparedness training instructors].'"

NHY RESPONSE: Issue included as Finding F6 of Quality Assurance Audit Report No. 88-A02-01.

The procedures referenced in the INPO Trip Report are Seabrook Training Center (STC) procedures that were developed for operator training programs. They were not applicable to other training programs. A series of Nuclear Training (NT) procedures were developed that apply generally to training programs at Seabrook Station. These NT procedures superseded STC and other training procedures. The appropriate emergency plan implementing procedure (ER 8.2) was revised to be consistent with the NT procedures. An emergency response organization training program description has been developed that references applicable NT procedures.

Finding closed by NHY Nuclear Quality Group, Status Update for Audit Report No. 88-A02-01, dated 5/31/89 (SSP890809)

ISSUE: Training. No documentation of EAL reviews with offsite authorities.

INPO REFERENCE: Trip Report 2/8/88, Item IV.C.2, page 5

ALLEGED'S STATEMENT: None

NHY RESPONSE: Issue included as Observation 03 of Quality Assurance Audit Report No. 88-A02-01.

Documentation of emergency plan training conducted on 12/8-9/87 and subsequent years for state organizations exists showing that emergency action levels for Seabrook Station, in addition to other topics, were covered. However, the documentation for 1987 was not readily available during the audit.

A complete set of documentation has been placed in the records showing the course agenda, handouts, and attendees. This training has been added to the emergency plan training matrix SSREP Figure 12.1 for tracking purposes.

ISSUE: Training. Inadequate coordination to ensure completion of all training.

INFO REFERENCE: Trip Report 2/8/88, Item IV.C.3 page 5

ALLEGED'S STATEMENT: None

NHY RESPONSE: Issue included as Finding F5 of Quality Assurance Audit Report No. 88-A02-01.

The then current version of the Emergency Preparedness Training Procedure (ER-8.2) did not reflect the training program due to changes at the time of the audit. Procedure ER-8.2 was revised on 9/13/88 to include changes to the EP training program and addressed the noted concerns. Responsibilities for the administration of ERO training including training of security and operations personnel were updated.

Finding closed by NHY Nuclear Quality Group, Status Update for Audit Report No. 88-A02-01, dated 9/30/88 (SSP881288).

ISSUE: Training. Required reading program.

INPO REFERENCE: Trip Report 2/8/88, Item IV.C.4, page 5

ALLEGED'S STATEMENT: None

NHY RESPONSE: Issue included as Finding F5 of Quality Assurance Audit Report No. 88-A02-01.

The then current version of the Emergency Preparedness Training Procedure (ER-8.2) did not reflect the training program due to changes at the time of the audit. The required reading program remains as part of the training program and is reflected in the most current version of ER-8.2.

Finding closed by NHY Nuclear Quality Group, Status Update for Audit Report No. 88-A02-01, dated 9/30/88 (SSP881288).

ISSUE: Public Information. Improve assignment of responsibility and coordination between Emergency Preparedness and Corporate Communications staffs.

INFO REFERENCE: Trip Report 2/8/88, Item IV.D.1.a-c, page 6

ALLEGED'S STATEMENT: None

NHY RESPONSE: Issue included as Observation 07 of Quality Assurance Audit Report No. 88-A02-01.

The Emergency Preparedness and Corporate Communications sub-divisions have implemented corrective measures to ensure joint participation in the emergency public information and education programs. These measures have included recommendations and resolutions in the following functional areas:

- Media concept of operation
- Information flow analysis
- Functional positions and personnel assignments
- Revised and new procedures
- Revised facilities and equipment
- State participation
- Personnel training

Corporate Communications personnel provide independent review of each revision of ER-3.4, "Seabrook Station News Service Operation" and ER-3.5, "Media Center/Joint Telephone Information Center" procedures and indicate their approval by signing the cover sheet.

Emergency Preparedness and Corporate Communications have jointly produced Emergency Preparedness public information materials such as calendars and flyers. The preparer of the emergency public information materials is not required to retain detailed knowledge of the NHY ERO Media Center Procedures to develop adequate materials. The Change Control Team provides oversight of all procedure revisions to ensure consistency.

ISSUE: Public Information. Discrepancies between the plan and procedures.

INPO REFERENCE: Trip Report 2/8/88, Item IV.D.2, page 6

ALLEGER'S STATEMENT: None

NHY RESPONSE: Issue included as Observation 01 of Quality Assurance Audit Report No. 88-A02-01.

The SSREP, Section 11.3 has been revised to correctly reflect activities regarding the types and distribution means for Public Information. These updates were issued in April 1988 as Revision 3.

The appropriate procedures (ER-3.4) directs the contact of the control room by the appropriate Seabrook News Service personnel. The referenced procedures therefore did not require revision.

ISSUE: Public Information. Unavailability of media training documentation.

INPO REFERENCE: Trip Report 2/8/88, Item IV.D.3, page 6

ALLEGER'S STATEMENT: None.

NHY RESPONSE: Issue included as Observation 09 of Quality Assurance Audit Report No. 88-A02-01.

Attendance records for the documentation of future supplemental training will be maintained. Provisions for documenting supplemental training are addressed in Emergency Preparedness Training (ER-8.2).

ISSUE: Public Information. Training document retrieval difficulty.

INPO REFERENCE: Trip Report 2/8/88, Item IV.D.3, page 6.

ALLEGER'S STATEMENT: None

NHY RESPONSE: Issue included as Observation 011 of Quality Assurance Audit Report No. 88-A02-01.

Since the audit the procedures have been revised to better reflect the personnel who are responsible for the types of documentation requested by the auditors. The EP Specialty Training Group now retains hard copy of training records as well as a computer data base to simplify retrieval of training records.

ISSUE: Public Information. Media callout list.

INFO REFERENCE: Trip Report 2/8/88, Item IV.D.3, page 7

ALLEGER'S STATEMENT: None

NHY RESPONSE: Issue included as Observation 010 of Quality Assurance
Audit Report N. 88-A02-01.

The generation and maintenance of a media contact list is an everyday function and responsibility of the Corporate Communications Department. It is neither prudent nor necessary to add such an item to the emergency response procedure. The procedure would be out of date within days of issuance.

New Hampshire Yankee
March 15, 1990

Enclosure 3 to NYN-90073

Status Update of NHY Responses to INPO Findings

Evaluation of Public Service Company of New Hampshire
New Hampshire Yankee Division's Corporate Support and
Monitoring of Seabrook Station, October 2 through 6, 1989

ISSUE: Organization Structure

INPO REFERENCE: INPO Corporate Evaluations, dated December 26, 1989.
Finding 1.1A-1, page 4

ALLEGED'S STATEMENT: None.

NHY RESPONSE: New Hampshire Yankee is taking a number of initiatives to further enhance the experience and depth of an already strong operating team. The initiatives include the implementation of a Key Manager Development Program. This program is designed to assure the continuity of well-qualified managers for key NHY management positions by identifying and developing employees with the potential to move into those positions. Training and implementation of the program is already active and ongoing. It will be supplemented with a formal corporate and station position rotation program to broaden the experience base of the individuals involved and the organization as a whole. NHY already has for sometime, rotated staff throughout the organization. The purpose of the new program is to formalize the process and give more people the opportunity to benefit from it.

NHY is also in the process of upgrading and improving its job descriptions that will stress the importance of and indicate a preference for station experience for appropriate corporate positions. This task is in progress and will be completed by September 1990.

NHY considers the above organizational development initiatives to be sound and prudent. They reflect NHY's commitment to operational excellence.

Also, during the NRC ORAT Inspection, conducted in November 1989, and documented in Inspection Report 89-93, the NRC reviewed Seabrook's management, staffing qualifications, and management structure. The NRC concluded that key staff members were found to have the proper safety perspective and demonstrated a good understanding and a conservative approach to Seabrook operations.

NHY has reviewed INPO Finding 1.1A-1 together with the status of NHY's commitments to INPO. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Organizational Structure

INPO REFERENCE: INPO Corporate Evaluations, dated December 26, 1989, Finding (1.1B-1), page 5.

ALLEGER'S STATEMENT: Under Testimony, p. 14.

ALLEGER'S
CHARACTERIZATION OF
INPO FINDING:

"Consistent direction needs to be provided to the New Hampshire Yankee organization to facilitate the nuclear station's transition from the support role it held during construction, to that of the principal department requiring support during power operation." Among the areas cited by INPO as requiring "additional corporate emphasis or resolution for the station to complete preparations for power operations" was the following: "The solid radioactive waste handling group has not been staffed." In addition, "Maintenance training was recently cancelled due to insufficient resources in the maintenance department to complete both the scheduled work and training. * * * Senior plant and corporate management were not aware of these decisions or the impact on the maintenance department's readiness for power operations."

ALLEGER'S
CHARACTERIZATION OF
NHY RESPONSE:

Many of the actions taken by PSNH, such as reinforcing and further defining responsibilities and staffing the radioactive waste handling group were scheduled to be completed by December 1989. However, ongoing reviews to identify and, if necessary, to reassign activities are not scheduled to be completed until June 1990 "and any identified responsibility reassignments will be implemented by September 1990." [emphasis added.]

