U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT (IE)
Division Of Program Development And Appraisal
Performance Appraisal Section (PAS)

Report 50-271/81-3 (PAS)
Docket 50-271 License DPR-28

Licensee: Vermont Yankee Nuclear Power Corporation
1671 Worcester Road
Framingham, Massachusetts 01701

Facility Name: Vermont Yankee (VY)

Inspection At: Vermont Yankee Site, Vernon, Vermont and
Yankee Atomic Electric Company (YAEC)-Nuclear
Services Division (NSD), Framingham, Massachusetts

Inspection Conducted: April 7 - 17 and April 27 - May 1, 1981

Inspectors:

Blaine Murray, Inspection Specialist (Team Leader) — Date Signed 7/14/81

N. C. Choules, Inspection Specialist — Date Signed 7/14/81

A. K. Hardin, Inspection Specialist — Date Signed 7/14/81

F. J. Jablonski, Inspection Specialist — Date Signed 7/14/81

P. H. Johnson, Inspection Specialist — Date Signed 7/14/81

W. L. Kuehner, Inspection Specialist — Date Signed 7/14/81

Accompanying NRC Personnel: *J. M. Taylor, Deputy Director, Division of Program Development and Appraisal
*J. G. Partlow, Chief, Program Appraisal Branch
*E. J. Brunner, Acting Director, Division of Resident and Project Inspection, Region I
*V. L. Rooney, Project Manager, NRR
*R. M. Gallo, Chief, Projects Section, Region I
*#W. J. Raymond, Resident Inspector
*S. J. Collins, Resident Inspector
*W. D. Shafer, Acting Chief, Performance Appraisal Staff

*Present during the exit interview on May 1, 1981
#Present during meetings on April 10 and April 17, 1981

J. G. Partlow, Chief, Program Appraisal Branch — Date Signed 7/14/81

Inspection Summary

Inspection on April 7-17 and April 27 - May 1, 1981
Report 50-271/81-3 (PAS)

Areas Inspected: A special announced inspection was performed of the licensee's management controls over selected licensed activities. The inspection (by six NRC inspectors) involved 618 inspector hours onsite and at the corporate office. The conclusions are presented as above average, average, or below average as follows:

Section 2, Training: (a) Licensed - average
(b) Non-licensed - below average
Section 3, Design Changes and Modifications - above average
Section 4, Maintenance - average
Section 5, Operations - average
Section 6, Corrective Action System - average
Section 7, Procurement - average
Section 8, Committee Activities - average
Section 9, Quality Assurance Audits - below average
Section 10, Physical Protection - above average

Additionally, a number of observations were presented to the Region I Senior Resident Inspector as potential enforcement findings for followup as appropriate. These observations were also discussed with the licensee during meetings on April 10, April 17, and May 1, 1981.

Table of Contents

Topic	Page
Inspection Scope and Objectives, Section 1	1
Training, Section 2	2
Design Changes and Modifications, Section 3	8
Maintenance, Section 4	11
Operations, Section 5	14
Corrective Action System, Section 6	18
Procurement, Section 7	20
Committee Activities, Section 8	23
Quality Assurance Audits, Section 9	25
Physical Protection, Section 10	30
Exit Interviews, Section 11	30
Attachment A (10 CFR 2.790 Information)	
Attachment B (Persons Contacted and Documents Reviewed)	

DETAILS

1. Inspection Scope and Objectives

The objective of the inspection was to determine how the licensee performs licensed activities; the results will provide input to the NRC evaluation of licensees from a national perspective.

The inspection effort covered licensed activities in selected functional areas. In each of the functional areas, the inspectors reviewed written policies, procedures, and instructions; interviewed selected personnel; and reviewed selected records and documents to determine whether:

a. The licensee had written policies, procedures, or instructions to provide management controls in the subject area;

b. The policies, procedures, and instructions of (a) above were adequate to ensure compliance with the regulatory requirements;

c. The licensee personnel who had responsibilities in the subject areas were adequately qualified, trained, and retrained to perform their responsbilities;

d. The individuals assigned responsibilities in the subject area understood their responsibilities; and

e. The requirements of the subject area had been implemented to achieve compliance and activities sampled had been appropriately documented.

The specific findings in each area are presented as observations which are inspection findings that the inspectors believe to be of sufficient significance to be considered in the subsequent evaluation of the licensee's performance. The observations include perceived strengths and weaknesses in the licensee's management controls which may not have specific regulatory requirements or guidance. These strengths and weaknesses are identified in the report by a "S" or "W" in parenthesis.

The observations provide the basis for drawing conclusions in each inspected functional area. The conclusions are presented as Above Average, Average, or Below Average, and represent the team's evaluation of the licensee's management controls.

Some of the observations identified as weaknesses are potential enforcement findings. These observations were discussed with the licensee and presented to the Region I Senior Resident Inspector. The follow-up of these items will be performed by the IE Regional Office.

2. Training

The objective of this portion of the inspection was to evaluate the adequacy of management controls in the area of training.

a. Observations

The following observations include perceived strengths and weaknesses in the licensee's management controls which may not have specific regulatory requirements but will provide the basis for subsequent performance evaluations.

(1) Non-Licensed Training (Corporate Office)

(a) A written corporate training program had not been established. A limited program, including initial QA orientation and annual QA retraining, had been implemented. However, a formal technical and non-technical training program with defined schedules, goals, and objectives had not been developed. The responsibility for management of a comprehensive corporate training program was not under the direction or guidance of a central organization such as a corporate training coordinator. (W)

(b) The method of maintaining training records varied among the corporate Group Managers. Some managers maintained detailed records regarding both in-house training and outside training courses such as vendor schools, short courses, and seminars. However, other managers had not established a similar program to maintain detailed, up-to-date training records. (W)

(c) The Health Physics training program conducted by the corporate staff for the Yankee Atomic Electric Company, (YAEC) Nuclear Services Division (NSD) personnel had not been audited to ensure compatibility with onsite training requirements. Health Physics training sessions were held at the corporate office. These sessions primarily consisted of viewing three vendor films. After completion of the training session, NSD personnel were allowed unescorted access into plant areas without attending additional supplemental training by the onsite Training Department. The onsite Health Physics training program had been audited annually. However, similar audits had not been performed to determine whether the corporate Health Physics program complied with such items as plant procedures, Regulatory Guide 8.13 and 10 CFR 19.12 requirements. (W)

(d) Corporate job descriptions did not identify the actual responsibilities and specific duties associated with each position. Job descriptions covering general salary classification levels were available. However, these job descriptions did not provide details for each specific position. (W)

(e) Management maintained a positive attitude toward both in-house and outside training. Funds were usually available to attend outside short courses, seminars, and professional meetings. It appeared that corporate personnel usually attended one or two outside training functions each year. (S)

The above observation applied to corporate departments except the Operational Quality Assurance Department (OQAD). Interviews and training records revealed that OQAD auditors had not attended outside training courses during the past two years. (W)

(f) Management encouraged continuing education. College tuition, membership dues to professional societies and subscriptions to professional publications were usually paid by the licensee. Publications of new regulations; codes, standards, and guides; industry news letters; scientific publications; and applicable NRC correspondence were routed through most corporate departments. A technical library was maintained. The library contained licensing reference material; copies of applicable regulations, codes, standards, and guides; textbooks; NRC inspection reports; and onsite procedures. (S)

(g) Most groups conducted staff meetings on at least a monthly frequency to discuss personnel and technical matters. However, interviews and records revealed that during the past 2 years OQAD had discontinued the practice of holding department meetings. (W)

(2) Non-Licensed Training (Onsite)

(a) The Training Department had not provided direction and guidance for the various departmental training programs. The Training Department had only limited involvement with departments such as Maintenance, Instrumentation and Control (I&C), Stores, Reactor Engineering, and Chemistry and Health Physics.

