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OFFICE OF SECRETARY  
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April 28, 1990

Office of the Secretary  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

ATTENTION: Docketing and Service Branch

Re: Vermont Yankee Nuclear Power Corporation  
(Vermont Yankee Nuclear Power Station)  
Docket No. 50-271-OLA-4  
(Construction Period Recapture)

Dear Sir:

Enclosed please find Attachment B to "Interrogatories Propounded by Vermont Yankee Nuclear Power Corporation to the State of Vermont (Set No. 3)", which interrogatories were filed with you on April 26, 1990. Said Attachment B consists of pages 12-15 of SALP Report No. 50-271/88-89. Please affix this attachment to the interrogatories, as we had originally intended, but then inadvertently omitted, to do.

Thank you for your assistance in this matter.

Very truly yours,

*Jeffrey P. Trout*  
Jeffrey P. Trout

JPT/pd:JPTLTROS.VY

cc: Service List

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### III.C. Maintenance/Surveillance (969 hours, 31%)

#### III.C.1. Analysis

The previous SALP report rated maintenance and surveillance performance as two distinct functional areas. Maintenance was rated as Category 2 with an improving performance trend. The Maintenance program was considered a licensee strength as evidenced by high quality of craftsmanship and by overall plant reliability. The Board recommended the licensee review and evaluate the root causes of balance of plant equipment induced reactor scrams and age-related equipment failures to identify possible underlying trends. Surveillance was rated as Category 1. The report concluded the in-service and operational surveillance programs remained an overall licensee strength. The Board recommended the licensee expeditiously complete an independent surveillance program verification audit.

Maintenance activities during routine power operations, short notice and unplanned maintenance outages, as well as, refueling outages were reviewed during this assessment period. Additionally, an NRC Maintenance Team Inspection was conducted during the 1989 refueling outage. The routine preventive and corrective maintenance programs continued to be effectively implemented, as evidenced by high equipment availability, reliability and performance. Management maintained a low tolerance for degraded equipment and typically pursued conservative resolution of maintenance deficiencies. The strength of the maintenance program is clearly derived from the individuals within the staff. The maintenance organization is a highly stable, skilled and dedicated staff with extensive plant system knowledge. Maintenance personnel ensured work area cleanliness and restoration, thus perpetuating excellent plant housekeeping conditions. Transient equipment is typically observed to be properly stowed and secured. Pride of ownership is obvious in the quality of workmanship in daily activities.

Plant management awareness of maintenance activities was evident during plant walk-downs and active involvement in the weekly operations and daily outage meetings. Similar corporate management involvement was noted periodically during routine operations and more frequently during outages and periods of significant activities. Recently, the licensee conducted two major self-initiatives in the form of a Safety System Functional Inspection and an extensive maintenance program self-assessment. These initiatives have provided insight into potential programmatic and hardware improvements. Additionally, a computer based management data system is being developed. Present projections estimate the system to be fully functional by the end of 1991. These initiatives are indicative of a continuing licensee commitment to improved maintenance program performance.

Engineering support to the maintenance process has been well integrated. The I&C and maintenance departments engineers typically effectively handled daily activities. Additional on-site technical expertise is routinely provided by

the engineering support department. Further, engineering resources, as necessary, are provided by YNSD in Bolton, MA. The licensee failure-mode analysis and root cause determination of inoperable equipment were deliberate and technically sound. The recent staffing of additional maintenance engineers has further improved this function. The immediate benefit of increased resources has been realized in the identification and resolution of various HPCI and RCIC trip and throttle valve design deficiencies; investigation and analysis of the RHR service water valve stem failure; resolution of slow EDG starting times; as well as, a reduction in the backlog of root cause determinations. Those determinations are typically accurate as indicated by a low incidence of repeat corrective maintenance activities. However, the licensee has been frustrated in attempts to increase the reliability and availability of the uninterruptible power supply system (UPS) and the toxic gas monitoring system (TGM). As a result of diverse random failures and poor design application, the UPS system is scheduled to be replaced during the next refueling outage. The recommendations of an I&C task force have been only partially successful in improving TGM performance. Additionally, recurring reactor water cleanup (RCU) pump seal package failures have resulted in unanticipated increased departmental man-rem exposures. Extensive efforts toward improved TGM system and RCU pump performance, as well as the commitment to replace the UPS system, were typical of a conservative licensee philosophy toward resolution of equipment reliability issues.

The staffing levels of the maintenance organization are sufficient to support activities during routine operations. Contractor and vendor experts are utilized for outages and special projects. Contractor and vendor training and QA programs were required to be consistent with those of VYNPC. Departmental management oversight of contractor and vendor activities was well maintained.

