U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

TERA 50-271

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Report No. 81-15

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

Inspection conducted: August 11 - October 5, 1981

Inspectors: William J Raymond — 10/16/81
W. J. Raymond, Senior Resident Inspector — date signed

Samuel Collins — 10/16/81
S. J. Collins, Resident Inspector — date signed

_____ — _____
date signed

Approved by: Robert M Gallo — 10/28/81
R. M. Gallo, Chief, Reactor Projects Section 1A, Projects Branch #1 — date signed

Inspection Summary:
Inspection on August 11 - October 5, 1981 (Report No. 50-271/81-15)
Areas Inspected: Routine announced inspection on regular and backshifts by Resident Inspectors of: action taken on previous inspection findings; IE Circular followup; review of shift logs and operating records; plant tours; System valve lineup verification; fuel inspection and fuel pool activities; review of periodic and special reports; surveillance testing; maintenance activities; licensee staffing; inspector followup of events; in-office review of licensee event reports; licensee event followup; and, observations of physical security. The inspection involved 136 inspector hours onsite by two resident inspectors.
Results: Of the fourteen areas inspected, no items of noncompliance were identified in thirteen areas; two apparent items of noncompliance were identified, as discussed in paragraph 2.i., 6.b., and 9.a. of this report.

THE INFORMATION ON THIS PAGE IS DEEMED TO BE APPROPRIATE FOR PUBLIC DISCLOSURE PURSUANT TO 10 CFR 2.790

S-F1-81-124
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2 Pages (contain 2.790 Information)

Region I Form 12
(Rev. April 77)

THE REPORT DETAILS CONTAIN 10 CFR 2.790 INFORMATION
(Pages 28 & 29 only)

DETAILS

1. Persons Contacted

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

Vermont Yankee Nuclear Power Corporation
Mr. L. Anson, Plant Training Supervisor
Mr. E. Bowles, Training Supervisor
Mr. R. Branch, Operations Supervisor
Mr. P. Donnelly, Instrument and Control Supervisor
Mr. R. Kenny, Engineer, Assessment Coordinator
Mr. L. Goldthwaite, Instrument and Control Foreman
Mr. S. Jefferson, Technical Services Superintendent
Mr. B. Leach, Health Physicist
Mr. M. Lyster, Operations Superintendent
*Mr. W. Murphy, Plant Manager
Mr. J. Pelletier, Assistant Plant Manager
Mr. W. Penniman, Security Supervisor
Mr. D. Reid, Engineering Support Supervisor
Mr. S. Vekasy, Senior Systems Engineer
Mr. G. Weyman, Chemistry and Health Physics Supervisor
Mr. W. Wittmer, Maintenance Supervisor

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

2. Action Taken on Previous Inspection Findings

a. (Closed) Follow Item (50-271/80-07-02): Plant Paging System Inaudible in Several Areas (IEB 79-BU-18). Inspection Report 80-07 detail 3.c. documents the inspectors finding that during a licensee fire drill, it was noted that the plant paging system was inaudible in several areas. The licensee stated that the paging system would be inspected and appropriate corrective action would be taken.

Inspector review in this area was subsequently documented in VY Inspection Report 81-13 detail 3.b. in conjunction with review of licensee actions in response to IE Bulletin 79-18, Audibility Problems Encountered on Evacuation of Personnel from High-Noise Areas. This item is closed.

b. (Closed) Noncompliance (50-271/80-12-01): Two Newly Installed Instrument Air Valves not Incorporated into Valve Lineup Procedure. This finding was forwarded to the licensee via USNRC letter to VYNPC, dated October 23, 1980 and Inspection Report 50-271/80-12.

Vermont Yankee responded via letter WVY 80-160, dated November 14, 1980, W. F. Conway to USNRC E. J. Brunner stating the following corrective action was taken by the licensee:

+ Plant procedures controlling design changes and alterations were being upgraded to require that cognizant personnel be responsible for:

  (1) research of all plant procedures which may be affected by the design change or alteration;

  (2) listing of all affected procedures in the controlling document;

  (3) inclusion of preliminary marked up copies of the affected procedures in the design change or alteration package prior to PORC review; and

  (4) ensuring that operating procedures for the affected system(s) are revised as necessary prior to the release of system(s) for normal operations.