The Training Department had not assisted in the development and review of departmental training programs. The lack of direction and guidance had resulted in the formation of a variety of departmental training programs. Some of these, including security and shift technical advisor programs, were well organized, high quality programs. However, other programs such as maintenance were poorly organized and administered. (W)

A uniform method had not been established regarding the retention of training records by the Training Department and other onsite departments. There was considerable variation in the format and content of training records. Some records were fragmented and incomplete. (W)

(b) Departmental Procedure (DP) 0204, Maintenance Department Training, Revision 2, required maintenance department personnel to participate in an annual review of specified subject areas. However, maintenance department training records indicated that seven individuals had not completed the required training since the procedure was issued in 1979. (W)

This observation was discussed with the licensee and presented to the Senior NRC Resident Inspector as a potential enforcement finding.

(c) Adminstrative Procedure (AP) 0004, Plant Staff Training, Revision 2, and most of the individual departmental training procedures were narrowly scoped. The procedures did not contain sufficient information regarding the content, format, scheduling, objectives, and a means to evaluate the training received. A written training program had not been developed for members of the Training Department. (W)

(d) AP 0720, Employment Processing, Revision 9, required that YAEC, NSD personnel need only complete Health Physics training once every three years. However, procedures required other personnel such as the permanent plant staff, Vermont Yankee corporate personnel, and contractors to take annual Health Physics training. A basis had not been established for allowing NSD personnel an extended retraining frequency. (W)

(e) AP 0004, required training specific to individual departments to be developed and administered by the applicable department supervisor.

The training procedures developed by each department also required Department Supervisors to evaluate the effectiveness of their training programs annually. Interviews revealed that most department supervisors had devoted very little time to the development and implementation of training programs. Evaluation of the effectiveness of the programs was not documented. (W)

The Chemistry and Health Physics Department had recently designated a member within the department to serve as a department training coordinator. This individual devoted about 50% of his time to training activities. These activities included establishing training schedules, conducting training sessions, and maintaining training records. (S)

(f) A program had not been established to account for on-the-job training (OJT) within the various departments. Most training provided to new employees was through OJT. Some departments made sporadic notations on time sheets to indicate OJT; other departments used a check-off sheet. However, a uniform program had not been established to properly document OJT. (W)

(g) Written initial training and retraining programs, including classroom lectures on plant systems, had not been developed for auxiliary operators. A 10-week auxiliary operator training program was developed by the Operations Department and presented to a group of new auxiliary operators for the first time in early 1981. Interviews revealed this program was enthusiastically received by the plant staff. However, this program was not described in written procedures to ensure its continuation. Several employees expressed concern that the 1981 course would be a one-time-only endeavor and not made available for auxiliary operators hired in the future.

Interviews revealed several auxiliary operators had been in the auxiliary operator classification for several years without participating in a formal retraining program. DP 0160, Non-Licensed Operator Training Program, Revision 3, stated that operators were encouraged to attend all pertinent lectures given during the licensed operator retraining lecture series. Interviews with auxiliary operators revealed that they had not participated in this type of training. (W)

(h) Lesson plans had been written for the majority of the sessions conducted during General Employee Training. This included subject areas such as new personnel indoctrination, quality assurance, fire protection, safety, first aid, health physics and security. However, lesson plans had not been written to cover emergency plan training. (W)

(i) The present training facilities and office space for the Training Department staff were cramped, noisy, and inadequate. The lack of proper training facilities was a distraction during lecture sessions. (W) The licensee had recognized the inadequate facilities; a new training facility was under construction and scheduled for completion in late 1981.

(j) The onsite Training Department reported directly to the Plant Superintendent. As such, the department was independent of other plant departments whose primary responsibility was continuity or improvement of plant operability. The Training Department appeared qualified and motivated toward improving the overall plant training program. The Training Department was aware of many of the deficiencies regarding training activities. This was evidenced by the work currently underway in the development of new training programs and the planned revision of existing inadequate training procedures. (S) The Training Department was organized as a separate department in 1980. The number of instructors within the department increased from three to six in 1980. Even with this 100% increase, the department still appeared to be understaffed.

(k) A written program had not been developed to conduct training on plant systems for departments other than operations. A 1-week course was offered in conjunction with the 1981 auxiliary operator training sessions to certain members of the plant staff. However, only a limited number of day shift workers attended the course. A schedule had not been established for future courses. Interviews revealed that the lack of training on plant systems for non-operation personnel had been a chronic problem for the past several years. (W)

(l) Management's support of onsite training activities was similar to that mentioned in observation 2.a.(1)(e) above. This support included: (1) providing funds for outside short courses and seminars, (2) funding educational and professional membership expenses, and (3) encouraging participation in industry committees and standards groups. (S)

(3) Licensed Training (Onsite)

(a) The Training Department had not developed written lesson plans for initial license training and requalification programs. The Training Department had assembled a variety of handouts and reference material for use during the initial training license and requalification programs. However, formal lesson plans were not developed in advance of conducting the particular training session. (W)

(b) 10 CFR 55 and AP 0151, Operator Training Program, Revision 8, require licensed operators to participate in an approved requalification program. The licensee's approved requalification program required that each licensed Senior Reactor Operator (SRO) and Reactor Operator (RO) take a requalification examination at least annually. Training records indicated that one Control Room Operator (shift reactor operator) had not completed an annual requalification examination since June 27, 1979. (W)

This observation was discussed with the licensee and was presented to the Senior NRC Resident Inspector as a potential enforcement finding.

(c) The normal line of progression in the Operations Department was from the auxiliary operator position into the licensed operator training program. This ensured that licensed shift operators were familiar with the duties and responsibilities associated with non-licensed operator activities. Persons without previous auxiliary operator experience had not been selected to fill licensed shift operator positions.

The licensee had established a limited screening program for new employees scheduled to fill auxiliary operator positions. The screening program included both academic and psychological evaluations. One of the purposes of the screening program was to assist in the selection of persons that could eventually be successful in completing NRC licensing requirements. (S)

(d) The licensee's record of successful completion of past NRC licensing examinations had been above average. In March 1981 NRC examinations were taken by the most recent group of license candidates. This group was the first Vermont Yankee candidates to take the NRC examination since the advent of the new TMI licensing criteria. Grading of the 1981 examinations had not been completed; however, a preliminary review of the examinations by the NRR staff indicated that the licensee's previous high pass/fail ratio should continue. (S)

b. Conclusions

(1) Non-Licensed Training

Deficiencies were observed in non-licensed training both at the corporate office and onsite. A written training program which included schedules, goals and objectives, and methods to evaluate the effectiveness of training had not been established for corporate personnel. The corporate training program was not under the control of a central organization such as a corporate training coordinator.

The onsite Training Department had devoted most of its time to the licensed operator and general employee training programs. The Training Department had provided only limited direction and guidance for departmental training programs. The quality and uniformity of training varied greatly among the various departments. A written training program had not been developed for non-licensed operators.

Management controls associated with non-licensed training were considered below average.

(2) Licensed Training

The licensee's pass/fail ratio for past NRC licensing examinations had been above average. Preliminary reports from the latest NRC examinations taken in March 1981, indicate that the previous success ratio will probably continue. Weaknesses in the program included the failure of a licensed operator to take the 1980 annual requalification examination and the lack of written lesson plans for licensed training and requalification training programs.

Management controls associated with licensed operator training were considered average.

3. Design Changes and Modifications

The objective of this portion of the inspection was to evaluate the adequacy of management controls associated with engineering, design changes, and modifications.

a. Observations

The following observations include the perceived strength and weaknesses in the licensee's management controls that may not have specific regulatory requirements but will provide the basis for subsequent performance evaluations.

