

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No. 50-271
820512

Report No. 82-08

Docket No. 50-271

License No. DPR-28

Priority --

Category C

Licensee: Vermont Yankee Nuclear Power Corporation

1671 Worcester Road

Framingham, Massachusetts 01701

Facility Name: Vermont Yankee

Inspection at: Vernon, Vermont and Framingham, Massachusetts

Inspection Conducted: May 11-31, 1982

Inspectors: William J. Raymond
W. B. Raymond, Senior Resident Inspector

6/16/82

for William J. Raymond
S. J. Collins, Resident Inspector

6/16/82

for William J. Raymond
H. Eichenholz, Resident Inspector

6/16/82

Approved by: Robert M. Gallo
R. M. Gallo, Chief, Reactor Projects
Section 1A, Projects Branch #1

7/8/82

Inspection Summary:

Inspection on May 11-31, 1982 (Report No. 50-271/82-08)

Areas Inspected: Routine, announced inspection on normal and backshifts by the Resident inspectors of: previous inspection findings; Nuclear Safety Audit and Review Committee activities; plant operations; physical security; safeguard system operability; and, inspector followup of events. The inspection involved 98 hours on site by three resident inspectors.

Results: Of six areas inspected, no violations were identified in five areas. One apparent violation was identified in the area of offsite Review Committee activities (failure to review safety evaluations associated with plant design changes - paragraph 3).

DETAILS

1. Persons Contacted

The below listed technical and supervisory level personnel were among those contacted:

Vermont Yankee Nuclear Power Corporation

Mr. D. Allen, Reactor Engineer Assistant
Mr. R. Branch, Operations Supervisor
Mr. F. Burger, Quality Assurance Coordinator
Mr. P. Donnelly, Instrument and Control Supervisor
Mr. J. Durborow, Control Room Operator
Mr. S. Jefferson, Technical Services Superintendent
Mr. D. Labarge, Shift Supervisor
Mr. B. Leach, Health Physicist
Mr. M. Lyster, Operations Superintendent
*Mr. W. Murphy, Plant Manager
Mr. R. Pagodin, Senior Electrical Engineer
Mr. D. Phillips, Technical Assistant
Mr. D. Reid, Engineering Support Supervisor
Mr. R. Selby, Senior Control Instrument Specialist
Mr. J. Sullivan, Maintenance Foreman

Yankee Atomic Electric Company

Mr. D. Pike, Manager, Operational Quality Assurance
Mr. A. Shepard, Director, Quality Assurance

*denotes those present at management meetings held periodically during the inspection.

2. Status of Previous Inspection Findings

- a. (Closed) Violation 50-271/81-08-09: Control of Audits Identified As Random Informal Surveillance of Plant Activities. The licensee provided for inspector review a Directive issued by the Manager of Operational Quality Assurance on December 16, 1981 (Memo OQA A81-613/1.3.3) to establish written instructions for the subject audits. The directive defined the intent and scope of random surveillances and established how the audit findings would be documented and resolved. This item is closed.
- b. (Closed) Unresolved Item 50-271/79-17-05: Compliance with ANSI N18.7-1976. The inspector noted during discussions with corporate office personnel that the NRC position regarding compliance with ANSI N18.7-1976 had been received (see NRC Region I Inspection Report 50-271/81-13). As regards Section 4.2 of the standard, which requires that review personnel be kept informed of matters within the scope of their responsibility, the licensee distributed agenda documentation to Nuclear Safety Audit and Review Committee (NSARC) members prior to

scheduled meetings. Members of the Committee were then required to review the documentation prior to the next scheduled meeting. Member review of the documentation was recorded on sign-off sheets returned to the Committee Chairman, along with comments on the items reviewed and/or requests for additional discussions during the forthcoming meeting. This practice was continued as a matter of policy with the new NSAR Committee formed in January, 1982. See paragraph 3 of this report for additional discussions on NSARC activities. This item is closed.