NHY RESPONSE:

The responsibilities of the Production organization, and other New Hampshire Yankee organizations that support the Production organization, are included in the New Hampshire Yankee manual system. These responsibilities will be reinforced and further defined on an ongoing basis. New Hampshire Yankee senior Production management now chairs regular meetings with appropriate station supervision and corporate support supervision. At these sessions, Production priorities are clearly and unambiguously defined, and the necessary support to resolve problems areas and negative trends are identified and allocated.

Mr. Pollard's characterization of the PSNH Response is misleading and out of context. By selectively deleting sentences from the INPO Finding in his testimony, he gives the impression that the "ongoing reviews" and "responsibility reassignments" due for completion in June and September 1990 refer to the items he quotes from the

INPO Finding. A reading of the INPO Report will reveal this not to be the case. The review that is actually scheduled to be completed by June 1990 is one designed to enhance the structure of organizational responsibilities including vendor manuals, design changes, and procurement engineering.

A Materials Management Task Force has also been established to resolve problems and identify improvements to the organization that will assure an efficient long-term materials program structure.

The Radioactive Waste Handling Group and the Operations Support Group have been staffed.

With regard to Maintenance training, the INPO Finding has been fully addressed. A maintenance training schedule has been established. This training is on track and is being implemented in a manner that will fully support Station operations. NHY senior management has assured that adequate resources and attention are being applied in this area to correct the condition noted in the INPO Finding.

In summary, NHY has reviewed INPO Finding (1.1B-1) together with the status of NHY's commitments to INPO. We have determined that no issues exist that raise any regulatory issues or that would preclude safe and conservative plant operation. The outstanding commitment items are enhancements related to increasing station efficiencies.

ISSUE: Management Involvement and Commitment

INPO REFERENCE: INPO Corporate Evaluation, dated December 26, 1989, Finding (1.2A-1), page 6.

ALLEGER'S STATEMENT: Under Testimony, page 14.

ALLEGER'S
CHARACTERIZATION OF
INPO FINDING: "Timely action has not been taken by the corporate organization to address and resolve some important problem areas that could affect station operation. In several cases, these problems were previously identified from within the organization, but corrective action was not adequately implemented."

One of the three lengthy examples of "significant problem areas" cited by INPO was the following: "Procedure adherence problems were repeatedly identified in the executive summaries of semi-annual quality assurance trend reports since 1987. However, management action to address this problem was not initiated until early 1989, and was not effective in preventing an event in June 1989 that was, in part, attributed to non-adherence to a test procedure."

INPO also noted that "despite the check valve failures at Seabrook and (previous INPO correspondence emphasizing the significance of check valve failures), an effective check valve maintenance program is not yet in place. Additionally, a design review of check valves is not scheduled to be completed until April 1991."

ALLEGER'S
CHARACTERIZATION OF
NHY RESPONSE: Most of the actions discussed in the NHY response were scheduled to be completed by February 1990. However, NHY stated: "A task team has been established to address vendor manual issues, and a comprehensive check valve design and monitoring program is under development. Corrective actions associated with these issues will be fully implemented by December 1990, and October 1990, respectively."

NHY RESPONSE: New Hampshire Yankee developed a program to identify open issues and problem areas that needed to be addressed prior to full power operation. These issues were consolidated into an Integrated Readiness Document, reviewed by New Hampshire Yankee senior management, assigned a completion schedule, and tracked until closure.

A program has also been established whereby senior management meets with employees on a weekly basis to obtain feedback regarding operational or organizational issues, and to provide additional monitoring of the effectiveness of corrective actions implemented.

The Operating Experience Review Program (OERP) has been significantly strengthened. The OERP implementing procedure (NHY Procedure 12910, Rev. 2) has been revised in a manner that will assure thorough, effective and timely evaluations, dissemination and action on operating experience issues. Corporate management has issued direction to lower the threshold for the initiation of event reviews. In addition, as part of the low power and power ascension readiness reviews, NHY reviewed the OERP and the individual recommendations associated with each Significant Operating Experience Report (SOER) for their impact on plant operation and determined that there are no open SOER recommendations which impact safe plant operations.

Procedure compliance training has been conducted for all site personnel and was completed on December 12, 1989. An initial review of the training effectiveness has also been completed indicating a positive trend.

The existing vendor manual program is adequate. A task team, however, has been established to enhance the vendor manual program. These enhancements will be implemented by December 1990. In the interim, we have revised the appropriate maintenance procedure (MA 2.1, Revision 7) to address the INPO finding by providing specific administrative controls to ensure vendor manuals are not improperly used.

Regarding check valves, Procedure MT 7.2, Inservice Testing of Valves, currently addresses the applicable regulatory requirements for check valve performance as delineated in the ASME Boiler and Pressure Vessel Code, Division 1, Section XI, Subsection IWV. A design review of check valves for applicability with respect to EPRI Report NP-5479, Application Guidelines For Check Valves in Nuclear Power Plants, issued January 1988, and INPO SOER 86-3, as well as preventive maintenance activities, will increase system and plant reliability. This review is scheduled for completion in October 1990 (not April 1991 as stated in Alleger's testimony).

NHY has reviewed INPO Finding 1.2A-1 together with the status of NHY's commitments to INPO and the late filed allegation. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Management Involvement and Commitment

INPO REFERENCE: INPO Corporate Evaluations, dated December 26, 1989
Finding 1.2A-2, page 8.

ALLEGER'S STATEMENT: Under testimony P/S

ALLEGER'S
CHARACTERIZATION OF
INPO FINDING: "Corporate and station managers and supervisors are often not held accountable for timely completion of assigned actions or improvements to the station." Examples cited by INPO included the following: "Approximately one-quarter of 1,250 items on the integrated commitment tracking system are past due; based on a recent status report, 29 of 47 corporate goals (62 percent) will not be achieved in 1989; 48 percent of the annual appraisals for exempt personnel in the station staff are overdue; a number of issues identified in this and the recent station evaluation are similar to those identified in 1986 and 1987 INPO corporate and station visits."

ALLEGER'S
CHARACTERIZATION OF
NHY RESPONSE: The PSNH response consists primarily of nebulous efforts such as instituting a "Core Values and Work Ethic Program" to strengthen attention to detail, accountability, and management expectations, all of which were scheduled to be completed by December 1989. One PSNH action that may be effective in correcting one problem is that "completion of performance appraisals will be assured by requiring that performance appraisals be prerequisite to annual wage and salary actions."

NHY RESPONSE: A Core Values and Work Ethic Program has been instituted as a foundation for strengthening overall attention to detail, accountability, and general corporate management expectations regarding high quality work with appropriate attention to commitments, cost control, and work effectiveness.

Performance is reflected in performance appraisals done on a yearly basis. Specific criteria have been included in the New Hampshire Yankee manuals and formally presented to employees.

The Integrated Commitment Tracking System (ICTS) has been revised to implement a new priority system, tighter controls on commitment date changes, and closer tracking of progress. A weekly review of the ICTS is conducted with station and corporate managers. These changes have already yielded significant improvements in the timeliness of completion of assigned ICTS items. As of March 13, 1990 the number of past due ICTS item has been reduced to

approximately 2.8%.

Accountability for established goals has been emphasized in writing to all managers. A goals status reporting program will be improved to permit closer corporate management monitoring of progress. The goals program is being reviewed on a quarterly basis to assure that established goals are consistent with senior management priorities. Goals will be formally modified or removed, as necessary, based on this review.

Personnel are being held accountable for completion of INPO's corporate and station findings by use of the improved Integrated Commitment Tracking System. Accountability for completion of performance appraisals is being assured by requiring that performance appraisals be a prerequisite to annual wage and salary actions.

All of the issues identified in this INPO Finding, the INPO Recommendation and the NHY Response relate to methods of improving administrative effectiveness and do not impact safe operation of the plant.

NHY has reviewed INPO Finding 1.2A-2 together with the status of NHY's commitments to INPO and the late filed allegation. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Maintenance and Outage Management

INPO REFERENCE: INPO Corporate Evaluations, dated December 26, 1989, Finding 2.1A-1, page 10.

ALLEGED'S STATEMENT: None

NHY RESPONSE: In order to improve the existing Station monitoring and trending program, a specifically focused corporate overview of the monitoring and trending of maintenance activities and data will be established as part of NHY's INPO commitment. Existing reports generated by both the station and corporate organizations will be reviewed and improved as necessary by June 1990. These reports will be used to verify that areas needing improvement are identified, and to monitor the effectiveness of corrective actions in progress. INPO 85-038, Guidelines for the Conduct of Maintenance at Nuclear Power Stations, will be used in this effort.

With regard to the Finding 2.1A-1 b vendor manual issue, see NHY Response to INPO Finding 1.2A-1 (December 26, 1989, Corporate Evaluation).

With regard to the Finding 2.1A-1 e maintenance training issue, see NHY response to INPO Finding 1.B-1 (December 26, 1989 Corporate Evaluation).

This INPO Finding, INPO's Recommendation, and the NHY Response all involve improvements to existing programs and do not impact safe operation of the plant or NHY's readiness for a full power operating license.

NHY has reviewed INPO Finding 2.1A-1 together with the status of NHY's commitments to INPO. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Material and Outside Services

INPO REFERENCE: INPO Corporate Evaluations, dated December 26, 1989.
Finding 2.2A-1, page 12.