(1) Weaknesses were observed in the format and content of Administrative Procedures (AP's). Information appearing in the AP's was separated into four sections identified as Purpose, Reference, Discussion, and Procedure. The "Discussion" section often contained many of the actual step-by-step requirements which may or may not be repeated in the "Procedure" section. Without all of the steps listed in an orderly manner in one section, the user was required to flip back-and-forth between sections to ensure all steps were followed. An example was AP 6000, Plant Design Change Request, Revision 8. The "Discussion" section required the Implementation Cognizant Individual (ICI) to prepare installation procedures per AP 6001; however, this requirement did not appear in the "Procedure" section of AP 6000. (W)

(2) Design Change Requests were initiated by the plant or by the corporate Yankee Atomic Electric Company (YAEC), Nuclear Service Department (NSD). Design changes initiated by the plant were called Plant Design Change Requests (PDCRs). Those initiated by NSD were called Engineering Design Change Requests (EDCRs). Engineering Manual Procedure (WE) 101, Plant Design Change Request, Revision 5, contained NSD responsibilities for review and approval of PDCRs. WE-100, Engineering Design Change Requests, Revision 4, contained instructions for initiation, preparation, review, and approval, of EDCRs by NSD. Other significant procedures in the Engineering Manual were: WE-102, Design Criteria, Revision 3; WE-103, Engineering Calculations and Analysis, Revision 3; WE-104, Qualification Tests, Revision 2; WE-105, Drawings, Revision 4; WE-106, Procedures and Instruction Revision 3; and WE-107, Specification, Revision 3.

Review of WE-100 and WE-101 indicated that the procedures did not cross reference other pertinent procedures (WE-102, 103, 104, etc.) to indicate to the engineer that certain additional actions, such as alternate calculations and drawing control, may have to be taken depending on the Design Change Request. (W)

(3) Interviews and review of procedures indicated that the licensee's design change review process exceeded the requirements of ANSI N45.2-11. In addition to the reviews specified in this standard, the licensee's program provided for reviews by a cognizant individual at the plant, various plant departments, the Manager of Operations, the Vermont Yankee Project Manager, the Operational Quality Assurance Manager, the NSD Fire Protection Coordinator, and two NSD engineering department managers. (S)

(4) Interviews and review of procedures indicated that a formal program did not exist to ensure that appropriate personnel were trained in a timely manner regarding newly installed PDCRs and EDCRs. Any training provided was accomplished on an informal basis. (W)

(5) The following steps were involved in the licensee's program for notifying persons maintaining drawings (drawing holders) of pending drawing changes resulting from design changes. When a drawing change was initiated, the Design Cognizant Individual (DCI) was required to notify Document Control of the change by submitting preliminary print change notification forms to Document Control. Document Control then notified all controlled drawing holders of the pending changes. The drawing holders were required to stamp the drawing "This Drawing Pending Revision Per _____ Contact _____ For Interface." This notice was sent to drawing holders; however, the drawing change may not be implemented for several months. Consequently, the actual status of the drawing was not known by the holder for several months without contacting the DCI. A separate notification was not sent to the drawing holder when the design change was completed. Usually, drawings were not distributed until 2 to 4 months after completion of the design change. Because of the considerable time delay between inception and completion of a design change and the lack of interim marked-up drawings, the potential existed for the use of out-of-date drawings. (W)

(6) Interviews revealed that improvements were needed in updating and controlling the main plant drawing files. (W) This was substantiated by a 1981 Operational Quality Assurance Department (OQAD) audit (VY 8113) of the plant's drawings, which identified a discrepancy rate of one to seven percent. At the time of this inspection, the plant had not responded to this finding. This item was referred to the Senior Resident Inspector for followup.

(7) AP 6001 Installation, Test and Special Test Procedures, Revision 7, provided instructions to implement approved design changes per AP 6000 or AP 6004. AP 6001 required preparation of detailed installation and test procedures for design changes and provided a detailed checklist for their preparation. Review of selected design changes indicated that the requirements of AP 6001 were being followed. Detailed installation and test procedures had been prepared for design changes. (S)

b. Conclusion

The licensee had established a program to control safety-related design changes and modifications. The program appeared to have been well implemented.

Minor weaknesses in the program were: (1) failure of the controlling design change documents to reference supporting procedures; and (2) failure to log incoming and outgoing design changes by the Project Manager who acted as an interface between the plant and the corporate office. More significant weaknesses were: (1) the lack of a formal training program to ensure that appropriate plant personnel were trained on newly completed design changes; and (2) difficulty in determing the status of drawings affected by pending or completed design changes.

Two strengths were observed in the licensee's design change program: (1) the review and approval process required for proposed design changes exceeded the requirements of ANSI N 45.2.11; and (2) the procedural requirements for installation and test procedures required for implementation provided the means to ensure that design changes were properly installed and tested.

The management controls associated with safety related design changes and modifications were considered to be above average.

4. Maintenance

The objective of this portion of the inspection was to evaluate the adequacy of the licensee's management controls associated with corrective and preventive maintenance activities.

a. Observations

The following observations include the perceived strengths and weaknesses in the licensee's management controls that may not have specific regulatory requirements but will provide the basis for subsequent performance evaluations.

(1) Corrective and preventive maintenance activities were controlled by Administrative Procedures (AP) 0200, Maintenance Program Revision 7; AP 0021, Maintenance Requests, Revision 9; and AP 6023, Administration of Unanticipated Nonroutine Corrective Maintenance on Safety Class Systems, Components and Structures, Revision 9. Most corrective maintenance activities were controlled by AP 0021 and in special situations by AP 6023. The preventive maintenance program was controlled by AP 0200.

A review of AP 0021 indicated the following deficiencies: (W)

- AP 0021 specified the use of a Maintenance Request (MR) to authorize work on safety-related equipment when such equipment was removed from and returned to service. Jumpers and lifted leads were controlled by AP 0020, Lifted Leads/Installed Jumper, Revision 4. Equipment tag-out was controlled by AP 0140, Vermont Yankee Local Control Switching Rules, Revision 4. Part or all of procedures AP 0020, AP 0025, and AP 0140 were used to complete work specified on the MR. However, AP 0021 did not cross reference related procedures.

- AP 0021 did not require the preparation of a maintenance procedure, in accordance with AP 0001, Plant Procedures, Revision 6, if the work specified on the MR exceeded the craftperson's capability and did not require the notification of management if the work exceeded the scope specified on the MR.

- AP 0021 specified the responsibility for operational testing when equipment was removed from service for maintenance and returned to service. The procedure was not clear as to who was responsible for specifying operational testing. Step 3 of the procedure section specifies the operational supervisor was responsible. Conversely, Step 9 specified that the appropriate department supervisor was responsible.

  A review of the work performed by the Maintenance Department did not indicate that these concerns were affecting performance. The procedural inadequacies appeared to be offset by the use of experienced maintenance personnel; however, experience has shown that when capable craftspersons are replaced with less experienced personnel, the quality of procedural instructions must be improved.

(2) The Shift Supervisor was required by AP 0021 to approve safety-related MRs prior to start of work. This signature appeared on the MRs. However, the Shift Supervisor was not required to keep a record of MRs in progress. He was not required to log the MR number and job description at the beginning and completion of work nor did he receive a copy of the MR. The only record was the tag-out record which did not identify the MR and referred only to equipment that had to be tagged-out for repair. (W)

(3) AP 0021 required MRs to be returned promptly to the Shift Supervisor for operational testing and review after work had been completed. Review of several MRs completed in 1980 and 1981 indicated that the Shift Supervisor's review of the MRs (sign off for operational testing) had been, in some cases, completed days or even months after the equipment was returned to service. In one case (MR 80 No. 1200), covering RHR pump seals, the work was completed on December 22, 1980. As of April 18, 1981, signatures indicating that operational testing had been performed and that the shift supervisor had reviewed the MR were not documented on the MR. Interviews indicated that when an MR was completed, the Shift Supervisor was notified by phone and subsequent operational testing was initiated. However, complete processing of the MR, as required by AP 0021, was not accomplished in a timely manner. (W)

This observation was discussed with the licensee and presented to the Senior NRC Resident Inspector as a potential enforcement finding.