Technical training programs have been properly implemented for maintenance and I&C personnel. Individual near and long term training objectives are clearly defined. Recently, a mechanical and electrical laboratory within the training center conducted its initial training sessions. A similar I&C laboratory is expected to be functional shortly. These hands-on facilities should enhance the quality of maintenance activities as well as provide potential reductions in man-rem exposures.

A previously identified deficiency was the lack of a program to ensure vendor manuals were maintained accurate and current. This deficiency had been highlighted in previous SALP reports and in the maintenance team inspection report. The licensee has since initiated an intensive program to establish vendor manual accuracy. The program ensures consistent control of the preparation, review, revision and approval of vendor provided technical information. At the conclusion of the assessment period, a dedicated contract engineering group had updated approximately two thirds of the vendor manuals. The program is now well-defined and addresses this concern.

Maintenance activities were appropriately prioritized, scheduled, and performed in accordance with safety significance and TS requirements. Improved planning has greatly reduced the average preventive maintenance activity backlog. Throughout the assessment period, the licensee demonstrated the ability to accomplish a number of significant and diverse maintenance activities during



short notice outages and power reductions to perform corrective maintenance. Additionally, the maintenance department performed well during the five Unusual Events declared during this assessment period. In each instance, failed equipment was expeditiously repaired and returned to service and the event was terminated prior to appreciable power reduction.

The maintenance organization continued to exhibit generally excellent performance in outage activities. In addition to completing scheduled activities in a quality manner, the maintenance organization demonstrated the ability to effectively dispose of major emergent work issues. The licensee appropriately revised critical path schedules and performed comprehensive engineering evaluations to support 4KV emergency bus insulation replacement, RHR heat exchanger division plate inspection and repairs, feedwater check valve stellite guide cracking analysis, and various RHR service water valve repairs. Excellent external and interdepartmental communications were evident during complex activities.

Notwithstanding excellent personnel and a good equipment and system reliability record, the maintenance program lacks a formal, comprehensive plan that clearly documents program policies, responsibilities, and objectives. Absence of a plan hampers the licensee ability to provide a consistent approach to maintenance activities and to establish a baseline for determining program effectiveness. By the end of the assessment period, the licensee had developed and substantially documented a formal program plan.

Surveillance activities inspected this assessment period included routine testing, calibration control programs, control of measuring and test equipment, and containment integrated and local leak rate test programs.

The surveillance program continued to be well controlled and properly implemented. Surveillance procedures were technically accurate and provided sufficient instruction to help assure proper performance. The biennial procedure review program helped ensure adherence to TS requirements and the incorporation of content and format upgrades. Quality records were properly maintained, accessible and complete.

Surveillance procedures were performed by highly experienced and knowledgeable personnel who demonstrated extensive understanding of component and instrument operations. A consistently high level of attention to detail and procedural compliance was demonstrated with a noteworthy lack of personnel errors. Strong interdepartmental communications and coordination routinely ensured necessary plant conditions and prerequisites were established. Supervisory assistance was observed to be readily available to field technicians throughout surveillance activities.

Responsibilities for the IST program were reorganized during the assessment period. Responsibilities for data acquisition and evaluation were more clearly defined. The reorganization, in conjunction with improved test instrumentation, has resulted in consistent data acquisition techniques with increased accuracy, as well as more meaningful data reduction and preventive maintenance

recommendations. Additionally, the valve inspection program was further refined. Particular improvements were obtained in the area of check valve inspection.

The licensee aggressively pursued the previous SALP recommendation to complete a surveillance program review. During the assessment period, a comprehensive 100% audit of technical specification surveillances was conducted by an independent organization. The licensee expeditiously addressed and corrected the deficiencies identified by the audit. These deficiencies were primarily surveillance program administrative weaknesses rather than technical inadequacies.

In conclusion, the maintenance and surveillance programs remained licensee strengths. The maintenance organization continues to be comprised of experienced and highly dedicated personnel. Management routinely demonstrated a conservative approach to maintenance issues. Increased staffing of maintenance engineers has improved design reviews, causal and failure analyses, and reduced work effort backlogs. Superior performance during short notice and refueling activities continued to be a licensee strength. The surveillance program continued to be well implemented. The minimal incidence of personnel errors reflected an extremely knowledgeable, dedicated, and alert staff. Incorporation of the surveillance audit corrective actions have further enhanced the administration of the surveillance program.

III.C.2. Performance Rating: Category 1

III.C.3. Recommendations

Licensee: None.

NRC: None.