ALLEGED STATEMENT: None.

NHY RESPONSE: In November 1989, a Materials Management Task Force was established. As part of this task force and on an interim basis, all procurement activities report to one individual within the Production organization.

This task force has been assigned the responsibility of resolving problems and identifying organizational realignments that will assure an efficient, long-term materials program structure that effectively supports station operations. INPO 85-038, Guidelines for the Conduct of Maintenance at Nuclear Power Stations will be used in this effort. The results of this task force will be documented, and an action plan to address any program enhancements will be issued, by June 1990.

The INPO Finding, INPO Recommendation and NHY Response all involve improvements to existing programs and do not impact safe operation of the plant or NHY's readiness for a full power operating license.

ISSUE: Human Resources

INPO REFERENCE: INPO Corporate Evaluations, dated December 26, 1989.
Finding (2.6B-1), page 14.

ALLEGER'S STATEMENT: None.

NHY RESPONSE: Performance appraisal tracking and policy revisions have been implemented. A revised performance appraisal procedure has been implemented to assist managers who are responsible for timely completion. Periodic status reports are provided to executive management. Salary increases for employees will be processed only after receipt of completed performance appraisals.

A Key Management Development Program has been introduced and initiated. A progress review will be held after six months, and the process will be re-initiated annually. None of these issues has any bearing on safe plant operation or NHY's readiness for a full power operating license.

NHY has reviewed INPO Finding (2.6B-1) together with the status of NHY's commitments to INPO. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Radiological Protection

INFO REFERENCE: INPO Corporate Evaluations, dated December 26, 1989,
Finding 2.10A-1, page 15

ALLEGED STATEMENT: Under Testimony, page 16

ALLEGED
CHARACTERIZATION OF
INFO FINDING:

"Insufficient management attention has been given to the development and implementation of a radioactive waste handling program. As a result, although generation of radioactive waste has begun and the plant expects to begin power ascension in the near future, key segments of the radioactive waste program are not in place. Examples include the following:

"a. Responsibilities for the processing of radioactive waste are unclear. The corporate radiological protection organization is assigned responsibility for radioactive waste shipments by procedure. However, based on an interface agreement approved in July 1989, the principal health physicist considers this responsibility to have been shifted to the station maintenance utilities manager. The utilities manager considers the interface agreement to be contingent upon staffing the utilities/radioactive waste organization, (staffing positions not yet approved), and has not accepted radioactive material processing and shipment responsibilities. As a result, neither group is modifying procedures to accomplish the shift in responsibilities."

"b. Reorganization and staffing to create the proposed utilities/radioactive waste organization is incomplete. As a result, progress is not being made in training and procedure revisions, and development of long-term plans for interim radioactive waste storage pending resolution of final waste disposal options has been delayed."

"c. The radioactive waste minimization committee has not met in over two years, and has not addressed existing station practices that contribute to unnecessary generation of radioactive waste. Management oversight has not been effective in identifying and correcting this problem."

"d. Plans and milestones have not been communicated for the temporary storage of radioactive waste prior to availability of facilities for long-term storage. Despite the long lead times involved for some temporary facilities, plans have not been implemented. Various managers in the plant and corporate organizations have communicated different plans for interim storage of radioactive waste ranging from flared trailers parked in the protected areas to a new storage building."

ALLEGED'S
CHARACTERIZATION OF
NHY RESPONSE:

"A comprehensive radioactive waste program will be developed by January, 1990. The program will clearly define the responsibilities, resources, and procedures necessary to handle expected volumes of radioactive waste. Steps are being taken to fill radioactive waste technician positions. Temporary storage of solid low level waste will be in place by April, 1990. A training program for radioactive waste technicians has been established and will be fully implemented in the first quarter of 1990."
[Emphasis added.]

NHY RESPONSE:

See Finding RP7-1 of INPO Evaluation of Seabrook Station (Enclosure 3).

New Hampshire Yankee
March 15, 1990

Enclosure 4 to NYN-90073

Status Update of NHY Responses to INPO Findings

Evaluation of Seabrook Station, September, 1989

ISSUE: Station Organization and Administration

INPO REFERENCE: INPO Evaluation of Seabrook Station, dated September 1989, Finding (OA.1-1), page 6.

ALLEGED'S STATEMENT: None

NHY RESPONSE: NHY has published its operational and incentive goals programs for 1990. These programs address all areas set out in the NHY response to INPO. The Operating Experience Review Program was improved and reissued in January 1990. Further improvements to the procedure will be made on an ongoing basis as opportunities for improvements are identified. Management's expectations on minimizing radwaste have been conveyed to Station employees in our newsletter the "Station Manager's Messenger", reinforced with an incentive goal and will be reviewed at department meetings periodically. All of these are improvements in existing acceptable programs as recommended by INPO and agreed to by NHY. Current programs meet or exceed industry standards and regulatory requirements.

NHY has reviewed INPO Finding (OA.1-1) together with the status of NHY's commitments to INPO. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Management Assessment

INPO REFERENCE: INPO evaluation of Seabrook Station, dated September 1989, Finding (OA.3-1), page 7.

ALLEGER'S STATEMENT: Yes - Page 7 -

ALLEGER'S
CHARACTERIZATION OF
INPO FINDING: "Monitoring of plant activities and programs and supervisors is often ineffective in identifying needed improvements." One example: "Senior station managers were unaware that vendor manuals are used to conduct station activities contrary to station policy. Interviews with instrument and control technicians indicated that vendor manuals are routinely used to troubleshoot and repair process equipment. Vendor manuals do not receive the equivalency of station operating review committee approval, and a program is not in place to keep the manuals up to date."

ALLEGER'S
CHARACTERIZATION OF
NHY RESPONSE: "Station management's expectations of supervisors and managers regarding their presence in station work areas will be restated and reemphasized." The remainder of the NHY response did not specifically address the use of vendor manuals in place of approved procedures.

NHY RESPONSE: The Station Management Manual has been revised to clearly state expected management oversight in the workplace for managers, department supervisors and supervisors including a summary of these activities to be submitted to the Station Manager on a monthly basis. The upgraded guidance for supervisory walkdowns is written and being initiated. Approved procedures are in place, where required, for maintenance of safety related equipment. The administrative controls governing use of vendor manuals in the performance of work are contained in the Station Maintenance Manual Procedure MA 2.1 section 4.3.1. The existing programs meet regulatory requirements, however, improvements have been agreed to by NHY and INPO in the pursuit of excellence.

NHY has reviewed INPO Finding OA.3-1 together with the status of NHY's commitments to INPO. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Industrial Safety

INPO REFERENCE: INPO Evaluation of Seabrook Station, dated September 1989, Finding (OA.5-1), page 8.

ALLEGED'S STATEMENT: None

NHY RESPONSE: NHY instituted a multi-part program to upgrade personnel safety at Seabrook Station. This included revising the personnel safety program to increase supervisory monitoring of work practices, implementing progressive disciplinary actions for violations and interfacing the safety program with employee evaluations. Notifications were also made to site personnel, reemphasizing the importance of industry safety policies.

NHY has reviewed INPO Finding OA.5-1 together with the status of NHY's commitments to INPO. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Fitness For Duty Program

INPO REFERENCE: INPO Evaluation of Seabrook Station, dated September 1989, Finding (OA.8-1), page 9.

ALLEGED'S STATEMENT: None

NHY RESPONSE: The NHY Fitness For Duty Program was upgraded on December 4, 1989 to incorporate the new requirements of 10 CFR 26. NHY instituted a comprehensive Fitness For Duty training program, including behavioral observation techniques, for all NHY and contractor personnel who have unescorted access into the Protected Area. Effective January 1, 1990 Protected Area unescorted access was restricted for anyone not having completed the required training.

NHY has reviewed INPO Finding OA.8-1 together with the status of NHY's commitments to INPO. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: In-House Operating Experience Review

INPO REFERENCE: INPO Evaluation of Seabrook Station, dated September 1989, Finding (OE.2-1), page 10.

ALLEGER'S STATEMENT:

ALLEGER'S
CHARACTERIZATION OF
INPO FINDING:

"The station has experienced a number of recurring events due to inadequate identification and investigation of in-house operational events." One of six examples cited by INPO was the following: "Between August 6 and September 9, 1989, water was inadvertently drained from the refueling water storage tank or the condensate storage tank on three occasions. The first event was due to a valve being open that was thought to be danger-tagged shut. The second event was due to not performing a required valve lineup. The third event occurred while restoring eight valves that were discovered to be previously mispositioned."

It should be noted that the refueling water storage tank and the condensate storage tank are important safety equipment because they are the sources of water for plant safety systems, such as the emergency core cooling systems and the emergency feedwater system, that are needed in the event of an accident.

ALLEGER'S
CHARACTERIZATION OF
NHV RESPONSE:

"The Station Information Report (SIR) procedure will be revised or a new reporting method will be developed to ensure that in-house operating events, such as those noted, will be investigated thoroughly and completed in a timely manner. This procedure will be updated and implemented by February 1990."