(4) The Operations Department maintained an index of MRs in the control room. MRs were required to be logged in when the request was initiated and logged out when closed. Review of the index showed several completed MRs had not been closed out for as much as 2 years. Interviews indicated that the work for the MRs had been completed, but the MRs were apparently lost. There was no system to periodically review the index and close out the MRs based on objective evidence that the work had been completed. (W)

(5) Interviews revealed that middle level maintenance supervisors were familiar with processing the MR. However, they were not familiar with the contents of the procedures (AP 0021 and AP 6023) controlling maintenance activities. See Section 2.a.(2).(b). (W)

(6) As previously stated, AP 0200 was the controlling procedure for the preventative maintenance program. Included in this procedure was the requirement for "Maintenance Record Systems" to provide the Maintenance Department with a current record of scheduled and non-scheduled maintenance and repair activities performed on equipment. To implement these requirements, the licensee used a card file system. For each piece of equipment, a set of three cards was used. The set consisted of a Preventive Maintenance (PM) Work Order Form, Machinery Data Card, and the Equipment History Data Card.

The Machinery Data Card contained various information such as nameplate data, location, and applicable drawing. The Equipment History Card was used to record corrective and preventative maintenance. This file was well maintained and provided a good record to track and trend equipment problems. (S)

(7) AP 0200 also required maintenance personnel to perform weekly rounds during which time specified equipment was visually checked for malfunction. Interviews indicated the checks performed during the rounds were beneficial in early identification of equipment problems before they reached an advanced stage. (S)

b. Conclusion

The licensee had established a program to control safety-related maintenance activities. With some exceptions, the program appeared to have been satisfactorily implemented.

There was a significant weakness in the control of maintenance requests after work was completed in that required equipment operational testing was not documented in a timely manner. A record of maintenance requests in progress was not required to be maintained by the Shift Supervisor.

Weaknessess in controlling maintenance administrative procedures were: (1) lack of cross referencing other applicable procedures; (2) lack of requirements for a maintenance procedure when work exceeded the craftperson's capability; (3) lack of requirements to terminate work when the work exceeds the scope of the maintenance request; and (4) conflicting requirements regarding who was responsible for specifying operational testing following completion of maintenance activities.

Strengths in the maintenance program included the Maintenance Record System and weekly inspection rounds to check specified equipment for malfunction.

The management controls associated with the safety-related maintenance program were considered average.

5. Operations

The objective of this portion of the inspection was to evaluate the adequacy of management controls covering plant operations.

a. Observations

The following observations include the perceived strengths and weaknesses in the licensee's management controls which may not have specific regulatory requirements but will provide the basis for subsequent performance evaluations.

(1) The plant had an effective organization, a qualified staff, a low turnover rate, and apparent good cooperation between departments. (S)

(2) The Vermont Yankee Vice President - Manager of Operations (MOO) maintained close contact with plant activities. MOO and his staff provided liaison between the plant staff and the Yankee Atomic Electric Company (YAEC), Nuclear Services Division (NSD) which is assigned responsibility in the Technical Specifications (TS) for corporate engineering, operations, and QA functions. The TS and Administrative Procedure (AP) 0001, Plant Procedures, Revision 6, required the MOO and his staff to review all APs and Operating Procedures (OPs) prior to issuance, a practice not common in the industry. MOOs support of plant activities was considered a strength. (S)

(3) Plant housekeeping was good, with areas requiring protective clothing held to a minimum. Review of the report of a quarterly housekeeping tour conducted on April 6, 1981, (pursuant to AP 6024, Plant Housekeeping, Revision 2) showed that responsibilities had been assigned for correction of identified deficiencies. (S)

(4) Review of procedure distribution practices showed a complex system to be in use which was, nevertheless, functioning effectively because of the close attention being given to it by administrative personnel. Examination of 66 selected OPs in the control room procedures file showed the correct revision of all to be present. The licensee was also maintaining effective control of temporary procedure changes, with a total of 25 in effect at the time of this inspection. Examination of 16 of these in the control room procedures file showed all to be present. (S)

(5) The corporate NSD maintained capabilities in the areas of transient analysis and core physics. These groups provided support for licensing activities and core management which at most facilities would be contracted to outside consulting firms. (S)

(6) Vermont Yankeee Nuclear Power Corporation had not issued a statement of company goals and policies addressing safety, plant operation, maintenance, and other factors. (W) The Manager of Operations stated that such a statement was being developed.

(7) The format for APs included a "Discussion" section and a "Procedure" section. In some cases, procedural steps or requirements were placed in the Discussion section, requiring the user to consult both the Discussion and Procedures sections to ensure that required steps were being followed. Examples noted were AP 0020, Lifted Lead/Installed Jumper Request Procedure, Revision 4, and AP 4000, Surveillance Testing Control, Revision 6. The major sections and some paragraphs in the text also were not numbered, making it inconvenient and difficult to reference a particular requirement or procedure step. See Section 3.a.(1) for additional comments regarding this concern. (W)

(8) A weakness was noted in definition and implementation of the program for equipment status control, as defined in AP 0140, Vermont Yankee Local Control Switching Rules, Revision 4. AP 0140 required an individual desiring equipment removal from service to submit a request form to the Shift Supervisor (SS) or Supervisory Control Room Operator (SCRO). A "switching order" resulted from this request and was written into a bound Switching Order Record (left facing page). Switching orders were communicated by phone to an Auxiliary Operator (AO) who wrote them on a form, then repeated them back to the SS or SCRO before executing the order. White "Do Not Operate" tags were placed by the AO where required; these were checked and initialed by the individual for whom the tags were placed. Upon completion of work, the "return to normal" switching order was written in the Switching Order Record (rightfacing page) by the SS or SCRO, then com-

municated to the AO by phone for execution. Although this method of executing switching orders offered the advantage of minimizing traffic into the control room, the following weaknesses were observed: (W)

- The Switching Order Record documented switching and tagging orders passed to the AO, but did not document that execution of the order had been reported back to the control room. This created the possibility that execution of an order could be interrupted by shift change, an operational problem, or other event, and not be subsequently completed. According to the AP 0140, the switching order forms (completed by the AO) and the original switching order request forms were returned to the cognizant department for disposition. The retention of documented records was not specified. Thus, there was no documentation that the return-to-normal lineup was completed, only that an order directing return to normal had been given.

- Some switching orders were not properly recorded in the Switching Order Record. Examples included the following orders for which the final (return-to-normal) valve or breaker positions were not indicated:

  - 81-59, "B" Standby Gas Treatment System

  - 81-39, Reactor Core Isolation Cooling System

  - 81-38, Fuel Pool Demineralizer System

- The existing controls did not provide for independent verifications when components or systems important to safety were returned to service. The Operations Supervisor stated that this concern was being addressed.

- Although AP 0140 discussed the use of a pink "caution" tag, it did not specify whether any person could place one or whether authorization was required. Individuals interviewed also demonstrated uncertainty about who could place a pink tag.

(9) Weaknesses were noted in the implementation of AP 0020, Lifted Lead/Installed Jumper Request Procedure, Revision 4. The fact that the log listed a total of only 11 outstanding jumpers was considered good. However, the following discrepancies were observed: (W)

- Changes in refueling crane controls were described, installed, and verified on a hand-drawn schematic attached to jumper request number 80-38. Shift Supervisor approval, jumper placement, and verification were

not documented on the control form. This may have been only a documentation concern since the Shift Supervisor appeared to have been the person who verified the installation on the attached sheet.

- Annunciator leads for the primary containment access door alarm had been lifted, although neither Shift Supervisor approval nor documentation of lead lifting and verification were indicated on the jumper request form number 80-35.

- Although not a safety-related item, jumpers were indicated by request form number 80-60 to have been installed in the control circuitry for a turbine exhaust fan on September 16, 1980. The form indicated that department head, Operations Supervisor, and Shift Supervisor approvals for jumper placement were not given until 3 days later on September 19.

The discrepancies identified above were discussed with the licensee, and the first two were presented to the Senior NRC Resident Inspector as a potential enforcement finding.