+ The reviewed controlling procedures will be published and implemented, and personnel will be fully trained, on or before February 1, 1981.

The inspector reviewed the following licensee documents to verify that the applicable requirements of WVY 80-160 had been implemented:

+ AP 6000, Plant Design Change Requests, Revision 8, January 8, 1981

+ AP 6001, Instrument, Test and Special Test Procedures, Revision 7, January 8, 1981

+ AP 6003, Plant Alteration Requests, Revision 8, January 8, 1981

+ AP 6004, Engineering Design Change Requests, Revision 7, January 8, 1981

+ AP 6022, Job Order Files, Revision 5, January 8, 1981

The inspector also reviewed departmental training records maintained per D.P. 0082, Engineering Support Department Training, and verified that training in the above listed procedures was conducted as documented on VYDPF 0082.01, Engineering Support Document Review Form.

The inspector had no further questions. This item is closed.

c. (Closed) Noncompliance (50-271/80-15-09): Failure to Post and Barricade a High Radiation Area. It was determined that during performance of general area radiation surveys of the reactor building on October 8, 1980, the inspector identified a high radiation area accessible to personnel that was not posted nor barricaded. This finding was reported to the licensee and actions were taken immediately to barricade and post the area. This determination was forwarded to the licensee via USNRC letter to VYNPC dated January 8, 1981, and Inspection Report 50-271/80-15. The licensee responded in Vermont Yankee NPC letter FVY 81-16 dated January 30, 1981, to USNRC, that immediate corrective action was taken as noted in Inspection Report 80-15 and subsequently, the scram discharge headers were hydrolazed to reduce dose rates to a few mR/hr on contact. The licensee response reports that Health Physics personnel were instructed to check radiation levels in the vicinity of the scram headers subsequent to all scrams and they were reinstructed to insure that high radiation areas are barricaded and conspicuously posted.

As part of the inspectors verification of implementation of licensee corrective actions surveys following the reactor scram of May 11, 1981, 1002 hours were reviewed. The licensee's Health Physics Check Point Log was reviewed for the period of reactor shutdown (May 11, 1981, 1002 hours) to return to full power (May 17, 1981, 0800 hours), the reactor went critical at 1855 hours on May 12, 1981. The inspector noted that at 1030 hours on May 14, 1981, a dose rate survey of the north and south scram discharge headers was performed with the following results:

+ South: Contact readings 7-500 mr/hr

+ North: Contact readings 25-150 mr/hr

Routine surveys performed periodically by the inspector has not identified a recurrence of the finding. This item is considered closed.

d. (Closed) Unresolved Item (50-271/80-16-03): Weld Defects Discovered in Reactor Water Cleanup (RWCU) Line. Inspection Report (IR) 80-16 detail 10. documents the results of a portion of the ISI program on the Reactor Cleanup Demineralizer piping. Subsequent to the inspectors findings, RWCU System repairs were completed and an ongoing system evaluation is being conducted as detailed in section 11.b. of VY Inspection Report 50-271/81-12. Followup of concerns in this area are summarized in IR 81-12. This item is closed and superseded by UNR 50-271/81-12-03.

e. (Closed) Unresolved Item (50-271/80-17-04): Procedural Controls for Core Verification. Revision 5 to OP 1411, Core Verification, was issued on September 18, 1981, to resolve concerns in this area. OP 1411 now specifies the required orientation for the 12 peripheral fuel assemblies and provides for documentation of second level verification of the assembled core.

This item is closed.

f. (Open) Unresolved Item (50-271/80-22-04): Seismic Analyses for IEB 79-02 and 79-14. A revised schedule for upgrading the plant seismic analyses and completing base plate flexibility evaluations was provided to NRC:Region I by letter FVY 81-97 dated June 30, 1981. The current status of the analyses and the schedule for completion of all IEB 79-02/14 work was discussed in a conference call between the YAEC Engineering Staff and the NRC IE:HQ Staff on July 31, 1981. As a result of those discussions, the licensee submitted further information in an August 26, 1981 letter to NRC:Region I, as requested by the NRC Staff, to describe the Design Criteria used for the seismic analyses and to describe the scoping analyses used to evaluate the effects of base plate on support load margins. The information submitted by YAEC Engineering was further discussed during a conference call on September 10, 1981. Based on the above, the licensee's plans and schedule for completing the IEB 79-02/14 analysis work was found acceptable. This item will remain open pending completion of the IEB 79-02/14 actions and subsequent review by the NRC staff.