NHV RESPONSE:

New Hampshire Yankee has reviewed the guidance provided by INPO for the use of operating experience and has established the following program enhancements to ensure that in-house operating experience events are investigated thoroughly and completed in a timely manner. The Station Information Report will continue to be used to document the investigation and evaluation of operational events which may require regulatory agency notification or involve significant problems that may require a root cause analysis or a human performance evaluation. The Operating Experience Review Program has been revised so that Operating Experience Review personnel review completed Station Information Reports (SIR) to determine the required distribution of information. The Operating Experience Program will be additionally enhanced so that

the Operating Experience personnel review SIRs at their inception to factor industry experience into the SIR review process. This revision will be incorporated by March 31, 1990.

A new Operating Experience Review document, tentatively titled the Operating Experience Notice (OEN) will be developed to address in-house operating experience events that do not meet the threshold of an SIR. The OEN will be reviewed by Operating Experience personnel when it is initiated to ensure industry experience is incorporated into the evaluation and at the completion of the review to ensure that the information is provided to the appropriate personnel. The OEN will be incorporated into our program by March 31, 1990.

Additionally, the Operating Experience Program will be enhanced to include Operating Experience personnel review of the Control Room Logs periodically to determine if any events -- that do not meet the threshold of an SIR -- have occurred. Such events will be documented on an OEN. This enhancement will be incorporated in the program by March 31st.

Additionally, each of the events in question received extensive evaluation by NHY utilizing the SIR process. In each case the root cause was determined and appropriate corrective actions developed. NHY has discussed each of these SIRs with the NRC. New Hampshire Yankee has also recently implemented a Human Performance Evaluation System (HPES) program to review similar events from a human performance standpoint with the goal being the prevention of such events in the future.

NHY has reviewed INPO Finding OE.2-1 together with the status of NHY's commitments to INPO and the late filed allegation. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Industry Operating Experience Review

INPO REFERENCE: Station Evaluation OE.3-1, page 15

ALLEGER'S STATEMENT:

ALLEGER'S
CHARACTERIZATION OF
INPO FINDING:

Some events have occurred at the [Seabrook] Station that could have been prevented by improved application of industry operating experience. Implementation of corrective actions to prevent occurrence of events described in significant operating experience reports (SOER) is frequently not effective or timely." INPO cited three examples, involving multiple failures of safety equipment at Seabrook, which were the subject of SOERs issued before the failures occurred at Seabrook.

"Corrective actions taken in response to 118 SOER recommendations were reviewed during the evaluation. Of these, 25 station responses were determined to be not satisfactory due to either insufficient progress being made, or the actions taken not being implemented completely or effectively."

"Review of significant event reports (SER) is frequently not complete or timely as indicated by the following:
a. Five SERs, one 1987 and four 1988 were closed out without being reviewed for applicability and appropriate corrective actions; b. Five 1988 SERs have not received initial screening for applicability."

ALLEGER'S
CHARACTERIZATION OF
NHV RESPONSE:

"The New Hampshire Yankee industry operating experience review program will be improved and strengthened to ensure effectiveness and timeliness in the implementation of lessons learned from industry operating experience. A schedule has been developed for the review and implementation of outstanding SOERs and SERs. The backlog of open SOERs will be reviewed and corrective actions determined by October 1990." [Emphasis added.]

NHV RESPONSE:

New Hampshire Yankee has revised the Operating Experience Review Program to goals of 90 days to review Red Tab SOERs and implement recommendations. Other SOERs and SERs are now reviewed and implemented within 120 days of receipt. Additionally, all outstanding SOERs and their recommendations are being reviewed and action reprioritized to be consistent with their relative importance, the project schedule and plant availability. As an example, items such as those related to Mid loop operation will be scheduled as appropriate to coincide with the implementation of design work resulting from Generic Letter 88-17 commitments.

We now have an effective program in place to handle new SOERs and SERs in a timely manner. New Hampshire Yankee has reviewed all SOER recommendations that have been issued by INPO and has determined action plans and schedules for all of the open SOER recommendations. We are aggressively pursuing completion of all SOER recommendations.

NHY has reviewed INPO Finding OE.3-1 together with the status of NHY's commitments to INPO and the late filed allegation. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Plant Modifications

INPO REFERENCE: INPO Evaluation of Seabrook Station, dated September 1989, Finding (TS.3-1), page 17.

ALLEGED'S STATEMENT: Many plant changes do not receive appropriate technical review and are not incorporated into plant drawings and procedures.

ALLEGED'S
CHARACTERIZATION OF
INPO FINDING:

"Many plant changes do not receive appropriate technical review and are not incorporated into plant drawings and procedures. The lack of adequate design review and documentation has resulted in plant events and reportable conditions." INPO cited four examples including the following:

"Excluding temporary modifications required to support the power ascension test program, there are 64 outstanding temporary modifications with some installed more than four years ago. Fifty-two of these 64 require design engineering decisions to be made permanent or cancel. Twenty-one are being worked or are scheduled to be completed by 1990; however, 10 are not scheduled for completion until 1991 or later, and 21 have no dates currently established."

NHY RESPONSE:

The NHY Temporary Modification Program is modelled after the INPO Good Practice. Assessments of the program have consistently found the program to be thorough and effective. NHY has committed to review the scope of the temporary modification program. As part of this assessment, existing controls will be enhanced to further ensure plant configuration control. Previously installed temporary modifications that have been made permanent are being reviewed to ensure that maintenance procedures and vendor technical information are accurate. The plant has a program in place to minimize the use of future temporary modifications and is attempting to significantly reduce the current backlog.

This issue does not represent a safety concern. The temporary modification program meets or exceeds all regulatory requirements. Each temporary modification is fully reviewed, evaluated, documented prior to installation, and periodically re-reviewed. This program has also been routinely evaluated by internal disciplines and external regulatory agencies and organizations.

NHY has reviewed INPO Finding TS.3-1 together with the status of NHY's commitments to INPO. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE:

Plant Performance Monitoring

INPO REFERENCE:

INPO Evaluation of Seabrook Station, dated September 1989, Finding (TS.5-1), Pages 18 to 20

ALLEGOR'S STATEMENT:

ALLEGOR'S

CHARACTERIZATION OF

INPO FINDING:

"Preventative maintenance measures have not been established to identify check valve performance problems or degradation in some important systems. Recent check valve problems, including a case of seat leakage that resulted in the residual heat removal system suction piping overpressurization and two stuck open volume control tank nitrogen supply check valves, demonstrate the need for such measures."

The check valve failures and other problems experienced at Seabrook cited by INPO involve many vital safety systems, including the following: residual heat removal (which is part of the emergency core cooling system); emergency feedwater; emergency diesel generator starting and cooling systems. INPO also noted that "Test and inspection requirements have not been specified for 64 of the 220 valves listed in the check valve monitoring program."

INPO also found that the existing check valve monitoring program at Seabrook does not contain "quantitative acceptance criteria" which industry experience has shown is necessary. Furthermore, the "limited testing" of check valves at Seabrook "may not identify degraded internal conditions such as worn hinge pins, loose or missing non-pressure retaining parts or erosion of internal parts."

ALLEGOR'S

CHARACTERIZATION OF

NHY RESPONSE:

The response by NHY includes the following statements. "A review of the current check valve design and monitoring program will be conducted and completed by October 1990. This effort will include * * * a design review of check valves for applicability with respect to EPRI Report NP-3479 (sic) and INPO SOER 86-3. * * * Preventative maintenance on selected check valves will be performed prior to completion of the first refueling outage." [emphasis added.]

This particular subject deserves additional discussion to illustrate its safety significance. A check valve is, simply, a valve which is designed to permit fluid flow in one direction and is supposed to close and prevent flow in the opposite direction if system pressure downstream of the valve is greater than the pressure upstream.

One common use of check valves is to prevent over-pressurization of low-pressure systems connected to the high-pressure reactor coolant system. Failure or significant leakage of check valves installed in this "interface" between high-pressure and low-pressure systems can result in what the NRC terms an interfacing systems loss-of-coolant accident. This is an extremely serious and fast-moving accident involving destruction of the emergency core cooling system, core meltdown, and radiation doses in the 100-rem range to the public in about an hour.

Thomas Murley, a high-level NRC official, has described the serious nature of such an accident.

"This sequence is important in my judgement because it bypasses the containment and it bypasses emergency preparedness. It effectively bypasses two levels of our defense-in-depth safety philosophy under the worst circumstances. The worst circumstances (are) that you have a break out in the RHR (residual heat removal) system which then causes you to not only lose coolant but to lose all your safety injection [i.e., emergency core cooling] capability, and which ultimately then leads to core damage and core meltdown to an open containment.

"That goes straight to the atmosphere and it can happen in a short time. The worst time calculations that I've seen can lead to core uncoverage in a half hour, core damage in 45 minutes, and off-site doses in the 100 rem range in an hour or hour-and-a-half. So its the importance of that sequence that caused me to consider taking another look at it. I have no evidence that the probability is higher than what is said in the PRAs [probabilistic risk assessments], (but) I'm starting to see these precursors, so rather than take the PRA results at face value, I'm going to be a little skeptical, just because of this sequence and its consequences."

Inside N.R.C., April 10, 1989.