The discrepancies noted indicated a need for more careful attention to and review of jumper control practices. It was also observed that five of the jumpers installed in 1979 or earlier should be reevaluated for possible replacement by permanent wiring modifications. This included one jumper installed in the turbine control valve test circuitry in 1976.

(10) Another area of weakness was the absence of pertinent information in the Operator's Log. AP 0153, Maintenance of Operations Departmental Logs, Revision 8, listed entries which should be included and states that all entries shall include time of event. A single mid-shift entry on April 6, 1981, recorded the completion of sixteen surveillance tests by number, with times or test titles not indicated. Surveillance tests performed on restoration of equipment to service were not always recorded. The failure of an RHR mini-flow valve to open on March 4 and related submission of a work request were not logged as specified in the procedure. Many entries in the equipment status section in the back of the logbook did not include the time when equipment was removed from or restored to service, and reasons for removing equipment from service were in most cases not provided as required by the procedure. The log also did not identify operators on duty. The Operator's Log did not appear to meet the intent of AP 0153 by providing "a detailed chronological account of all plant operating events ... through which past events can be reconstructed." (W)

(11) Another event not included in the Operator's Log was the failure of a core spray system full flow test valve, V14-26B, to close on January 19, 1981. This event was documented on maintenance request 81-0123 which was subsequently cancelled after the valve closed successfully on a second attempt. The failure was not identified as a potential reportable occurrence, an omission which might have been identified in a subsequent

log review had the failure been logged as specified in the procedure. At the time of this occurrence, the Operator's Log recorded completion of fifteen surveillance tests in one log entry with test results not indicated. (W)

This observation was discussed with the licensee and presented to the Senior NRC Resident Inspector as a potential enforcement finding.

(12) The licensee did not have a trending program covering plant equipment, performance, or events. Although one senior engineer was stated to be reviewing logs, there was no program requirement for members of the technical staff to review logs to detect potential problems. (W)

(13) AP 0154, Control Room Night Order Book, Revision 5, established the Night Order Book as a method for passing important communications to on-shift personnel. While it appeared to be accomplishing this objective, no one was assigned the specific responsibility for maintaining the Night Order Book and removing outdated material. (W)

(14) AP 0152, Shift Turnover, Revision 5, established procedures to be used for shift relief, including the completion of Shift Turnover Checklists. Examination of the copies being used in the control room showed them to be marginally legible in some areas due to repeated photocopying. (W)

b. Conclusions

The plant had an effective organizational structure and a qualified staff. Corporate support, plant housekeeping, procedure control, and the general attitude of those contacted were considered good. Areas noted to be in need of improvement were equipment status control, control of jumpers and lifted leads, the Operator's Log, trending, administrative procedure format, and definition of company goals and policies.

Management controls in the area of plant operations were considered average.

6. Corrective Action System

The objective of this portion of the inspection was to evaluate the adequacy of the licensee's management controls over the corrective action system.

a. Observation

The following observations include the perceived strengths and weaknesses in the licensee's management controls that may not have specific regulatory requirements, but will provide the basis for subsequent performance evaluations.

(1) The "corrective action system" was described in Section XVI of the QA Topical Report (YOQAP1A), Revision 9; Operational Quality Assurance Procedure (OQA)XVI1, Corrective Action, Revision 2; OQAXVIII2, In Plant Audit Program, Revision 11; Administrative Procedure (AP) 0010, Occurrence Reports, Revision 10; AP 0200, Maintenance Program, Revision 7; AP 6021, Nonconformance Reports, Revision 6; AP 0030, Plant Operations Review Committee, Revision 6; OQAXV1, Nonconformances, Revision 3; and Engineering Manual Procedures (WE)001, Administration of the Engineering Manual, Revision 3. Collectively, the procedures addressed: evaluation of corrective reports; review and investigation; tracking; preparation of required reports, posting of 10 CFR 19 requirements; and incorporation of required actions into staff training. The program was defined in procedures and implemented. However, the following weaknesses were observed: (W)

. The stated purpose of procedure OQAXV11 did not include assurance that problems would be corrected to preclude recurrence as specified in section XVI.B.1.c of YOQAP1A. In addition, the procedure did not reference or discuss the various measures by which failures, malfunctions, deficiencies or deviations were identified in nonconformance reports, inhouse reports, or reportable occurrences.

. Even though a Plant Operations Review Committee (PORC) review was accomplished, AP 0030 did not require certain corrective reports (specified in other procedures) to be reviewed by PORC. This included a Machinery Repair Record report required by AP 0200; Nonconformance Reports, required by AP 6021; Occurrence Reports including Reportable Occurrences, Plant Information Reports and Fire Protection System Reports required by AP 0010.

(2) Except for some Licensee Event Reports (LERs), corrective actions appeared to be immediate and remedial. Matters requiring corrective action were not trended to detect repetitive or generic problems as illustrated in the following observations: (W)

. Responses to audit findings did not include a statement of the action taken or planned to prevent recurrence. AP 6010, In Plant Audits, Revision 4, did not contain such a statement, nor did it reference section XVIC.1.a. of YOQAP-I-A to initiate corrective action to preclude recurrence.

. The 1978 Nuclear Safety Audit and Review Committee (NSARC) audit identified a problem regarding the high auditor turnover rate within the Operational Quality Assurance Department (OQAD). NSARC audits conducted subsequent to 1978 indicated that action had not been taken to correct the high turnover problem.

(3) Section 4.1(4) of ANSI N18.7 - 1976 as referenced in Section II of the QA Topical Report requires a program for review and audit of activities affecting safety be established to detect trends which may not be apparent to a day-to-day observer. NSARC had undertaken a trending program regarding inplant audit findings as a result of a recommendation in the 1978 NSARC audit. However, a program had not been developed to determine generic or repetitive problems by trending audit findings, personnel errors, repetitive maintenance items, component failures, operating deficiencies, material discrepancies, or procedure weaknesses. (W)

This observation was discussed with the licensee and presented to the Senior Resident Inspector as a potential enforcement finding.

(4) AP 0028, Operating Experience, Review and Assessment, Revision 0, required that information pertinent to plant safety be appropriately and effectively reviewed, assessed, distributed and acted upon in accordance with NUREG-0660. Such information was contained in documents such as General Electric's Service Information Letters (SILs) and Operating Event Reports (OERs), and INPO/NSACs NOTEPAD System. Interviews indicated that the above procedure was well implemented. (S)

b. Conclusion

The licensee's corrective action system was defined in procedures and implemented. Weaknesses in the corrective action system were the failure to trend problems for generic impact and to identify action to prevent recurrence.

Based on the above considerations, management controls associated with the Corrective Action program were considered average.

7. Procurement

The objective of this portion of the inspection was to evaluate the adequacy of the licensee's management controls associated with the procurement of safety-related materials and services.

a. Observations

The following observations include the perceived strengths and weaknesses in the licensee's management controls which may not have

specific regulatory requirements but will provide the basis for subsequent performance evaluations.

(1) Interviews at the site revealed that the Vermont Yankee employees involved in procurement activities had a positive attitude toward their work and were supportive of the Vermont Yankee organization. (S) Occasionally, an employee expressed criticism of the manner in which a task was accomplished. However, the criticisms appeared to be constructive. These criticisms were submitted to management along with a proposed alternative solution to the perceived problem.