g. (Closed) Violation (50-271/81-03-02): 10 CFR 50.59 Safety Evaluation for Jumper/Lifted Lead Requests 80-0044 and 80-0058. Further NRC staff review of the subject Jumper and Lifted Lead (J/LL) Requests concluded that the item of noncompliance should be rescinded. With regard to J/LL Request 80-0044, a change in the facility as described in FSAR Section 7.3 did not exist. With regard to J/LL Request 80-0058, a temporary change in the facility as described in the FSAR Figure 4.3-3 existed, however, the change did not involve safety and no unreviewed safety question or change to the Technical Specifications existed. Withdrawal of this item from consideration as a noncompliance was provided to VY in a NRC:Region I letter dated August 3, 1981.

This item is deleted.

h. (Closed) Unresolved Item (50-271/81-03-03): Frame Mounted Hoist Control Circuitry. Actions were completed on August 12, 1981, to remove the jumpers installed by Jumper and Lifted Lead Request No. 80-0083. Work completed under MWR 81-846 on July 22, 1981, installed

a new United Electric Model 274 Switch to return the hoist loaded/overload circuitry to the original design configuration. The new switch was tested satisfactorily on July 22, 1981, in accordance with DP 5306.01. Additional testing to verify proper functioning of the refueling interlocks as required by Technical Specification 3.12.A will be completed during the 1981 refueling outage.

This item is closed.

i. (Closed) Followup Item (50-271/81-05-03): Licensee Event Report for Standby Gas Treatment System B. Standby Gas Treatment System Train B was found inoperable on March 6, 1981, and subsequently, returned to service on March 12, 1981, LER 81-19 was submitted to describe the event and subsequent corrective actions. The inspector reviewed the report and had no further questions regarding Train B operability.

However, LER 81-19 was not submitted within 30 days of March 6, 1981, as required by Technical Specification 6.7.B.2, but was submitted by letter dated August 20, 1981. Failure to report licensee event 81-19 within 30 days of March 6, 1981, is a violation of Technical Specification 6.7.B.2. (INC 50-271/81-15-01)

j. (Open) Unresolved Item (50-271/81-05-08): Implementation of NUREG 0737 Item I.C.6. The inspector performed a preliminary review of actions completed by the licensee to implement independent verification controls as required by NUREG 0737, Item I.C.6. Department Instruction (DI) 81-4 was issued to AP 0025, Plant Equipment Control, on July 1, 1981, to require the Shift Supervisor ensure that all safety related maintenance and surveillance activities receive an independent verification that affected system/components are properly removed and returned to service. Exceptions to the requirement for independent verification were: (i) where functional testing can verify the system/component status; and, (ii) where an individual may incur a dose of 20 mRem while performing the independent verification. DI 81-11 was issued for AP 0140 on August 5, 1981, to institute independent verification controls to Tagging Operations per AP 0025 requirements.

Other procedures will be revised to incorporate reference to AP 0025, including individual surveillance procedures and AP 0022, Instrument Setpoint Changes. A revision to AP 0022 is in progress and the individual surveillance procedures will be revised as they come due in the periodic review cycle.

The inspector reviewed the Switching and Tagging log for the period of July-September, 1981, and identified ten orders involving safety related equipment for which independent verification would be appropriate. In all cases, a functional test would have been an acceptable exception to the independent verification requirement.

Based on the above pr[illegible] review, the inspector identified the following concerns:

(1) an apparent conflict exists between AP 0025 and AP 0140 as to whether the Control Authority or the Shift Supervisor is responsible for assuring independent verification for Tagging operations,

(2) the 20 mRem dose limit may be too low for all instances when an evaluation must be made on whether to apply independent verification requirements. Additionally, based on discussions with a few members of the plant staff, it was unclear as to how the 20 mRem limit would be applied - that is, whether the limit was 20 mRem per valve or 20 mRem per job (Tagging Order), where several valves could be involved,

(3) it was unclear, based on the review to date, how exceptions to the independent verification requirements would be documented.