3. Nuclear Safety Audit and Review Committee (NSARC)

NSARC meeting minutes for both special and regularly scheduled meetings were reviewed for the period of April 17, 1980 (Meeting 80-3-R) to April 28, 1982 (Meeting 82-2-R). The Charter for the new NSAR Committee, appointed by the Senior Vice President-YAEC by letter dated January 25, 1982, was also reviewed. The NSARC charter and meeting minutes were reviewed to verify the following:

- The Charter and policies governing NSARC activities were consistent with the Technical Specification and other regulatory requirements;
- the NSARC membership and qualifications were as required by the Technical Specifications;
- NSARC meetings were convened at the required frequency;
- committee members who participated in reviews constituted a quorum and possessed expertise in the areas reviewed;
- the NSARC reviewed all matters within the scope of responsibility as defined by the Technical Specifications; and,
- consultants to the NSARC were used, when appropriate.

Except as noted below, no inadequacies were identified and the inspector had no further comment in this area.

- a. Provisions for keeping NSARC members informed of matters pending before the committee were discussed and reviewed with the NSARC Chairman. NSARC guidelines Section 8, Suggested Methods for Review, contains a list of documentation that is disseminated to committee members and describes the manner in which the material will be distributed. The requirements established by guideline Section 8 meets, in part, the requirements of ANSI N18.7-1976. However, Section 8 does not incorporate the following:
 - (1) reference to the use of sign-off sheets used to document member review of agenda material; and,

- (2) reference to the (informal) established policy that members return sign-off sheets within a month of receipt.

The licensee stated that guidelines Section 8 will be revised to include the above. This item is unresolved pending completion of the licensee's action on this matter and subsequent review by the NRC (UNR 50-271/82-08-01).

- b. The inspector noted that the NSARC routinely reviewed matters within the scope of its responsibility, including Plant Design Changes (PDC) completed at Vermont Yankee. However, the last NSARC review of PDCs was documented in the minutes for meeting 81-4-R held on June 10, 1981. No PDCs were reviewed during NSARC meetings since then, including the most recent (May 27, 1982) meeting. Specifically, the following PDCs, reported in the 1981 Annual Report, were not reviewed: 78-9 Supplement 1, 80-18, 80-19, 81-1, 81-2, 81-3, 81-4, 81-5, 81-7, 81-10, 81-11 and 81-12. The NSARC Chairman stated that the Committee had recently (May 27, 1982) noted that PDCs were no longer being forwarded by the plant and that a committee member had been appointed to investigate and resolve the matter. The failure to review the above plant design modifications and associated safety evaluations is contrary to the requirements of Technical Specification 6.2.B.5.c. (271/82-08-03)

4. Shift Logs and Operating Records

- a. Shift Logs and operating records were reviewed to verify that:
- Operating logs and surveillance sheets were properly completed and that selected Technical Specification limits were met.
 - Control Room log entries involving abnormal conditions provided sufficient detail to communicate equipment status, lockout status, correction and restoration.
 - Log Book reviews were conducted by the staff.
 - Operating and Special Orders did not conflict with Technical Specifications requirements.
 - Jumper (Bypass) log did not contain bypassing discrepancies with Technical Specification requirements and that jumpers were properly approved prior to installation.
- b. The following plant logs and operating records were reviewed periodically during the period of May 11-31, 1982:
- Control Room Log
 - Night Order Book Entries

- CR Information Book
- Jumper/Lifted Lead Log Book
- Safety Related Maintenance Requests
- Control Room operator Round Sheet
- Auxiliary Operator Rounds Sheet
- Communications Log
- Switching Order Log
- Shift Turnover Checklist
- Surveillance Log
- Radiochemistry Analysis Log
- Equipment Status Log
- RE Log Typer-Core Performance Log
- Control Room Chemistry Log Sheets
- Health Physics Control Point Log

No violations were identified.

5. Plant Tours

Plant tours were conducted routinely during the inspection period to observe activities in progress and verify compliance with regulatory and administrative requirements. Tours of accessible plant areas included the Control Room Building, Turbine Building, Reactor Building, Diesel Rooms, Intake Structure, Security Gate House 2 and Alarm Station, Radwaste Building, Control Point Areas and the grounds within the Protected Area. Inspection reviews and findings completed during the tours were as described below.

a. Control Room Panel Reviews

The operational status of standby emergency systems and equipment/ systems aligned to support routine plant operation was confirmed by direct review of control room panels. The following items were reviewed to verify adherence to Technical Specification Limiting Conditions for Operation (LCOs) and approved procedures.