(2) The licensee had current organization charts. The Vermont Yankee site organization chart was current as of March 16, 1981 and the corporate Yankee Atomic Electric Company (YAEC) organization chart was current as of April 1, 1981. The lines of responsibility were adequately defined. Onsite purchasing and stores personnel had specific job descriptions. The job descriptions had been issued within the previous 2 years. In contrast, there were no specific job descriptions for personnel at the YAEC corporate office (See Section 2.a.(1).(b) for additional comments). (W)

(3) The licensee's written programs, as defined by existing policies, directives, and procedures appeared adequate. Licensee personnel interviewed at the site communicated an awareness of what their role was in the procurement function. However, several deficiencies were noted regarding program implementation as indicated in the following items: (W)

. Annually, the Operational Quality Assurance Department (OQAD) expended 2 man-years of effort at each of three plants (Vermont Yankee, Yankee Rowe, and Maine Yankee) under its cognizance in the performance of vendor evaluation and surveillances, plant audits, and purchase order reviews. In 1980, for the three plants, there were about 160 vendor surveillances and 40 vendor evaluations performed at vendor sites by OQAD. The surveillances were generally required because the safety-related purchase orders had been placed with an unapproved vendor.

At the time of the inspection OQAD was understaffed and lacked qualified audit personnel. See Section 9.a.(1) for comments regarding the OQAD. The large number of vendor surveillances and vendor evaluations required, in addition to other programs to which QA manpower was committed, limited the scope and detail of the audits. The risk of an inadequate audit was increased because of a lack of qualified auditors.

. The audits conducted in 1979 and 1980 by OQAD, of the Purchasing and Stores function, were not consistent in quality. One cause of the inconsistency was the inexperience and qualifications of the auditors. An auditor could be assigned to audit a given function, such as purchasing and stores, after having accompanied another auditor on only two audits. This auditor would then be assigned primary responsibility for the next audit.

(4) In the areas of receiving, storing, and handling of safety-related material, a significant deficiency existed in the availability of adequate storage space. The shortage of space has resulted in several unsatisfactory and potentially unsatisfactory storage situations as indicated by the following examples: (W)

. The south warehouse, in which the licensee stored practically all safety-related materials, was classified by the licensee as Level "B" storage. Extraneous material such as old typewriters, water coolers and materials for pending jobs were found to be stored in the quality assurance material hold area.

. Paints were stored in the storeroom and one area of the warehouse. Although pressurized paint cans were stored in paint lockers, other paints were stored on open shelves. Limited shelf space in the storeroom has resulted in stacking of material higher than desirable for good storage practices.

. A bag of chemicals with a notice on the bag stating the material could be corrosive was observed to be stored adjacent to shelves containing safety-related material.

. Large boxes of control rod parts required level "B" storage as specified in the Quality Assurance documents. These boxes were stored in the north warehouse which the licensee had classified as level "C" storage.

The last two observations noted above were discussed with the licensee and presented to the Senior Resident Inspector as potential enforcement findings.

The licensee had recognized the problem of inadequate storage space. A new building was under construction which, among other uses, was expected to provide about four times the storage space presently available. The additional space,

scheduled to be available in late 1981, was expected to eliminate the potential problems with existing inadequate storage space.

b. Conclusions

The licensee had established a system of written policies, directives, and procedures to control procurement functions. These documents defined the purchasing, receiving, storing, shipping, and issuing of safety-related materials and the related functions of auditing, vendor evaluations and handling of nonconformances. The personnel involved in these functions demonstrated an awareness of their responsibilities. Lack of timely management action had allowed the condition of inadequate storage space to develop. An additional weakness existed in attracting and retaining adequate numbers of qualified QA audit personnel.

Even though weaknesses existed in the ability of the licensee to meet storage requirements for safety-related material and to perform audit functions, few actual problems were found which were associated with these weaknesses. Personnel performing the functions associated with procurement were considered well qualified.

Management controls in the area of procurement were considered average.

8. Committee Activities

The objective of this portion of the inspection was to evaluate the adequacy of the licensee's management controls associated with activities conducted by the Plant Operations Review Committee (PORC) and the Nuclear Safety Audit and Review Committee (NSARC).

a. Observations

The following observations include the perceived strengths and weaknesses in the licensee's management controls which may not have specific regulatory requirements but will provide the basis for subsequent performance evaluation.

(1) Interviews and review of meeting minutes, NSARC members' resumes, and other documents showed that members of both committees possessed strong collective knowledge in the plant and its principles of operation. These reviews and interviews also demonstrated that the committees were fulfilling their responsibilities as defined in the committee charters and Technical Specifications (TS). Committee members interviewed stated that time given to committee activities was being effectively used. The regular semiannual NSARC meetings were held at the plant site, which permitted more effective participation in meetings by the Operational Quality Assurance Coordinator and members of the plant staff. (S)

(2) Although the charters for both committees covered most committee activities, weaknesses were observed in charters as follows: (W)

- In specifying committee responsibilities, the charters only quoted the review requirements in the TS. Certain documents reviewed by the committees in the process of fulfilling TS review requirements were not specified. For example, the charters did not clearly require either committee to review reportable occurrences and fire protection reports.

- The NSARC charter did not specify the individual to whom the committee reports, who approves the charter, or who appoints committee members.

- Although both committees have used subcommittees on certain occasions, the charters did not address their use.

- The NSARC charter did not specify who approved meeting minutes for distribution.

(3) Existing programs did not appear to ensure that all TS violations were reviewed by both committees as required by TS and their charters. There appeared to be four or more possible sources of identifying TS violations for committee review. One of these was NRC inspection reports, which were reviewed in some form by both committees. A second was audit finding reports, which were being reviewed by the NSARC but not by the PORC. Licensee event reports could identify TS violations. These reports were being reviewed by both committees. Potential Reportable Occurrences (PROs) could identify TS violations not considered by the licensee to be reportable. These were not being reviewed by either committee, although they were reviewed by members of the plant staff who comprised a substantial part of the PORC. This issue was identified as a matter which should be reviewed by the licensee for development of an effective program to ensure TS violations were brought to the attention of the committees for their review. (W)

(4) The TS require periodic audits of plant operations and fire protection to be performed under the cognizance of the NSARC. Prior to license amendment No. 65, which was received by the licensee during the inspection, the NSARC was also required by TS to conduct audits of plant operations. Review of NSARC audits is discussed further in Section 9. The NSARC minutes for regular meetings conducted in April and October 1980 showed that the NSARC had performed reviews of the audit program. Individual audit reports were routed to committee members. Those audit reports for which questions were identified were scheduled for review at the semiannual meeting.

b. Conclusions

Both the NSARC and the PORC were staffed with qualified members having strong collective knowledge in the plant and its principles of operation. Interviews and record reviews showed the committees to be performing effectively. The practice of holding the regular semiannual NSARC meetings at the site was considered a strength. Observed areas of weaknesses were committee charters and review of TS violations.

Management controls associated with committee activities were considered average.

9. Quality Assurance Audits

The objective of this portion of the inspection was to evaluate the adequacy of the licensee's management controls associated with quality assurance audit activities.

a. Observations

The following observations include perceived strengths and weakness in the licensee's management controls that may not have specific regulatory requirements, but will provide the basis for subsequent performance evaluations.

(1) The President of Yankee Atomic Electric Company (YAEC) had issued a policy statement which assigned audit responsibilities for Vermont Yankee, Maine Yankee, and Yankee Rowe plants to the Manager of the Operational Quality Assurance Department (OQAD). The policy statement included commitments to adhere to the regulatory requirements specified and referenced in the approved Quality Assurance (QA) Topical Report - Vermont Yankee Operational Quality Assurance Program (YOQAP-1-A), Revision 9. A comprehensive system of inplant audits was to verify compliance with all aspects of the QA Program and assess the effectiveness of the program. Responsibilities for periodic review of the adequacy and effectiveness of the program were assigned to the Nuclear Safety Audit and Review Committee (NSARC). The Manager of the OQAD served as Chairman of the NSARC. The YAEC, Nuclear Services Division (NSD) engineering activities, including quality reviews by OQAD, were audited by the YAEC Seabrook Quality Assurance Group.

OQAD included the Operational Quality Assurance Manager (OQAM), an Operational Quality Assurance Coordinator (OQAC), an onsite OQAC representative who coordinated OQAD and site activities, and the staff QA auditors. The major effort of OQAD was spent performing vendor surveillances and evaluations, and performing inplant audits at Vermont Yankee, Maine Yankee, and Yankee Rowe.