The above concerns were discussed with the Plant Manager during a meeting on September 25, 1981. The Plant Manager stated that the area would be further reviewed in light of the inspector's comments.

This item remains open pending further NRC review of licensee controls established for independent verification requirements, along with implementation of the controls.

k. (Closed) Unresolved Item (50-271/81-08-11): Audits of Engineering Departments. Revision 4 to WE-001, Administration of the Engineering Manual, was issued on June 22, 1981, to resolve the concerns in this area. Section 3.6 of WE-001 now requires that each Engineering Group within an Engineering Department be audited at least once within a two-year interval.

This item is closed.

l. (Closed) Unresolved Item (50-271/81-12-04): Emergency Coordinator Training Criteria. Emergency Plan requirements not consistent with VY OP 3712, Revision 4, Emergency Plan Training. As a followup inspection in this area the inspector reviewed a draft copy of OP 3712, Revision 5, which incorporated Emergency Coordinator and Radiological Assistant Training in the area of reviewing functions of off-site support agencies. The inspector noted that OP 3712, Revision 5, had been routed for concurrence and had been approved by the Training Department Supervisor. This item is closed.

m. (Closed) Followup Item (50-271/81-13-04): Radioactive Material Disposed of On Site. Additional surveys of the site perimeter, both inside and outside the Owner Controlled fenceline, were conducted by Vermont State personnel on August 20-21, 1981, with sensitive radiation detectors. The surveys did not detect any radium sources or show any radiation levels above background. No further action can be taken without additional information regarding the exact location of the sources.

This item is closed.

3. IE Circular Followup

The following IE Circular was reviewed to ascertain if the following actions were taken by the licensee:

-- The Circular was received by licensee management.

-- A review for applicability was performed.

-- For Circulars forwarded to the facility, appropriate corrective actions have been taken or are scheduled to be taken as noted below.

a. IE Circular 81-08, Foundation Materials, dated May 29, 1981

The inspector reviewed a licensee internal memorandum, J. P. Pelletier to E. J. Massey dated June 5, 1981, which requested a review of IEC 81-08 and a response by August 7, 1981. Memo File 15.0, dated August 4, 1981, E. J. Massey to J. P. Pelletier, reports that compaction of foundation and backfill materials does not appear to be a concern at Vermont Yankee. VY FSAR section 12.2.1 states that the Reactor Building is supported directly on rock, and all other Class I structures are supported directly on bedrock or transfer their loads to bedrock by piers. The memo was approved by August 10, 1981. This item is closed.

4. Shift Logs and Operating Records

a. The inspector utilized the following plant procedures to determine the licensee established administrative requirements in this area in preparation for review of various logs and records.

-- AP 0831, Plant Procedures, Revision 7, dated August 17, 1981

-- AO 0150, Responsibility and Authority of Operations Department Personnel, Revision 15, dated May 1, 1981

-- AP 0153, Operations Department Communications and Log Maintenance, Revision 9, dated August 17, 1981

-- AP 0140, VY Local Control Switching Rules, Revision 4, dated December 19, 1980

-- AP 0020, Lifted Lead/Installed Jumper Request Procedure, Revision 4, dated October 16, 1980

-- AP 0021, Maintenance Requests, Revision 9, dated September 25, 1980

-- AP 0154, Control Room Night Order Book, Revision 5, dated January 7, 1980

-- AP 0030, Plant Operations Review Committee, Revision 6, dated January 7, 1980

The above procedures, Technical Specifications, ANSI N18.7-1972 "Quality Assurance Requirements for Nuclear Power Plants" and 10 CFR 50.59 were used by the inspector to determine the acceptability of the logs and records reviewed.

b. Shift logs and operating records were reviewed to verify that:

-- Control Room logs and surveillance sheets are properly completed and that selected Technical Specification limits were met.

-- Control Room log entries involving abnormal conditions provide sufficient detail to communicate equipment status, lockout status, correction and restoration.

-- Log Book reviews are being conducted by the staff.

-- Operating and Special orders do not conflict with Technical Specifications requirements.