- Switch and valve positions required to satisfy LCO's where applicable and personnel knowledge of recent changes to procedures, facility configuration and existing plant conditions.

- Alarms or absense of alarms. Acknowledged alarms were reviewed with on shift licensed personnel as to cause and corrective actions being taken, where applicable.
- Review of "pulled alarm cards" with on shift personnel.
- Meter indications and recorder values.
- Status lights and power available lights.
- Front panel bypasses.
- Computer printouts.
- Comparison of redundant readings.

No violations were identified.

b. Radiological Controls

Radiation controls established by the licensee, including: posting of radiation areas, radiological surveys, condition of step-off pads, and disposal of protective clothing were observed for conformance with the requirements of 10 CFR 20 and AP 0503, Establishing and Posting Controlled Areas, OP 4530, Dose Rate Radiation Surveys, OP 4531, Radioactive Contamination Surveys, AP 0504, Shipment and Receipt of Radioactive Materials.

Confirmatory surveys were conducted in the following areas to verify licensee posted results: Reactor Building general areas - all elevations.

Periodically, Radiation Work Permits were reviewed by the inspector to verify conformance with licensee procedure AP 0502, Radiation Work Permits.

Except as noted below, the inspector had no further questions in this area.

- (1) During a routine plant tour on May 24, 1982, the inspector noted the following conditions existing in the Torus area of the 213 foot elevation:
 - (a) A radiological barrier tape and sign were hung across the RCIC room door stating, Caution Contamination Area, 30-50K dpm, dated January 28, 1982. The inspector reviewed the surrounding areas and could not locate the remaining 3 sides of the posted area or a "step-off" pad to define the boundaries of the established Controlled Area.

- (b) Torus inside circumference, East quadrant, Controlled Area boundary between support saddles as indicated by barrier tape: no sign on barrier. A handmade cardboard sign was on the deck; sign was handprinted with "Caution Contaminated Area, Enter at Step-off Areas". The inspector reviewed the surrounding areas and could not locate the remaining 3 sides of the posted area or a "Step-off pad to define the boundaries at the established Controlled Area".
- (c) Torus outside circumference, Southeast quadrant, Controlled Area boundary between support saddles: 2 signs stating "CAUTION, RWP Required for Entry, Contaminated area <1-10K dpm/100 cm² dated January 13, 1982. Posted area defined by boundary rope and floor tape, and 2 Torus support saddles. The inspector reviewed the surrounding areas and could not locate the remaining backside of the posted area to complete the boundaries of the established Controlled Area.
- (d) The inspector noted that numerous lighting fixtures were not working, making recognition of Controlled Areas difficult both at the 213 foot elevation and on the torus catwalk.

The inspector noted the above to the licensee who performed a contamination survey of the Reactor Building 213 ft. el. which was completed at 7:30 P.M. on May 24, 1982, and documented per VVOPF 4530.02 Dose Rate Radiation Surveys, Reactor Building Elevation 213 feet. The areas of concern noted above were found to be less than that required for a Contaminated Controlled Area (>1000 dpm/100 cm² beta-gamma, or >100 dpm/100 cm² alpha) per DP 4531 Radioactive Contamination Surveys. The Controlled Area postings were removed.

The Health Physics department has initiated a plant work request to relamp the torus area at the 213 foot and catwalk levels.

The inspector reviewed Reactor Building Elevation 213 ft. el. surveys completed per VVOP 4530, Dose Rate Radiation Surveys, for the period of January 1-May 24, 1982. The inspector noted that surveys were performed at least monthly per VVOP 4530, but that of the seven surveys performed only the May 24, 1982, survey included the area underneath the torus and the inside circumference of the 213 foot elevation. The inspector noted this finding to the licensee who initiated a department memo on May 18, 1982, directing that all surveys of the torus area 213 foot elevation will include areas outside and inside the torus.

The inspector had no further questions in this area. No violations were identified.

c. Plant Housekeeping and Fire Prevention

Plant housekeeping conditions, including general cleanliness and storage of materials to prevent fire hazards were observed in all areas toured for conformance with AP 0042, Plant Fire Prevention, and AP 6024, Plant Housekeeping.

No violations were identified.

d. Fluid Leaks and Piping Vibrations

Systems and equipment in all areas toured were observed for the existence of fluid leaks and abnormal piping vibrations.