OQAD was understaffed. In the past year, OQAD had at least a 50% turnover rate in personnel. As of April 17, 1981, nine of thirteen positions were filled and two of the nine positions were being vacated by transfer and resignation. Three of the positions were filled with personnel with less than 4 months experience. The high turnover rate in OQAD personnel had been a chronic problem since at least 1978. (W)

(2) Procedures which defined responsibilities for auditing were delineated in: Operational Quality Assurance Procedure (OQA)-XVIII-2, In Plant Audit Program, Revision 11; OPVY-107, In Plant Audits, Revision 0; Administrative Procedure (AP) 6010 In Plant Audits, Revision 4, Engineering Manual Procedure (WE)-001, Administration of the Engineering Manual, Revision 3; and NSARC's Audit Program. The following procedure weaknesses were observed. (W)

. OQAD procedures were written and approved only within OQAD. Neither the offsite (NSARC) nor the onsite (PORC) review committees or any other individual or group were involved with the review or approval of OQAD program procedures and changes. In some cases, the instructions and guidelines were not written in sufficient detail to be applicable to all experience levels of employees. For example, references were given in general terms such as Operational QA Manual, Technical Specifications, FSAR and the Operating License rather than to specific sections or paragraphs within the referenced documents.

. OQAD procedures were not scheduled for periodic review. Other procedures, such as APs and WEs were required to be reviewed every 2 years. However, this review did not necessarily include information contained in regulatory changes, experience at the operating facility, or past industry experiences as described in IE Bulletins, Circulars or Information Notices.

(3) Section 5.3 of ANSI N18.7-1976 as referenced in Section II of Topical Report [illegible]-A requires the quality assurance program to be carried out in accordance with written procedures. The procedures were required to include appropriate quantitative or qualitative acceptance criteria for determining that important activities had been satisfactorily accomplished. The following weaknesses were observed regarding program implementation: (W)

. The Nuclear Services Division engineering departments were not audited every 2 years as required by Section 3.6.3 of Procedure WE-001, Administration of the Engineering Manual, Revision 3.

- OQAD had not prepared a procedure to ensure that random surveillance activities were conducted in accordance with Section XVIII B.1.e of the Topical Report (YOQAP-1-A).

These observations were discussed with the licensee and presented to the Senior NRC Resident Inspector as potential enforcement findings.

(4) OQAD job descriptions did not include individual functional responsibilities. Assistant Engineer, Associate Engineer, Engineer, or Senior Engineer were typical titles of personnel performing auditor duties. See Section 2.a.(1)(d) for comments regarding job descriptions. Interviews revealed that the stop work authority vested in the OQAD was not well understood by either the auditors or plant personnel. (W)

(5) Interviews and review of OQAD personnel files indicated that personnel were not necessarily selected based on training and experience in the disciplines associated with specific audit areas. Inplant audits were performed by personnel who met the minimum training requirements of Section 2.3 of ANSI N45.2.12 and OQA-II-2, Indoctrination and Training, Revision 4. Only the OQAM and the OQAD Senior Engineer had attended a course in auditing given outside the company. Auditors who performed NSARC audits had not received formal auditor training. (W)

(6) Section 4.4.4 of ANSI N45.2.12 recommends that an audit program report on the effectivness of areas audited. OQA-II-1, Operational Quality Assurance Program, Revision 1, defined an audit to be: "an activity conducted at the plant and/or NSD to determine compliance with established procedures, specifications, instructions, codes and standards." This procedure did not define an audit to include comments on the effectiveness of audited areas. Such comments were not included in the reports reviewed. (W) Interviews revealed that management was reluctant to have subjective matter placed in the reports. This was contrary to management policy (see observation 9.1).

(7) PORC did not review inplant audit findings and as a result, failed to identify potential Technical Specification violations documented in OQAD audit findings. (W)

(8) Section 4.5 of ANSI N18.7-1976 recommends that safety-related functions be audited within a 2-year period. The licensee had prepared a matrix which compared regulatory requirements against program elements for OQAD documents and plant administrative procedures. However, the matrix did not include the requirement that all safety-related functions be audited every two years. As a result a program element specifying a 2 year audit frequency did not exist. (W)

(9) Prior to each audit, a checklist was prepared by the auditor. The checklist was reviewed by the OQAC and OQAM. There were virtually no guidelines on how to prepare an audit checklist which would provide adequate continuity, scope, and depth. Sampling techniques, personnel changes, procedure revisions, previous negative findings, trending, industry problems, and other factors were not considered during the preparation of the checklist. (W)

(10) The QA program did not include provisions to ensure feedback and status of problems associated with the inplant audit findings. OQAD Management was not debriefed by the auditor after completion of an audit or vendor surveillance. In the past 2 years, the OQAD had not held a staff meeting. See Section 2.a.(1).(h). (W)

(11) A review of 12 audits covering four areas (operations, corrective action, maintenance and plant changes) revealed a lack of audit scope and depth as follows: (W)

- lack of objective evidence to substantiate audit findings,
- audit findings were rejected by the plant for good cause indicating a lack of auditor training and experience,
- failure to verify whether PORC had performed several required activities,
- failure to recognize operational procedure violations as potential violations of Technical Specification requirements,
- failure to verify whether recent revisions to procedures had been implemented,
- audits usually consisted of only 2 man-days onsite,
- only a small audit sample size was selected when compared to the total items contained in a procedure, and
- the audit requirements did not include an evaluation of the effectiveness of the area being audited.

Interviews revealed that the plant and corporate staff perceived the OQAD effort as helpful. However, they also perceived most of the individual auditors as untrained and inexperienced. A common plant staff opinion was that audits should comment on procedure effectiveness rather than only verifying compliance with the procedure. Interviews revealed a need to develop a written technical audit training program including schedules, goals, and objectives.

(12) NSARC was responsible for review of QA Program activities in the area of plant operations, NSD engineering, and OQAD to determine overall effectiveness. The effectivenss of the QA Program was evaluated by NSARC's semiannual review of the In-Plant Audit Status Report and the performance of an annual audit. The 1979 and 1980 NSARC audits did not appear to be effective as indicated by the following examples: (W)

- The 1979 Audit lacked objective evidence to substantiate audit finding,
- The high turnover rate of audit personnel identified in the 1978 NSARC audit was not mentioned as a continuing problem, and
- The 1980 NSARC audit was not performed using the approved NSARC audit program check list.

As a result, the audit failed to determine: whether manpower and funding were adequate; whether audit checklists provided the depth necessary to determine if the selected element was being implemented effectively; and whether auditors provided an evaluation statement as to the effectiveness of the area being audited. Interviews revealed that the above matters had not been discussed during the October 1980 NSARC meeting.

During this inspection, the licensee received a license amendment to delete the requirement that NSARC audit OQAD. The elimination of the NSARC audit responsibility was a concern in view of the weaknesses identified in the OQAD audit program.

(13) Responses to inplant audits, corrective action on the audit findings and followup appeared to be timely. Recommendations included in some audit reports appeared appropriate. In certain select areas such as Health Physics and Security, technically competent and trained personnel were used to perform audit functions. Plant management's attitude towards inplant audits was positive and it appeared management would welcome and support a more comprehensive audit program. (S)

b. Conclusions

Numerous weaknesses were identified regarding the QA audit program. Weaknesses involved the lack of scope, depth, and impact of most audits. Factors contributing to these weaknesses included management's failure to: (1) adequately assess the effectiveness of the program; (2) correct the high turnover rate in audit personnel; (3) implement an effective training program; and (4) utilize personnel with expertise in selected areas. Other weaknesses included a lack of adequate direction and guidance by management.

Management controls associated with the QA audit program were considered below average.

10. Physical Protection

[redacted]nce with 10 CFR 2.790(d), the information in this section is [redacted] public disclosure. This section is included as Attachment A [redacted] report.