Of course, existing probabilistic risk assessments (PRAs) rely, in part, on the assumption of an adequate check valve maintenance program. As INPO noted, the program at Seabrook is inadequate and has already resulted in overpressurization of the RHR system due to check valve leakage.

NHY RESPONSE:

The check valves in use at Seabrook Station have been selected, specified, designed, procured, installed and tested to the applicable industry codes and standards. Furthermore, the safety related valves meet the design and

testing requirements in Section 3.9 of the Seabrook FSAR.

NHY has developed design changes or work requests to address the check valve issues referred to in the INPO inspection report. Several design changes have been implemented and in some cases reviewed by the NRC. The volume control tank (VCT) nitrogen supply check valves are not yet modified. Maintenance has been performed to correct the initial problem and the VCT nitrogen supply check valves are currently operable.

In order to enhance the existing check valve maintenance program, a review of the current check valve design and monitoring program will be conducted and completed by October 1990. This effort will include:

- a design review of check valves for applicability with respect to EPRI Report NP-5479, "Application Guidelines for Check Valves in Nuclear Power Plants" issued January, 1988, and INPO SOER 86-3, Check Valve Failures or Degradation, dated October, 1986;
- an assessment of the appropriate preventative maintenance measures such as inspection and leak checks;
- an assessment of acceptance criteria and provisions to revise test frequencies based on inspection results.

NHY procedure MT 7.2, Inservice Testing of Valves, currently addresses the applicable regulatory requirements for check valve performance as delineated in the ASME Boiler and Pressure Vessel Code Division I Section XI, Subsection IWV.

NHY has reviewed INPO Finding TS.5-1 together with the status of NHY's commitments to INPO and the late filed allegation. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Plant Performance Monitoring

INPO REFERENCE: INPO Evaluation of Seabrook Station, dated September 1989, Finding (TS.5-2), pages 20 to 23.

ALLEGED'S STATEMENT: None

NHY RESPONSE: The turbine driven emergency feedwater pump was successfully tested in February, 1990. The test demonstrated governor ramp-up, governor startup control, proper sequencing of the steam admission valves, and operation of the steam trap drain system during post-modification testing. No waterhammers were experienced and no turbine overspeeds were experienced when the system was subjected to a design basis cold start condition. The NRC resident inspector and other NRC inspectors were present and observed the conduct of the testing program. The NHY testing program for the turbine driven EFW pump meets the requirements of ASME Section XI and the Seabrook Station Unit 1 Technical Specifications. As-found turbine speed and acceptance criteria for vibration, differential pressure, flow and speed will be incorporated into the emergency feedwater pump surveillance procedures.

In the design and implementation of the final steam admission valve design changes, NHY conducted a thorough review of industry experience associated with turbine driven emergency feedwater pumps, including INPO Report 85-036, The Operational Performance of Auxiliary Feedwater Systems in U.S. PWRs 1980-1984, sorts of INPO SERs and SOERs applicable to emergency/auxiliary feedwater systems, and NRC Information Notices and Bulletins. This review led to several enhancements that were implemented in the final design. The entire design modification program was further reviewed by independent consultants and their recommendations were considered in the final design and testing.

The successful testing of the steam admission system to the turbine driven EFW pump in February 1990 demonstrates that the design changes meet all of the system design requirements.

NHY has reviewed INPO Finding TS.5-2 together with the status of NHY's commitments to INPO. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Plant Performance Monitoring

INPO REFERENCE: INPO Evaluation of Seabrook Station dated September 1989, finding (TS.5-3), Page 23.

ALLEGED'S STATEMENT: None

NHY RESPONSE: Surveillance testing for the residual heat removal, emergency feedwater, containment building spray, and safety injection pumps is conducted in strict compliance with ASME XI code requirements. The trending program recommended by INPO will enhance the existing surveillance program that meets ASME Section XI and the Seabrook Unit 1 technical specifications. A trending program could assist in becoming a predictive tool to assess when a particular piece of equipment, in this case a pump, should be scheduled for maintenance.

Flow testing of the residual heat removal pumps at higher flow rates requires a change to the technical specifications for Seabrook Unit 1. The current flow path meets the testing requirements for ASME Section XI testing. Testing at reduced flows has been shown to be acceptable in NHYs response to NRC Bulletin 88-04. (NYN-88093 and NYN-88166).

A comprehensive trending program has been established for the emergency diesel generators. This trending program includes many parameters which are reviewed on a periodic basis. An effort is currently in progress to establish "action" levels for these parameters, as a point of reference, to indicate when corrective action should be taken to maintain diesel generator reliability.

Diesel generator performance trending is an enhancement to the testing requirements in the Seabrook Unit 1 technical specifications. The trending program formalizes existing practices to maintain diesel generator reliability.

NHY has reviewed INPO Finding TS.5-3 together with the status of NHY's commitments to INPO. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE:

Document Control

INPO REFERENCE:

INPO Evaluation of Seabrook Station, dated September 1989,
Finding TS.7-1, page 24

ALLEGER'S STATEMENT:

ALLEGER'S
CHARACTERIZATION OF
INPO FINDING:

"Unapproved vendor technical manuals are being used to perform various maintenance activities. In addition some of these manuals lack sufficient technical direction for the conduct of maintenance activities."

ALLEGER'S
CHARACTERIZATION OF
NHY RESPONSE:

"The New Hampshire Yankee program for vendor manuals is presently being revised and strengthened. Part of this revision will define which vendor manuals will be available for use, how they can be used and what review process must be completed. Full implementation of this program is scheduled for December 1990." (emphasis added)

NHY RESPONSE:

NHY's current program and procedures for handling vendor technical information, including manuals, endorsed the requirements of INPO Report 24-010 (Vendor Equipment Technical Information Program). This report in turn addresses the requirements of NRC Generic Letter 83-28, Section 2.2.2 regarding vendor technical information.

NHY's present vendor manual program is effective and it includes the following objectives:

- Evaluation on the receipt of vendor technical information and determination of required actions
- Timely performance of the required actions
- Feedback on the completed Actions
- Records of vendor technical information are maintained and distributed.

The present program is currently being enhanced and strengthened in the following areas:

- Improve the notification of station personnel of vendor supplied information
- Provide additional training on the use of existing procedures regarding control of vendor information

- Update station procedures which pertain to the use of vendor technical information
- Identify, collect and provide controlled distribution of any presently uncontrolled vendor manuals
- Maintain and/or establish contact with vendors for the purpose of identifying and evaluating the need for additional information from the vendor and to ensure continuing updates of that information.

NHY has reviewed INPO finding TS.7-1 together with the status of NHY's commitments to INPO and the late filed allegation. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Conduct of Operations

INPO REFERENCE: INPO Evaluation of Seabrook Station, dated September 1989, Finding OP.2-1, pages 25 and 26

ALLEGED'S STATEMENT: None

NHY RESPONSE: The Station Management Manual has been revised to clearly establish Operations as the lead organization for day-to-day plant operations. Attention to detail has been stressed by the Executive Director - Nuclear Production in meetings with operating shifts and by the Station Manager with other departments on a continuing basis. Additional staffing has been provided to the Operations department in the support roles to allow greater Operations management involvement with day-to-day activities. The Station Manager has provided guidance to the Operations Manager and Assistant Operations Manager concerning expected management presence and communications with operating shifts. The current Operations organization and management guidance meet accepted INPO standards.

NHY has reviewed INPO Finding OP.2-1 together with the status of NHY's commitments to INPO. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE:

Plant Status Controls

INPO REFERENCE:

INPO Evaluation of Seabrook Station, dated September 1989, Finding (OP.3-1), page 27.

ALLEGER'S STATEMENT:

ALLEGER'S

CHARACTERIZATION OF

INPO FINDING:

"The station equipment tagging and isolation procedure needs improvement to ensure protection for personnel and equipment." INPO cited three problems, some involving safety systems, where the Seabrook procedures are not adequate to prevent personnel injury or equipment damage.

ALLEGER'S

CHARACTERIZATION OF

NHY RESPONSE:

"The review of the current (tagging) procedure with suggested modifications will be completed by June 1990. The subsequent procedure revisions and training will be completed by September 1990.

NHY RESPONSE:

NHY is making enhancements to the station tagging control procedure to include tagging component control switches, to provide for tagging order audits on a frequency adequate to identify problems, and to include guidance for the proper sequence of component isolation and restoration. As part of these enhancements a review and revision to the existing tagging procedure will be conducted during 1990. In the course of this review the INPO guidelines for the conduct of operations and the INPO good practice for tagging will be used and all of the INPO concerns will be addressed. The tagging procedures currently in use provide adequate protection for personnel and equipment.

NHY has reviewed INPO Finding OP.3-1 together with the status of NHY's commitments to INPO and the late filed allegation. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Plant Status Controls

INPO REFERENCE: INPO Evaluation of Seabrook Station, dated September 1989, Finding OP.3-2, page 29.

ALLEGED'S STATEMENT: None

NHY RESPONSE: NHY meets or exceeds regulatory requirements to administratively control the positioning of components which affect the reliability of a system or subsystem. This administrative control system specifies verification of component position for test and surveillance procedure lineups, tagging restoration, initial lineups and other specified conditions. The program features Independent Verification, Locked Component Verification and Maintained Component Verification in accordance with ANSI 3.2 and NUREG 0737. Enhancements to this program are being developed to include additional good practices recommended by INPO.