No inadequacies were identified.

e. Pipe Hangers/Seismic Restraints

Pipe hangers and restraints installed on various piping systems were observed for proper installation, tension, and condition.

No inadequacies were identified.

f. Control Room Manning/Shift Turnover

Control Room Manning was reviewed for conformance with the requirements of 10 CFR 50.54 (k), Technical Specifications, AP 0152, Shift Turnover, AP 0150, Responsibility and Authority of Operations Department Personnel and AP 0036, Shift Staffing. The inspector verified, during the inspection, that appropriate licensed operators were on shift. Manning requirements were met at all times. Several shift turnovers were observed during the course of the inspection. All were noted to be thorough and orderly.

No items of noncompliance were identified.

g. Equipment Tagout and Controls

Tagging and controls of equipment released from service were reviewed during the inspection tours to verify equipment was controlled in accordance with AP 0140, VY Local Control Switching Rules. Controls implemented per Switching Order 82-152 were reviewed.

No inadequacies were identified.

h. Analyses of Process Liquids and Gases

Analyses results from samples of process liquids and gases were reviewed periodically during the inspection to verify conformance with

regulatory requirements. The results of isotopic analyses of rad-waste, reactor coolant, off-gas and stack samples recorded in shift logs and the Plant Daily Status Report were reviewed to verify that Technical Specification limits were not exceeded and that no adverse trends were apparent. Boron analysis results reported for the Standby Liquid Control System on May 17 and 21, 1982, were reviewed.

No inadequacies were identified.

i. Jumpers and Lifted Leads (J/LL)

Implementation of J/LL Request Nos. 81-105, 82-030 and 82-031 were reviewed to verify that controls established by AP 0020 were met, no conflicts with the Technical Specifications were created and installation/removal was in accordance with the request.

No violations were identified.

j. Conformance with Technical Specification LCOs

The operational status of plant systems and equipment was reviewed to verify compliance with selected Technical Specification LCOs. Conditions established to meet Technical Specification 3.1.1 were verified through direct observation on May 18, 1982.

No violations were identified.

6. Observations of Physical Security

The inspector observed and/or verified during regular and offshift hours that selected aspects of plant physical security were in accordance with regulatory requirements, the physical security plan and approved procedures. This review included elements of the following security measures:

- guard staffing and manning of all shifts on various days was observed to be as required;
- implementation of access controls, including identification, authorization, badging, escorting, personnel and vehicle searches and, when applicable, the completion of compensatory measures during periods when equipment was inoperable;
- selected barriers in the protected areas and vital areas were observed and random monitoring of isolation zones was performed;
- observations of central and secondary alarm station activities were made at random periods; and,
- implementation of compensatory measures on May 19, 1982.

No violations were identified.

7. Surveillance Testing

The following system surveillances were reviewed for proper performance in accordance with Technical Specification and AP 4000 (Surveillance Testing Control) requirements.

- + VYOP 4121, Reactor Core Isolation Cooling System Surveillance, Revision 15, Special Case RCIC Pump Operability Full Flow Test per VYOPF 4121.05, dated May 27, 1982.
- + VYOP 4312, Reactor High Pressure Scram Functional/Calibration, May 13, 1982.
- + VYOP 4313, Reactor Water High - Low/Low-Low Level Isolation Functional, May 13, 1982.
- + VYOP 4121, Reactor Core Isolation Cooling System Surveillance, Revision 15, Monthly Valve Operability Tests per VYOPF 4121.01 for the following dates: March 17, 1982, April 21, 1982 and May 17, 1982. The inspector noted that the opening times recorded for Trip Throttle Valve RCIC-1 have increased from 2.8 sec., to 9.9 sec. to 12.5 seconds respectively as compared to VYOPF 4121.01 maximum design valve of 10 seconds. The valve closing times were recorded as 1.0 second, 1.0 second, and 0.1 second compared to a maximum design value of 10 seconds. The inspector reviewed Vermont Yankee Technical Specification section 4.5.G.1. and noted that no maximum opening times for RCIC-1 valve are specified. The inspector noted his finding to the licensee Operations Department Day Shift Supervisor who stated that the surveillance is scheduled for performance during the week of June 7th with a vendor representative present. Results of the followup surveillance of RCIC-1 will be reviewed by the inspector during the subsequent inspection period.