11. Exit Interviews

Exit meetings were conducted April 17 at the Yankee Atomic Electric Company corporate office and April 10 and May 1, 1981, at the Vermont Yankee site with the licensee representatives identified in Attachment B. The Appraisal Team summarized the appraisal findings and informed the licensee that they would be expected to respond, in writing, to those areas considered below average. The licensee was informed that potential enforcement findings would be handled by the IE Region I office.

ATTACHMENT B

1. Persons Contacted

The following lists (by title) the individuals contacted during this inspection. The matrix to the right of the listing identifies the functional areas for which that individual provided significant input. The number at the top of each column refers to the specific section of the report where a particular functional area is discussed. (See Table of Contents for page numbers.) Other individuals, including technical and administrative personnel, were also contacted during the inspection.

Corporate Office (YAEC/NSD)

Title of Individual	Functional Areas								
	2	3	4	5	6	7	8	9	10
#*President	X			X			X		
#*Vice President of Operations		X	X	X	X		X	X	
*Vice President and Manager of Operations (Vermont Yankee)	X	X	X	X	X	X	X	X	X
Plant Engineering Manager	X	X			X	X		X	
Instrumentation and Control Manager	X	X							
Electrical Engineering Manager	X	X							
Mechanical Engineering Manager	X	X	X		X			X	
Systems Engineering Manager	X	X	X		X			X	
Instrumentation and Control Engineer (3)	X	X					X		
Electrical Engineer (2)	X	X	X		X			X	
Mechanical Engineer (1)	X	X	X						
Systems Engineer (1)	X	X			X			X	
#Vice President	X		X	X	X			X	
#Operational Quality Assurance Manager	X	X	X		X	X	X	X	X
Operational Quality Assurance Coordinator	X	X	X		X	X		X	
Senior Engineer (QA Auditor)	X	X	X		X	X		X	
Engineer Asssistant (QA Auditor) (3)	X	X	X		X	X		X	X
#Director Operational Projects									
#*Vermont Yankee Project Manager	X	X	X	X	X	X	X	X	X
*Licensing Engineer				X					
#Senior Vice President	X				X			X	
Nuclear Engineering Manager	X	X	X		X		X	X	
Reactor Physics Manager		X		X					
BWR Transient Analysis Manager	X	X		X					
Environmental Engineering Director	X								
Radiological Engineering Manager	X								
Radiation Protection Manager	X								
Environmental Sciences Manager	X								
Radiation Protection Engineers (2)	X								

Title of Individual	Functional Areas								
	2	3	4	5	6	7	8	9	10
Security Advisor									X
Chairman, Nuclear Safety Audit and Review Committee (NSARC)					X		X	X	
Vice Chairman, NSARC					X		X	X	
Member, NSARC (3)					X		X	X	
Onsite	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
%*Plant Superintendent	X	X	X	X	X	X	X	X	X
%*Assistant Plant Superintendent		X	X	X	X		X	X	
*Operations Supervisor	X	X	X	X	X		X	X	
Assistant Operations Supervisor	X	X	X	X			X		
Shift Supervisor (3)	X	X	X	X					
Supervisor Control Room Operator (4)	X	X	X	X					
Control Room Operator (2)	X			X					
Auxiliary Control Room Operator	X								
Auxiliary Operator (3)	X	X	X	X					
%*Engineering Support Supervisor	X	X	X	X	X	X	X	X	
Quality Assurance Engineer (2)	X	X	X	X	X	X	X	X	X
Senior Electrical Engineer					X			X	
Senior Mechanical Engineer		X	X						
Electrical Engineer	X								
Mechanical Engineer	X	X	X		X			X	
Engineering Support Records Clerk		X							
*Maintenance Supervisor	X	X	X		X	X		X	
Maintenance Foreman	X	X	X						
Maintenance Technical Assistant	X					X			
Assistant Maintenance Foreman	X	X	X						
Lead Plant Mechanic	X	X	X						
Plant Mechanic (4)	X		X						
Assistant Plant Mechanic (2)	X		X						
*Reactor and Computer Supervisor	X								
Nuclear Safety Engineer (1)	X								
Reactor Engineer	X			X					
Reactor Engineer Assistant	X								
Chemist	X								
Health Physicist	X				X			X	
Chemistry and Health Physics Assistant (2)	X								
Chemistry and Health Physics Technician (4)	X								
*Instrumentation and Control Supervisor	X	X	X		X			X	
Instrumentation and Control Foreman		X	X		X			X	
Control Instrument Specialist				X	X			X	
*Training Supervisor	X			X	X	X		X	
Operations Training Supervisor	X	X							
Operations Training Assistant (2)	X			X					

Onsite	2	3	4	5	6	7	8	9	10
*Plant Training Supervisor	X								
Plant Training Assistant									X
*Administrative Supervisor	X		X			X			
Stores and Purchasing Supervisor	X				X	X		X	
Stores and Purchasing Clerk						X			
Storekeeper						X			
Stores Clerk						X			
Document Control Coordinator						X			
Security Supervisor	X								X
Security Record Clerk									X
Contractor Security Chief	X								X
Contractor Security Training Coordinator	X								X
Contractor Security Personnel (15)									X
*Operational QA Onsite Coordinator (YAEC)	X	X	X	X	X	X	X	X	X
Construction Supervisor						X			

%Attended Meeting on April 10, 1981
#Attended Meeting on April 17, 1981
*Attended Exit Interview on May 1, 1981

2. Documents Reviewed

The following lists those documents reviewed by the inspectors to the extent necessary to satisfy the inspection objectives stated in Section No. 1 of the report. The specific documents referred in the various sections of the report are listed by title and revision number where they first appear.

1. Technical Specification (TS), Section 6.0, Administrative Controls
2. Final Safety Analysis Report (FSAR), Chapter 13 - Conduct of Operations and Appendix D - Quality Assurance Program.
3. Vermont Yankee Operational Quality Assurance Program (YOQAP)
4. Operational Quality Assurance Procedures (OQA)
5. Nuclear Safety and Audit Review Committee (NSARC) Charter
6. Vermont Yankee Security Plan Evaluation Report (SPER)
7. Vermont Yankee Modified Amended Security Plan - (February 12, 1979)
8. Vermont Yankee Security and Training Qualifications (August 17, 1979)
9. Yankee Atomic Electric Company (YAEC) and Vermont Yankee (VY) organization charts
10. YAEC and VY Position Descriptions
11. Plant Operation Review Committee (PORC) Charter
12. Technical Administrative Guidelines (YAEC)
13. Operations Guideline Book (YAEC)
14. Engineering Quality Assurance Procedures (WE)
15. Yankee General Specifications (YA-GEN)
16. Administrative Procedures (AP's)
17. Departmental Procedures (DP's)
18. Operational Procedures (OP's)
19. Routine Procedures (RP's)
20. Departmental Procedures (DI's)

21. Selected Quality Assurance (QA) Audit Reports
22. Selected NSARC Minutes, 1980-1981
23. Selected PORC Minutes, 1980-1981
24. Selected Training Records for Corporate and Onsite Personnel (1979-1981)
25. Potential Reportable Occurrences (PRO's) 1980-1981
26. Reportable Occurrences (RO's) 1980-1981
27. Selected Maintenance Requests (MR's) 1980-1981
28. Selected Engineering and Plant Design Change Requests
29. Selected Plant Alternation Requests
30. Selected Equipment History and Preventative Maintenance Records
31. Plant Design Change Status Log
32. Licensed Operator Requalification Program
33. Licensed Operator Training Program
34. Departmental Training Procedures
35. In-Plant Audit Discrepancy Status Reports (1980-1981)
36. NSARC Audit Program
37. NSARC Audits of the VY In-Plant Audit Program (1979-1981)
38. Switching Order Log
39. Jumper and Lifted Lead Log
40. Plant Procedures Distribution Control Records
41. Surveillance Schedules
42. Night Order Book
43. Operating Log
44. Equipment Status Index
45. Shift Turnover Records