-- Jumper (Bypass) log does not contain bypassing discrepancies with Technical Specification requirements and that jumpers are properly approved prior to installation.

c. The following plant logs and operating records were reviewed periodically during the period of August 11 - October 5, 1981.

-- Shift Supervisor's Control Room Log

-- Night Order Book Entries

-- Safety Related Maintenance Requests

-- Control Room Operator Round Sheet

-- Plant Information Reports

-- Auxiliary Operator #1 Rounds Sheet

-- Equipment Status Log

-- RE Log Typer-Core Performance Log

-- Control Room Chemistry Log Sheets

-- Health Physics Control Point Log

No items of noncompliance were identified.

5. Plant Tour

The inspector conducted a tour of accessible areas of the plant including the Control Room Building, Turbine Building, Reactor Building, Diesel Rooms, Intake Structure, Security Gate Houses 1, 2 and Alarm Stations, Radwaste Building and Control Point Areas.

a. Monitoring Control Room Panels

Routinely during the inspection period, the inspectors conducted reviews of the control room panels. The following items were reviewed to determine the licensee's adherence to Licensee Technical Specification - Limiting Conditions for Operation and to verify the licensee's adherence to approved procedures.

-- Switch and valve positions required to satisfy LCO's, where applicable.

-- 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 items of noncompliance 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 and OP 4531, Radioactive Contamination Surveys.

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

The following Radiation Work Permits were reviewed by the inspector to verify conformance with licensee procedure AP 0502, Radiation Work Permits: 81-0703 and 81-0639.

No inadequacies 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. Activities in progress on September 21, 1981, to modify the service water line over the Hydrogen Seal Oil Unit (T.B. 232. 6 foot elevation) were observed for conformance with Fire Control Permit 81-285.

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

During routine tours of the plant, 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 removal of equipment from service was observed in areas toured to verify that equipment was controlled in accordance with AP 0140.

No inadequacies were identified.

h. Primary Containment Isolation Valves

Piping between the primary containment and outboard isolation valves was inspected for leakage during tours of the Reactor Building.

No inadequacies were identified.

i. 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 from reactor coolant, off-gas and stack samples were reviewed routinely from the "Daily Plant Status Report" to verify that Technical Specification Limits were not exceeded and that no adverse trends were apparent. The monthly boron analysis in the Standby Liquid Control Supply Tank was reviewed on August 20 and September 16, 1981, to verify conformance with Technical Specification 4.4.C.

Analysis results for two Discharge Permits were reivewed to verify that the process water met applicable specifications prior to release. Analysis results documented on form VYOPF 2610.02 dated September 11, 1981, for DP 81-639 showed that water quality limits were acceptable for the discharge of 1175 gallons of non-radioactive water from the Fuel Oil Storage Tank Sump to the river. Similarly, analysis results documented on VYOPF 2610.02 dated September 12, 1981, were acceptable for the transfer of water from the radwaste sample tank to the Condensate Storage Tank.

No inadequacies were identified.

6. System Valve Lineup Verification

A review of the Core Spray (CS) and Residual Heat Removal (RHR) Systems was conducted on September 22, 1981, to verify the systems were properly aligned and fully operational in the standby mode. Review of the above systems included the following:

-- verification that procedures OP 2124 and OP 2123 were technically correct as compared to system flow diagrams G191172 and G19168, respectively, and as noted by walk down of the systems;

-- 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; and

-- 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.

Except as noted below, the inspector had not further comments on this item.

a. Procedural/System Discrepancies

Inspector review of OP 2124 identified the procedural errors listed below. System valve identification (bakelite) tags were also found missing as indicated below. These items were turned over to the Operations Supervisor for action on September 22, 1981.

-- valve tags missing for CS-15A, CS-15B, CS-6B, CS-804B, RHR-199B, RSW-175C, RSW-821A

-- valve RHR 89A local position indicator erroneously showed valve 43% open when valve was closed

-- valve RSW-37B listed as RSW-37D in OP 2124

-- valve RSW-820B mislabeled as RSW-802B in OP 2124

-- valve RSW-831B missing from print 191172, Revision 18

-- test valves for PI-104-76A and 74A missing from OP 2124

-- valve RSW-175C mislabeled as RSW-175B on print 191159

-- root valve RSW-831A missing from print 191172

-- test valve for PI-104-76C missing from OP 2124.