No violations were identified.

8. Maintenance Activities

The maintenance request log was reviewed periodically during the inspection period to determine the scope and nature of work done on safety related equipment. The review also confirmed that: the repair of safety related equipment received priority attention; no backlog of required repairs developed on safety related systems; and, the performance of safety related systems was not impaired.

Work under the following maintenance requests was observed/reviewed by the inspector to verify that work was completed in accordance with approved procedures; established radiation controls were proper;

personnel conducting the work were qualified; and, equipment under repair was properly returned to service, including completion of required operability testing.

- MR 82-474, UPS 1A, April 24, 1982;
- MR 82-0564/0566, RPS B2/B1 Power Supplies, May 13, 1982.

No violations were identified.

9. Safeguard System Operability

Reviews of the Reactor Core Isolation Cooling and Automatic Depressurization systems were conducted to verify the systems were properly aligned and fully operational in the standby mode. Reviews of the above systems included the following:

- verification that each accessible valve in the flow path was in the correct position by either visual observation of the valve or remote position indication;
- verification that accessible power supplies and breakers were properly aligned for components that are required to actuate upon receipt of a safety injection signal;
- visual inspection of major components in the selected system for leakage, proper lubrication, cooling water supply, general condition and other factors that might prevent fulfillment of their functional requirements; and,
- verification that key instrumentation required for system operation was functional and calibrated.

Except as noted below, the inspector had no further comments in this area.

a. RCIC System Procedures

Inspector review of the Reactor Core Isolation Cooling (RCIC) System was made utilizing the following references:

- (i) VYOP 2121, Revision 13, May 1, 1982, Reactor Core Isolation Cooling System
- (ii) VYNPC Flow Diagram, G-191174, Sheet 1, RCIC System, Revision 12, June 13, 1977, and Sheet 2, Revision 11, September 17, 1980.
- (iii) VYAP 0155, Valve Identification and Current Valve Lineup Book

A walkdown of the accessible portions of the system was performed to determine:

- + The licensee's system lineup procedures match plant drawings and as-built configuration.
- + No degraded equipment conditions exist; hangers and supports are operable.
- + Interior of breakers, electrical or instrumentation cabinets are not degraded.
- + Instrumentation properly valved in and functioning, calibration dates are appropriate.
- + Verify valves in proper position, power available, comparison of local and remote position indication.

During the review of the RCIC system, the following items were identified:

- (1) Reference (ii) depicts RCIC-36, Stem Leakoff to RCIC-15 as normally open, reference (i) requires the valve to be closed and reference (iii) shows valve is presently positioned closed.
- (2) Reference (ii) depicts RCIC-10, Vacuum Pump Discharge, to be normally locked open, reference (i) requires the valve to be open (not locked) and system walkdown by the inspector verified that actual position of the valve is locked open.
- (3) Reference (ii) depicts RCIC-10A, Keep fill Supply, to be normally open, reference (i) requires valve to be shut and system walkdown by the inspector verified that actual position of the valve is shut.
- (4) RCIC-71, PC-13-23 sensing line isolation valve as shown on reference (ii) is not included in reference (i) Appendix A.
- (5) Reference (i) and (ii) Appendix A, page 3 of 4, contains RCIC-20B, check valve, but no required position, or position verification is included.
- (6) Reference (i) and (iii) Appendix A, page 3 of 4 description for RCIC-160 is AO-22 Check Valve Bypass; per reference (ii) Check Valve RCIC-22 is not air operated.

The above comments were forwarded to the licensee Operations Department for consideration during the next revision of references (a) and (b).

No violations were identified.