NHY has reviewed INPO Finding OP.3-2 together with the status of NHY's commitments to INPO. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Operations Procedures and Controls

INPO REFERENCE: INPO Evaluation of Seabrook Station, dated September 1989, Finding OP. 5-1, page 30.

ALLEGED'S STATEMENT: None

NHY RESPONSE: This issue addresses making INPO recommended enhancements to station procedures during the periodic review process. A complete technical adequacy and consistently review of all Operations Department surveillance and operating procedures has recently been completed. This review provided many technical and human factors enhancements. During power operation, procedure deficiencies identified will be corrected as required. Additionally, safety related operating procedures receive a biannual review. This review will insure that the procedures remain technically accurate and up to date with current programs. The Operations Department has recently completed a staff augmentation specifically for procedure maintenance. This group is currently using INPO 84-020 (Good Practice OP-210), Review of Operations Department Procedures.

These station procedures have been tested during the startup test program, during the past five years of shutdown operation, and during simulator training and as such have proven their adequacy.

NHY has reviewed INPO Finding OP.5-1 together with the status of NHY's commitments to INPO. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Maintenance Organization and Administration - Material Condition of the Plant

INPO REFERENCE: INPO Evaluation of Seabrook Station, dated September 1989, Finding (MA.2-1), page 32.

ALLEGED'S STATEMENT:

ALLEGED'S CHARACTERIZATION OF INPO FINDING: "The material condition of some plant equipment and piping is degraded due to corrosion. In addition, many equipment deficiencies are not identified in the work control system." INPO cited six examples of problems including the following. "Nearly 50 percent (18 of 38) of a sample of equipment deficiencies checked were not in the work control system. Examples include the following: excessive boric acid crystal buildup on core spray and residual heat removal system valves..." Both systems cited by INPO are vital plant safety systems.

ALLEGED'S CHARACTERIZATION OF NHY RESPONSE: "Station management will stress the importance of routine reporting of problems using the work request system." The remainder of the response describes changes to the existing Seabrook program which will be completed by January 1990 and a new program to complement the existing program which will be completed by September 1990.

NHY RESPONSE: The Station currently has a five-year plan to paint all building areas. Implementation of this plan was started in February 1989. The schedule is reviewed periodically. Station management routinely re-emphasizes the importance of routine reporting of problems using the work request system. The Station Management Manual is reviewed periodically and changed as necessary to ensure that management expectations of Station personnel are clear. The program for supervisory walkdowns has been upgraded and the walkdowns are being initiated.

A deficiency tagging program is being added to the work control program. This program will complement and enhance routine reporting and supervisory walkdown reporting. These enhancements will serve to further improve programs which meet all existing regulatory requirements.

NHY has reviewed INPO Finding MA.2-1 together with the status of NHY's commitments to INPO and the late filed allegation. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Work Control System

INPO REFERENCE: INPO Evaluation of Seabrook Station, dated September 1989, Finding (MA.3-1), page 33.

ALLEGED'S STATEMENT: None

NHY RESPONSE: NHY has instituted programmatic changes to enhance scheduling of maintenance activities and tracking of necessary spare parts. A requirement has been added to the scheduling programs to include, in the Project 2 (P-2) scheduling network, any maintenance activities that require tagging. This change will serve to ensure that the operations work control desk and other support functions are aware of upcoming planned work. In addition, changes have been implemented to combine the scheduling of routine maintenance tasks and technical specification surveillances. Other enhancements to the program will be made as appropriate.

NHY has reviewed INPO Finding MA.3-1 together with the status of NHY's commitments to INPO. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Maintenance Facilities and Equipment

INPO REFERENCE: INPO Evaluation of Seabrook Station, dated September 1989, Finding MA.8-2, pages 36-37

ALLEGED'S STATEMENT: None

NHY RESPONSE: The existing facilities for shop work on contaminated equipment include a "hot side" machine shop, a small storage area for instrumentation, and a decontamination area for small tools in the Waste Processing Building. These facilities will be supplemented as necessary by the use of portable/temporary facilities. These facilities have been evaluated against the anticipated needs of the station for the first operating cycle and have been determined to be adequate. It should be noted that the existing facilities have been adequate for the extensive maintenance activities over the last three years since the issuance of the operating license.

As an enhancement to the existing facilities, the plant's five-year plan for facilities includes funding for a new expanded permanent maintenance and decontamination facility. This new facility is presently under study and is expected to be in place prior to the first refueling outage. The plans for the new facility include an expanded instrumentation calibration and work area, a decontamination facility and additional low-level radioactive waste storage space. The guidelines contained in INPO 85-038, Guidelines for the Conduct of Maintenance at Nuclear Power Stations, and EPRI NP-4350, Human Engineering Design Guidelines for Maintainability, will be utilized in establishing these facilities.

NHY has reviewed INPO Finding MA.8-2 together with the status of NHY's commitments to INPO. We have determined that no issues exist that would preclude safe and conservative operation of the plant.

ISSUE: Maintenance Personnel Knowledge and Performance

INPO REFERENCE: INPO Evaluation of Seabrook Station, dated September 1989, Finding (MA.10-1), page 37.

ALLEGED'S STATEMENT: None

NHY RESPONSE: A qualification manual has been developed to provide direction for consistent qualification of technicians, including Maintenance personnel. The Station Maintenance Manual provides direction for assignment of qualified or trained personnel to accomplish maintenance tasks. Training program development is continuing. OJT modules are being developed and OJT instructors are being trained. The Maintenance and Technical Training Groups have qualified instructors and evaluators for all job performance measures approved to date.

Continuing training on operating experience is developed and delivered at least three (3) times per year.

An INPO accreditation team visit for the mechanical, electrical, and instrument and control training is currently on schedule for mid-April.

Establishment of the above mentioned programs will enhance existing programs and will facilitate determination of workers qualifications.

NHY has reviewed INPO Finding MA.10-1 together with the status of NHY's commitments to INPO. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Solid Radioactive Waste

INPO REFERENCE: INPO Evaluation of Seabrook Station, dated September 1989, Finding RP.7-1, page 40

ALLEGED'S STATEMENT: None

NHY RESPONSE: NHY has completed development of a comprehensive rad waste program including staffing and training requirements. A new interface agreement was signed that delineates the responsibilities for processing radioactive waste. The Rad Waste/Utilities Department has been reorganized and staffed. A training program for rad waste personnel is being implemented.

The chairmanship of the rad waste minimization committee has been transferred to the Rad Waste/Utilities Department Supervisor. A rad waste minimization program has been implemented and final plans of temporary storage of solid low level rad waste have been completed. Information on expectations and methods to minimize rad waste have been conveyed to plant staff via the "Station Manager's Messenger" and are included in portions of S7, Rad Worker Training. A program is underway to mark tools for use in the RCA including establishing tool boxes in containment.

The present levels of staffing, training and experience were reviewed during NRC inspection 50-443/90-03 held January 8-12, 1990, which found no violations and judged the program ready for full power operation.

This inspection included reviews of the solid waste processing system capabilities, design and operation status.

NHY has reviewed INPO Finding RP.7-1 together with the status of NHY's commitments to INPO. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Radioactive Contamination Control

INPO REFERENCE: INPO Evaluation, dated September 1989, Finding (RP.9-1), page 41.

ALLEGED'S STATEMENT: None

NHY RESPONSE: Corrective maintenance to repair leaks from the primary systems were verified to be complete prior to entering Mode 4 by the Assistant Station Manager, who conducted a system walkdown. Other than minor drippage from CS-V-135 no leaks were identified. An ongoing observation program delineated in the Station Management Manual requires managers and supervisors to perform such plant walkdowns. Changes to Health Physics procedures have been completed to improve controls over leak containment devices and temporary drain lines.

Engineering has been requested to review the RCA Checkpoint layout to improve ingress and egress layout to minimize potential cross-contamination.

The Radiation Protection Program meets industry standards and regulatory requirements.

STATUS: NHY has reviewed INPO Finding RP.9-1 together with the status of NHY's commitments to INPO. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Chemistry Control

INPO REFERENCE: INPO Evaluation of Seabrook Station, dated September 1989, Finding (CY.3-2), page 44.

ALLEGED'S STATEMENT: None

NHY RESPONSE: NHY has changed the analysis protocol in Chemistry to ensure steam generator blowdown impurities are analyzed at the one part per billion level. Additionally, engineering evaluations are in process to add temperature conditioning to the makeup water samples and hotwell samples. Station chemistry analytical capabilities and programs are in accord with the Westinghouse requirements and regulatory requirements.

NHY has reviewed INPO Finding CY.3-2 together with the status of NHY's commitments to INPO. We have determined that no issues exist which would adversely affect safe plant operation.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 81-9 Recommendation 2B

Desiccant carryover to the Instrument Air System: Perform regularly scheduled maintenance on the downstream filter elements of the instrument air system.

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

NHY RESPONSE: The Maintenance Department is developing Repetitive Task Sheets for the downstream filter elements. Action is scheduled for completion on April 30, 1990.