The above items are considered unresolved pending completion of licensee action to correct and/or initiate changes to correct the identified discrepancies, and subsequent review by the inspector (UNR 50-271/81-15-02).

b. RHR System Valve Lineup

During inspector review of the RHR system lineup on September 22, 1981, the inspector noted that Head Spray Flow Control Valve RHR-FCV-43 was OPEN as indicated by the controls on CRP 9-3. The correct position of the valve as specified in OP 2124 for standby operation is CLOSED. This observation was noted to the shift supervisor at 6:00 P.M. on September 22, 1981, who immediately CLOSED the valve. The inspector noted that the safety significance of the misaligned valve was minimal due to two series down steam isolation valves that were CLOSED (normal position) and which receive a CLOSE signal upon ECCS actuation. Thus, no diversion of LPCI injection water would have occurred had the system been called upon to operate.

The inspector also noted that a possible contributor to the valve misalignment was the valve position indicator on the CRP 9-3 valve control station which has OPEN/CLOSED indications exactly opposite all other similar control stations in the control room. This observation was discussed with and noted by the Plant Manager during an exit briefing on September 25, 1981.

Failure to align the RHR system for standby operation in accordance with OP 2124 constitutes an example of a violation of Technical Specification 6.5.A. requirements (INC 50-271/81-15-03). See paragraph 9.a. of this report for a discussion of a second example under this item.

7. Fuel Inspection and Fuel Pool Activities

a. Cask Handling Operations

The inspector observed activities and reviewed controls established for handling the CNS 4-45 cask over the spent fuel pool. Activities in progress on September 9, 1981, were observed for conformance with plant procedures. The CNS 4-45 cask designed for transfer of high level wastes was obtained by the licensee to ship spent LPRM strings and fuel support castings to an offsite burial ground. The following was determined during this review:

-- The primary and redundant lifting devices were load tested prior to use with the CASK. Satisfactory completion of load testing at 88,350 lbs. was documented in procedure R-VYAEC-P1, Revision 0 and completed on May 18, 1981.

-- The cask in use on September 9, 1981, was marked CNS 4-45, Model PB-1, USA/6375/B ( ) F and noted to be the same cask received on site earlier this year (reference: NRC Region I Inspection Report 50-271/81-12). One-half of the outer cylindrical shell had been replaced with new material to repair the damaged sections found in June, 1981. Through discussions with licensee personnel and NRC Transportation Branch representatives, the inspector noted that information describing the repairs had been received by NRC:TB and the cask was approved for use.

-- The licensee had a copy of Certificate of Compliance 6375 issued to Chem-Nuclear by letter dated December 23, 1980, from the NRC Transportation Branch. The certificate expires on November 30, 1981.

-- Copies of OP 1212, Cask Handling and Loading Procedure for the Chem-Nuclear CNS 4-45 Cask System, Revision 0, dated May 28, 1981, was available and in use by maintenance personnel on September 9, 1981. The inspector noted by review of the completed sections of OP 1212 that prerequisites for cask handling operations had been completed in accordance with Technical Specification 4.12.G.1. requirements. The inspector noted by direct observations that mechanical stops were installed on the refueling bridge auxiliary hoist and that RB crane mechanical stops were installed on the trolley rails to prevent travel over spent fuel.

No items of noncompliance were identified.

b. Spent Fuel Pool Activities

The inspector noted through procedure reviews and/or direct observation at various times during the report period that the following controls were established for activities associated with the spent fuel pool:

(1) spent fuel pool water level and temperature were maintained as required;

(2) the RB ventilation system maintained the building at a negative pressure when activities in the pool were in progress;

(3) the spent fuel pool cooling system was operable;

(4) airborne and area radiation monitors were operable; and,

(5) crane interlocks and mechanical stops were operable.

No items of noncompliance were identified.

c. Preparations for Refueling

Licensee plans and administrative controls established to receive new fuel and conduct fuel handling operations were reviewed.