10. Inspector Followup of Events

The inspector responded to events that occurred during the inspection period to verify continued safe operation of the reactor in accordance with the Technical Specifications and regulatory requirements. The following items, as applicable, were considered during the inspector's review of operational events:

- observations of plant parameters and systems important to safety to confirm operation within approved operational limits;
- description of event, including cause, systems involved, safety significance, facility status and status of engineered safety features equipment;
- details relating to personnel injury, release of radioactive material and exposure to radioactive material;
- verification of correct operation of automatic equipment;
- verification of proper manual actions by plant personnel; and,
- verification of adherence to approved plant procedures.

a. Electrical Storm on May 19, 1982

At 7:30 P.M. on May 19, 1982, with the plant at full power, a severe electrical storm occurred at the plant. Upon notification that the storm was imminent, the Control Room Operators implemented precautionary actions that consisted of removing the Stack Gas II Monitoring System and the Meteorological (Met.) System Control Room Indication from service. By 9:30 P.M. the electrical storm had passed the plant area and operators secured from the actions taken earlier. No observation of direct lightning strikes to any structures or equipment within the plant area were made by plant personnel, though equipment damage was encountered.

The inspector reviewed plant records, held discussions with licensee personnel, and toured appropriate areas of the plant. This action was taken in an effort to ascertain whether the licensee's review and corrective actions were adequate and in conformance with applicable requirements.

The following is a summary of the sequence of events for equipment and personnel response to the electrical storm:

<u>Date</u>	<u>Time</u>	<u>Event</u>
5/19/82	7:30 P.M.	Deenergized Stack Gas II Monitoring System and Meteorological (Met.) System Control Room Indication.
	7:45 P.M.	Lightning strike hit close to plant causing loss of Hi-Range Noble Gas Effluent Monitor. Notified NRC and initiated call-in of I&C personnel for repair.
	7:50 P.M.	Area Radiation Monitor (ARM) No. 24, Turbine Steam Inlet Area, affected by lightning.
	8:25 P.M.	Lightning caused a temporary loss of the Security System's Central Alarm Station (CAS). NRC notified.
	8:30 P.M.	Lightning caused a partial loss of Control Room annunciation and complete loss of the Plant Process Computer.
	9:30 P.M.	Reduced reactor power approximately 4% due to loss of Plant Process Computer, secured from action taken at 7:30 P.M. and increased surveillance of plant parameters.
	9:55 P.M.	Determined analog section of computer inoperative and digital section performing satisfactory. Met. System Control Room indication inoperative but, backup system in Relay House determined operable.
	10:05 P.M.	Control Room Annunciators repaired and declared operable.
5/20/82	2:35 P.M.	Restored Stack Gas II Monitoring System and Met. System Control Room Indication to service.
	2:42 P.M.	Plant Process Computer returned to service.

As of May 28, 1982, the inspector determined that the following plant equipment was affected or damaged by the electrical storm. Additionally, it is noted that the below list may not be all inclusive due to the ongoing nature of the licensee's investigation.

- (1) Control Room Annunciator System - a few alarm cards on CRP 9-6 and 9-7 were determined to be inoperable. CRP 9-5 Annunciator Flasher card was found inoperable.

- (2) Turbine Steam Inlet ARM-24 determined inoperable.
- (3) Plant Process Computer System - Inoperability of the Process Computer was due to failures in the analog section and the RTD power supply subsystem.
- (4) Electronic Security System - Temporary loss of the Central Alarm Station.
- (5) 300 feet Meteorological Monitoring System - Control Room Information Display data link with Relay House inoperative. Data link with Yankee Atomic Electric Company in Framingham, Massachusetts, was determined inoperable.
- (6) Hi-Range Noble Gas Effluent Monitor had experienced significant damage to sensor equipment located at the plant stack as well as the Control Room located monitor unit.
- (7) Spray Pond Level Transmitter - Transmitter electronics for associated 10-50 ma current loop inoperative for the indicator LI-104-10-1.

Subsequent to obtaining details of the event, the inspector held a discussion with senior station management personnel on May 28, 1982. The inspector informed the management that information obtained to date appeared to support a conclusion that plant equipment response to the electrical storm did not result in creating any safety concerns or unreviewed safety questions. However, the inspector identified a few areas requiring additional review and possible corrective actions.

During the review of event details, the inspector was unable to locate any individual at the plant that had been assigned the task of gathering all data related to the event, (i.e., personnel observations, equipment damage reports, etc.). The inspector noted that the plant had used successfully in the past, the mechanism of generating a Plant Information Report to provide station management with a complete perspective of plant equipment response to severe electrical storms. The licensee's senior station management acknowledged the inspectors comments in this area.