To date, NHY has not experienced desiccant carryover in the Instrument Air System; therefore, proper functioning of the Instrument Air system has been demonstrated.

ISSUE:

Operating Experience Review

INPO REFERENCE:

SOER 82-9 Recommendation 1

Turbine generator exciter explosion: Ensure procedures address monitoring and trending of hydrogen gas usage. Procedure should include guidance for action when usage exceeds a specified level.

ALLEGED'S STATEMENT:

General reference to SOER's, page 8 paragraph 4 and 5

NHY RESPONSE:

A hydrogen gas use trending program will commence upon achievement of 100% power. The trending program will be included in the Technical Support Performance Monitoring Program.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 82-12 Recommendation 5

SG Tube rupture due to loose parts on secondary side: Train plant personnel (including contractors) involved with steam generator repair and maintenance on the importance of preventing miscellaneous objects from being left in steam generators.

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

NHY RESPONSE: A complete revision to the lesson plan for MA3.3, Housekeeping, will be developed for future Initial Training. Continuing Training on this SOER will be conducted prior to the first refueling.

Entry into the steam generators is not expected prior to the first refueling. In the event an entry is required prior to first refueling, training will be provided prior to entry.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 82-13 Recommendation 11

Intrusion of resin, lubricating oil, and organic chemicals into reactor coolant water: Consider additional process steps to remove organic contamination if chronic contamination by organics exists.

ALLEGER'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

NHY RESPONSE: Design Coordination Report 86-238 will install a check valve in the refueling cavity drain line. This alteration is scheduled for completion prior to the first refueling outage.

The refueling cavity drain line will not be needed until the first refueling.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 82-13 Recommendation 12

Training employees on chemical intrusion into RCS

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

NHY RESPONSE: A complete revision to the lesson plan for MA3.3, Housekeeping, was developed for future initial training. Closed.

Continuing Training on this SOER will be conducted during the 1st quarter of 1990. Training program in place. Closed.

General Employee Training Lesson Plan S-35 was revised to reference this SOER for Initial and Continuing Training. Closed.

The current Chemistry Department Continuing Training program includes training on chemical intrusion into the RCS. The mention of this SOER will be incorporated into Chemistry Department Continuing Training by December 30, 1990, as an enhancement.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 82-13 Recommendation 13

Caution contractor personnel about the potential effects of usage of uncontrolled chemicals

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

NHY RESPONSE: General Employee Training Lesson Plan S-35 was revised to reference this SOER for Initial and Continuing Training. Closed.

Training of contractors on the requirements of this lesson plan has been completed. Closed.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 82-15 Recommendation 1

Freezing of safety related equipment: Review critical system instrumentation and equipment that may be affected by severe cold weather to identify needed modifications.

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

NHY RESPONSE: The design of critical instrumentation and equipment was rereviewed for severe cold weather provisions during the construction phase subsequent to the release of NRC I&E Bulletin 79-24. Since that time, no freeze up of safety related instrumentation or equipment has occurred as a result of a design deficiency. NHY maintains a 'Freeze Log' in the Control Room which is reviewed annually to assess the need to modify systems or structures. The annual review of this log is scheduled for mid-April 1990.

ISSUE: Operating Experience Review

INFO REFERENCE: SOER 82-15 Recommendation 2

Procedures on freeze protection: Ensure plant procedures include provisions for protecting critical systems

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

WHY RESPONSE: Procedures recommended for freeze protection of critical system instrumentation and equipment are written and approved. Closed.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 82-15 Recommendation 3

Seasonal reminders to Operations: Provide seasonal reminders to operations personnel concerning freeze protection of safety-related equipment.

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

WHY RESPONSE: The responses to Recommendations 1 & 2 of this SOER ensure that there should not be any freeze protection concerns for the balance of this winter. A general procedure to identify plant readiness for cold weather operations is under development and will be approved by June 30, 1990. This is an enhancement for the fall of 1990.

A seasonal reminder was sent to Operations personnel for the winter of 1989-90. A Repetitive Task Sheet was developed and placed on the automatic scheduling system so that a reminder will be sent out annually hereafter. Closed.

Training Development Request 89-284 will incorporate this SOER into Initial and Continuing Training by September 30, 1990.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 82-15 Recommendation 4

Training on cold weather operations: Provide continuing training on lessons learned from cold weather operation.

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

NHY RESPONSE: Training Development Request 89-284 will incorporate ongoing cold weather lessons learned at Seabrook into Initial and Continuing Training by September 30, 1990. This continuing training will be conducted prior to the next winter.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 82-15 Recommendation 5

Calibration of thawed equipment: Recalibrate thawed instrument lines prior to returning to service.

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

NHY RESPONSE: Standard Work Practice IC-006 has been issued to address maintenance guidelines to recover from frozen instrument lines or equipment. Closed.

The Standard Work Practice ensures that proper action will be taken in the field. Training Development Request 89-284 will incorporate the guidance into Initial and Continuing Training by September 30, 1990, as an enhancement.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 82-15 Recommendation 6

Recalibration of thawed equipment: All frozen equipment that has been thawed should be examined to ensure structural integrity before returning to service.

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

NHY RESPONSE: Standard Work Practice IC-006 has been issued to address maintenance guidelines to recover from frozen instrument lines or equipment. Closed.

The Standard Work Practice ensures that proper action will be taken in the field. Training Development Request 89-284 will incorporate guidance into Initial and Continuing Training by September 30, 1990, as an enhancement.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 83-8 Recommendation 10

Reactor Trip Breaker Failure: Ensure procedures incorporate safety-related vendor data and changes into the preventive maintenance programs.

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

NHY RESPONSE: NHY's current program and procedures for handling vendor technical information, including manuals, endorsed the requirements of INPO Report 24-010, Vendor Equipment Technical Information Program. This report in turn addresses the requirements of NRC Generic Letter 83-28, Section 2.2.2 regarding vendor technical information.

The current program is being enhanced and strengthened to:

- Improve the notification of station personnel of vendor supplied information;
- Provide additional training on the use of existing procedures regarding control of vendor information;
- Update station maintenance procedures which pertain to the use of vendor technical information;
- Identify, collect and provide controlled distribution of any presently uncontrolled vendor manuals; and
- Maintain and/or establish contact with vendors for the purpose of identifying and evaluating the need for additional information from the vendor and to ensure continuing updates of that information.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 83-8 Recommendation 12

Training should enable appropriate technical staff and managers/supervisors to:

- A. Determine the safety class of equipment and activities for which they are responsible.
- B. Implement QA/QC policies in procurement of parts and components, and in work on safety-related equipment.
- C. Conduct and review post-trip analyses.

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

NHY RESPONSE: Training Development Request 89-248 will formally incorporate this SOER into lesson plans for Initial and Continuing Training, scheduled for completion during 1990.

NHY has already conducted training for appropriate technical staff including: Detailed Systems Training, Event Evaluation Training and Root Cause Analysis Training.

The Material Requirements Department review and the Quality Assurance review of safety-related parts procurement documents ensures current programs are implemented properly. Training for technical staff will enhance implementation of the parts procurement program.

Appropriate technical staff have received training in equipment qualification, 10 CFR Part 21, Codes and Standards and Commercial Grade Dedication.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 83-9 Recommendation 7

Valve Inoperability Caused by Motor-Operator Failures:
Ensure plant procedures require an evaluation of valve operability when valves that perform safety function must be manually seated or backseated. Declare MOVs that perform a safety function inoperable if they have been either manually seated or backseated until MOV operability is verified by electrically stroking the valve.

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

NHY RESPONSE: Plant Procedure ON1090.01, "Manual Operation of Remote Operated Valves," has been reviewed and a precaution has been added that addresses evaluation of valve operability if a valve has been manually seated or backseated. Closed.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 84-3 Recommendation 5

Auxiliary Feedwater Pumps Disabled by Backleakage:
Ensure PM program includes periodic inspection or testing
of all check valves in the Emergency Feedwater System.

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

INPO RESPONSE: Feedwater backflow that may cause steam binding of an EFW
pump during EFW non-running conditions is logged by the
roving auxiliary operator twice a shift in modes 4 and
higher.

EFW pump discharge check valves are backflow tested during
periodic EFW pump surveillance testing. Acceptable
forward feed flow of the running train is measured to
demonstrate, among other things, adequate closure of the
non-running pump's discharge check valve.

Check valves FW-V-64 and 70, as well as the downstream
check valves in the EFW system, are included in the Check
Valve Monitoring Program. Enhancements to this program
are under evaluation.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 84-7 Recommendation 3

Pressure Locking and Thermal Binding of Gate Valves:
Train operations and maintenance personnel on how to
diagnose and recover from the pressure locking and
thermal binding valve failure mechanism.

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

NHY RESPONSE: Operations personnel currently receive training on valve
operation and routinely operate valves at Seabrook.
Training of Mechanical and Electrical maintenance
personnel is an enhancement to ensure common knowledge of
these type of valve problems. Training Development
Request 89-285 will incorporate this SOER into the lesson
plans. Mechanical and Electrical Continuing Training will
be completed by March 30, 1990.

This SOER is included in Auxiliary Operator Initial
Training; Lesson Plan N1270I. Closed.