(1) Procedures

The following approved procedures were available for the activities indicated:

-- OP 1411, Core Verification, Revision 5

-- OP 1401, New Fuel Inspection and Channeling, Revision 9

-- OP 1410, Fuel Loading, Revision 9

-- OP 1402, Channel Inspection, Revision 5

-- OP 0400, SNM Inventory and Accountability, Revision 16

-- OP 1400, Fuel Receipt and Preliminary Handling, Revision 11

-- OP 1403, Fuel Bundle NDT and Reconstitution, Revision 3

No items of noncompliance were identified.

(2) Outage Plan and Reload License

The inspector reviewed initial drafts of the 1982 Refuel Outage Plan that provided the licensee's planning guide for overall outage schedule, work lists, design change and modification packages and required surveillance. Formal issue of the Outage Plan is due in early October, 1981.

The inspector noted the licensee has made several submittals to NRC:NRR to support Reload 8 Licensing. A transfer of responsibility for Reload 8 analysis from GE to YAEC and the resultant reload licensing analysis methods development program has been the subject of several meetings between the YAEC and NRC staffs, beginning in early 1980. The most recent submittal for Reload 8 Licensing was transmitted on September 2, 1981, by letter FVY 81-128.

No items of noncompliance were identified.

d. New Fuel Inspection and Handling Activities

The inspector witnessed new fuel inspection and handling activities in progress on August 12-17, 1981. During this period, new fuel was receipt inspected in the shipping crates, transferred to the 345' elevation of the RB for storage, uncrated and inspected, channeled and transferred to the spent fuel pool. The inspector observed inspection and storage of the following fuel bundles and channels:

BUNDLES		CHANNELS
+LJZ099	+LJZ078	+7005C
+LJZ069	+LJZ089*	+8062C
+LJZ112	+LJZ062*	+8182C
+LJZ093	+LJZ109*	+8767C
+LJZ100*	+LJZ102*	+7996C
+LJZ057*	+LJZ074*	+8289C

Fuel assembly numbers marked by an (*) above indicate inspector review of completed documentation only. The following items were verified during this review.

-- fuel handling activities were performed in compliance with the requirements of OP 1401, Revision 9, New Fuel Inspection and Channeling, including a verification that procedural prerequisites and precautions were satisfied;

-- licensed operators and qualified individuals were present to work the refuel bridge and direct fuel move activities;

-- health physics coverage was provided in accordance with Standard RWP 81-639, and activities were accomplished in accordance with the RWP;

-- refueling status board was maintained up to date for each fuel move;

-- fuel accountability forms were maintained up to date for each fuel move per SNM transfer form VYOPF 0400.02, Revision 16;

-- forms VYOPF 1410.05 were maintained current for fuel channel movements.

Except as noted below, the inspector had no further comments on this item.

Initial licensee inspection of fuel channel 7005C identified a surface marking around its circumference, located about four feet from one end. Although the channel, including the surface marking, met applicable inspection acceptance criteria, the channel was put aside pending

consultation with the channel vendor. Subsequent inspector discussions with the plant Nuclear Engineer indicated that the marking resulted from the manufacturing process and did not constitute a rejectable defect. The channel was accepted, and subsequently released for use. The inspector had no further comments on this item.

No items of noncompliance were identified.

8. Review of Periodic and Special Reports

Upon receipt, periodic and special reports submitted by the licensee pursuant to Technical Specification 6.7 and Environmental Technical Specification 5.4 were reviewed by the inspector to verify that applicable reporting requirements had been met.

-- VYV 81-187, Monthly Statistical Report, Month of July, 1981, dated August 10, 1981.

-- Monthly Statistical Report, Month of August, 1981, dated September 10, 1981.

No unacceptable conditions were identified.

9. Surveillance Testing

a. Surveillance Test Witnessing/Data Review

The inspector observed or reviewed portions of the following surveillance tests to verify that testing was performed in accordance with procedures, that results were in conformance with Technical Specifications and procedure requirements, that test instrumentation was calibrated, that redundant system(s) or component(s) were available for service, that work was being performed by qualified personnel, and that activities were in compliance with AP 4000, Surveillance Testing Control.

(1) Diesel Generator "A" Operational Readiness Check conducted in accordance with VYOPF 4126.03 on August 11, 1981.