A second area of discussion involved the reasoning behind a change to a previous station practice that deenergized the Plant Process Computer as a precautionary measure to enhance the post-storm operating position. There did not appear to be any hard evidence as to the positive or negative aspects to this practice but, it was agreed that additional review in this area was warranted. It was acknowledged by the licensee and the inspector that loss of the Plant Process Computer when at full plant power conditions, results in principally power generation concerns.

In the area related to emergency preparedness, the inspector noted the loss of the Stack Hi-Range Noble Gas Monitor, and the data link between the Met. System electronics in the Relay House and the Control Room indication. From a review of past design practices related to stack radiation monitoring (e.g., PAR 78-7) it appeared that the design and installation of the Hi-Range monitor (EDCR 80-28) did not consider lightning protection as a design feature, as it should have, based upon the multitude of past experiences with destruction of plant equipment from electrical storms. Since the plant has submitted proposed technical specifications for the hi-range monitor required by NUREG 0737, Item II.F.1, Additional Accident Monitoring Instrumentation, the inspector and the licensee agreed that of any plant equipment damaged by the electrical storm, it was this item that warranted additional review and probable corrective measures taken to preclude re-occurrence. With regard to the Met. System control room information display function, the licensee agreed to perform additional review in this area and will provide the plant's position on this item.

No violations were identified by the inspector with respect to equipment or personnel performance associated with the electrical storm. However, inspector concerns regarding the licensee's review and determined corrective actions due to the event will be followed during a subsequent inspection. (IFI 50-271/82-08-03).

b. Degraded RPS Power Supply

During his operational rounds at 1:55 A.M. on May 13, 1982, the Auxiliary Operator noted anomalous readings from reactor vessel sensor LT 2-3-58B (low at 135 inches) and PT 2-3-55D (low at 940 psig). The instruments were declared inoperable and a channel trip (half scram) was instituted at 2:07 A.M. to comply with Technical Specification 3.1.1 and to allow for system repair. The NRC was notified of the condition using the Emergency Notification System at 2:35 A.M., in accordance with procedure AP 0010. Subsequent investigation by licensee technicians determined that a degraded power supply (24 VDC) for the B2 RPS channel caused the anomalous readings. The power supply was replaced, the channel was recalibrated and tested and the system was returned to service at 6:12 A.M.

Further licensee preventative maintenance checks of other RPS power supplies revealed the A RPS channel units to be satisfactory and the B1 supply probably close to failure, as evidenced by a decreased (but within specification) output. The B1 RPS logic channel was declared inoperable at 9:55 A.M. and a channel trip was instituted at 10:12 A.M. to allow replacement of the B1 power supply. The

inspector reviewed licensee actions associated with the repairs of the Channel B power supplies, including maintenance controls, issuance of jumpers, post-repair channel calibration and testing, and return to service. No inadequacies were identified. The inspector noted that total failure of the subject power supplies would have resulted in completion of the safety function through action on the primary relays 5A-K6D (Channel B2) and 5A-K5D (Channel B1). The licensee reported this event as LEP 82-9/3L. The inspector had no further comments regarding the licensee's immediate corrective action for the subject power supplies.

The following power supply design information and previous problem history was noted during discussions with licensee personnel. The units are 24 VDC regulated power supplies manufactured by ELMA ENGINEERING of Palo Alto, California. Input AC voltage in the range of 102-127 VAC is provided by the RPS motor generator sets. Two models have been used at VY: Part No. 164C5261P003 has a 10 amp rating; Part No. 164C5261P002 has a 6 amp rating. The vendor's manual for the power supplies stipulate that the units are capable of continuous operation at no load. Previous failures of the 10 amp units, caused VY to switch to use of the 6 amp units at the vendor's recommendation.

The inspector had no further comment on this item at the present. The performance of RPS 24 VDC power supplies will be the subject of further NRC review.

11. Unresolved Items

Unresolved items are matters for which further information is required to determine whether the items are acceptable or violations. An unresolved item is discussed in paragraph 3 of this report.

12. Management Meetings

During the period of the inspection, licensee management was periodically notified of the preliminary findings by the resident inspectors. A summary was also provided at the conclusion of the inspection and prior to report issuance. The violation identified in paragraph 3 was discussed with the YAEC Director of Quality Assurance on May 21, 1982 and the Vermont Yankee Plant Manager on June 16, 1982.