This SOER will be incorporated into Electrical Initial
Training by June 30, 1990, as an enhancement.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 85-2 Recommendation 2

Valve Mispositioning Events Involving Human Error: Train operators, maintenance and supervisory personnel in procedures used to position and verify valve positions. Stress need to comply with procedures and need to identify incorrect procedures.

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

NHY RESPONSE: Training Development Request 89-286 will incorporate valve mispositioning events into Continuing Operations Training by May 30, 1990, as an enhancement.

Lesson Plan 05 regarding the Tagging Program will incorporate this SOER by March 30, 1990, as an enhancement.

The licensed operator training program provides training on valve mispositioning events.

All station personnel have received procedure compliance training to insure knowledge of and implementation of NHY policy.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 86-1 Recommendation 3

Reliability of PWR Auxiliary Feedwater Systems: Test EFW pumps periodically under conditions and configurations expected during any operational event demand. Include fast, cold starting of the pump; simultaneous and automatic starting of all pumps; and testing of the pumps for various steam supply, condensate supply, and pump discharge flow configurations that may reasonably occur.

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

NHY RESPONSE: Testing of the steam driven EFW pump to demonstrate governor ramp-up, governor startup control, sequencing of steam supply valves, and operation of the steamtrap drain system was completed in February, 1990. No water hammers were experienced and no turbine overspeeds were experienced when the system was subjected to design basis cold start conditions. The NRC resident inspector and other NRC inspectors were present. Closed.

Acceptance criteria for vibration, differential pressure, flow and speed were incorporated in the EFW pump surveillance procedures. Closed.

NHY is monitoring EFW system performance with respect to reliability. Quarterly starts of the steam driven EFW pump under demand conditions are being evaluated. Completion is expected on March 31, 1990.

Surveillance procedures will be revised, if necessary, based on the results of EFW pump quarterly start evaluation. Completion is scheduled for April 30, 1990.

The use of two normally closed steam supply valves and the requirement for full flow within 60 seconds is being evaluated in accordance with INPO's recommendation. Completion is expected by March 31, 1990.

Testing requirements for the overspeed trip mechanism are being evaluated and a recommendation will be provided by June 30, 1990.

The overspeed trip mechanism was tested satisfactorily. The mechanism will be tested on an 18 month frequency (refueling).

NHY has reviewed EFW system performance and INPO recommendations and determined that no issues exist that raise any regulatory issues that would preclude safe operation.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 86-2 Recommendation 1

Inaccurate Closed Position Indication on MOVs: Identify MOVs with remote position indication in which existing limit switch settings can result in a closed indication while the valve is actually partially open. Take actions where necessary to prevent premature closed indication due to limit switch settings.

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

NHY RESPONSE: Design Coordination Report 86-403 has been completed in the field. The work performed under DCR86-403 addressed the position indication concern developed by INPO.

DCR89-024 was issued to address the balance of the MOVs. All field work is scheduled for completion prior to startup from the first refueling.

The current plant configuration provides positive indication of valve position and meets all regulatory requirements. DCR89-024 provides an enhancement for operators. The equipment and associated circuit functions have not changed.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 86-3 Recommendation 1

Check Valve Failures or Degradation: Establish PM procedures (e.g., a test and inspection program) that identify existing and incipient failures of check valves in appropriate systems. The program should include periodic testing, surveillance monitoring to identify seat leakage and other developing problems, and disassembly and inspection on a sampling basis to ensure check valve internals are intact and are not experiencing abnormal wear.

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

INPO RESPONSE: Inspection and testing will be based on industry and plant experience.

Preventive Maintenance procedures will be modified based on the results of the design review in SOER 86-3, Rec. #2. Completion is scheduled for December 30, 1990.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 86-3 Recommendation 2

Check valve design review on valves included in the station check valve PM program. Review should determine: proper size, proper type, proper orientation, proper location. Initiate design changes or perform additional PMs and testing for check valves determined to be misapplied.

ALLEGED STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

NHY RESPONSE: Check valves have been selected, specified, designed, procured, installed and tested to the applicable industry codes and standards. The safety-related valves meet the design and testing requirements in Section 3.9 of the FSAR.

NHY has developed design changes or work requests to address the check valve issues referred to in the INPO report. Several design changes have been implemented and in some cases reviewed by the NRC. The volume control tank nitrogen supply check valves are not yet modified. Maintenance has been performed to correct the initial problem.

A review of the current check valve design and monitoring program will be conducted and completed by October 1990. This effort will include: an assessment of the appropriate preventive maintenance measures such as inspection and leak checks; an assessment of acceptance criteria and provisions to revise test frequencies based on inspection results; a design review of check valves for applicability with respect to EPRI Report NP-5479, "Application Guidelines for Check Valves in Nuclear Power Plants," issued in January 1988.

Procedure MT 7.2 "Inservice Testing of Valves" currently addresses the applicable regulatory requirements for check valve performance as delineated in the ASME Boiler and Pressure Vessel Code, Division 1, Section XI, Subsection IWV.

NHY has determined that no issues exist that raise any regulatory issues or that would preclude safe and conservative operation of the plant.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 88-1 Recommendation 3

Instrument Air System Failures: Training on the importance and potential for common mode failures of Instrument Air Systems caused by such things as particulate, hydrocarbon, and water contamination for operators and maintenance personnel.

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

NHY RESPONSE: Training Development Request 88-072 will incorporate this SOER into Initial and Continuing Training for Operations and I&C personnel by July 30, 1990.

This is not a safety concern since air systems are periodically verified for particulates, hydrocarbon and water contamination. The scheduled training is an enhancement.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 88-2 Recommendation 6

Premature Criticality Events during Reactor Startup;
Reactor startup procedure premature criticality
monitoring.

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5

NHY RESPONSE: Operations reviewed plant procedures OS1000.02 and
OS1000.07. Revisions were made to both procedures to
incorporate the concerns of this SOER. Closed.

ISSUE: Operating Experience Review

INPO REFERENCE: SOER 88-3 Recommendation 2

Loss of Residual Heat Removal with Reduced Reactor Vessel Water Level: Review the procedures supporting Residual Heat Removal system operation to ensure that procedure improvements necessary to support plant actions in response to SOER 85-4 have been incorporated.

ALLEGED'S STATEMENT: General reference to SOER's, page 8 paragraph 4 and 5.

NHY RESPONSE: Operations will review plant procedure OS1213.01. A revision will be made as appropriate to incorporate the concerns of this SOER. Completion is scheduled for May 31, 1990 or prior to operating at reduced vessel water level.

This is not a safety concern since operation of the RHR system with a reduced reactor vessel water level is not expected to occur until at least the first refueling.

New Hampshire Yankee
March 15, 1990

Enclosure 5 to NYN-90073

INPO Report

Allegation Testimony Cross-Reference

New Hampshire Yankee
March 15, 1990

INPO Report
Allegation Testimony Cross-Reference

<u>INPO</u> <u>Finding</u> <u>Reference</u>	<u>Report</u> <u>Page</u>	<u>Allegation</u> <u>Testimony</u> <u>Reference</u>	<u>INPO</u> <u>Finding</u> <u>Reference</u>	<u>Report</u> <u>Page</u>	<u>Allegation</u> <u>Testimony</u> <u>Reference</u>
1989 Corp. 1.1A-1	4	None	1989 Station TS.5-3	23	None
1989 Corp. 1.1B-1	5	Page 14	1989 Station TS.7-1	24	Page 12
1989 Corp. 1.2A-1	6	Page 14	1989 Station OP.2-1	25	None
1989 Corp. 1.2A-2	8	Page 15	1989 Station OP.3-1	27	Page 13
1989 Corp. 2.1A-1	10	None	1989 Station OP.3-2	29	None
1989 Corp. 2.2A-1	12	None	1989 Station OP.5-1	30	None
1989 Corp. 2.6B-1	14	None	1989 Station MA.2-1	32	Page 13
1989 Corp. 2.10A-1	15	Page 16	1989 Station MA.3-1	33	None
1989 Station OA.1-1	6	None	1989 Station MA.8-2	36	None
1989 Station OA.3-1	7	Page 7	1989 Station MA.10.1	37	None
1989 Station OA.5-1	8	None	1989 Station RP.7-1	40	None
1989 Station OA.8-1	9	None	1989 Station RP.9-1	41	None
1989 Station OE.2-1	10	Page 7	1989 Station CY.3-2	44	None
1989 Station OE.3-1	15	Page 8	1989 Station SOERs*	Appendix 2	Page 8
1989 Station TS.3-1	17	Page 9	1988 Assist Trip	Entire	Page 5 and
1989 Station TS.5-1	18	Page 10	Report	Report	Page 6
1989 Station TS.5-2	20	None			

<u>*SOER</u>	<u>RECOMMENDATION</u>	<u>SOER</u>	<u>RECOMMENDATION</u>
81-9	2b	83-8	12
82-9	1	83-9	7
82-12	5	84-3	5
82-13	11	84-7	3
82-13	12	85-2	2
82-13	13	86-1	3
82-15	1	86-2	1
82-15	2	86-3	1
82-15	3	86-3	2
82-15	4	88-1	3
82-15	5	88-2	6
82-15	6	88-3	2
83-8	10		