(2) Liquid Process Radiation Monitoring System Functional Tests conducted in accordance with OP 4385 on August 31, 1981.

(3) HPCI-CST Water Level Functional Testing and Calibration for LT 107-5A/5B conducted on September 9, 1981 per OP 4363.

(4) Diesel Generator "A" Monthly Surveillance conducted on September 9, 1981, per OP 4126 .

(5) Standby Gas Treatment System Train B Monthly Performance Tests conducted in accordance with OP 4117 on September 17, 1981, September 16, 1981 and August 17, 1981.

(6) MSIV Stroke Time Testing conducted on September 5, 1981, for valves V2-80D and V2-86D per VYOPF 4113.02.

(7) HPCI Full Flow Verification Testing conducted on September 14, 1981 per OP 4120.

(8) RCIC Operability Verification Testing conducted on September 14, 1981, September 15, 1981 and September 23, 1981, per OP 4120.

Except as noted below, the inspector had no further comments on this item.

Testing of SBGT Trains A and B was conducted on August 17, 1981, in accordance with the requirements of OP 4117, Standby Gas Treatment Monthly Verification, Revision 8. Testing of Train B was conducted from 1:15 A.M. to 10:58 A.M. Train B was shutdown at 10:58 A.M. and testing of Train A commenced to log 10 hours of run time. OP 4117 requires that when one Train is aligned for testing, the alternate train be aligned for standby operation per OP 2117. During reviews of plant status and testing in progress at 3:45 P.M. on August 17, 1981, the inspector noted that SBGT Train B valve SGT-4B was in the OPEN position, a condition contrary to the requirements of OP 4117/2117. This condition was noted to the Shift Supervisor, who immediately closed SGT-4B to restore Train B to the correct standby alignment.

Failure to follow the requirements of OP 4117/2117 constitutes one example of an activity in violation of Technical Specification 6.5.A. requirements. See paragraph 6.b of this report for a discussion of a second item. (50-271/81-15-03)

b. Surveillance of Portable Fire Extinguishers

During tours of plant areas on September 17 and 18, 1981, the inspector observed fire extinguishers installed at various locations to verify the cylinders were properly charged and had been inspected per OP 4020 requirements. Of 40 stations reviewed by the inspector, the inspector noted that 4 stations with tags affixed which were not marked to show they were inspected in September, 1981. Additionally,

station #10 showed a charge that was slightly into the "discharged" range. Subsequent review of the items with the Fire Protection Coordinator showed that all stations in question had been inspected during September, as evidenced by completed form VYOPF 4020.04. The licensee noted the stations' numbers provided by the inspector to update the inspection tags. Actions were also initiated to replace the fire extinguisher at location #10.

This item is unresolved pending inspector review of the above licensee actions for completion and subsequent review of OP 4020 surveillance (UNR 50-271/81-15-04).

10. Maintenance Activities

The inspector reviewed portions of the following maintenance activities to verify compliance with LCO requirements where applicable, that redundant components were operable, administrative approvals and tagouts were proper, approved procedures were utilized, activities were controlled by qualified personnel, equipment certification, proper equipment return to service, and compliance with AP 0021, Maintenance Requests, and AP 0200, Maintenance Program. The following activities were reviewed by the inspector:

a. SLC Level Transmitter

The inspector witnessed work performed on September 21, 1981, in accordance with MWR 81-1034 to repair/calibrate LT 11-45 on the Standby Liquid Control Tank. Work on the transmitter was requested because of erroneous readouts. The transmitter sensing lines was cleared of potential blockage and the transmitter was recalibrated. Test equipment VT-2590 and VT 34 were verified to be properly calibrated.

No inadequacies were identified.

11. Licensee Staffing

The licensee obtained Technical Specification approval for the following on-site organization changes:

Plant Superintendent and Assistant Plant Superintendent became Plant Manager and Assistant Plant Manager. The creation of Operations Superintendent over the Operations, and Chemistry and Health Physics staff. Administrative staff, I and C staffs report to the Assistant Plant Manager. The creation of Technical Services Superintendent over the Reactor Services and Engineering staffs.

12. 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 adherenece to approved plant procedures.

a. Loss of Reactor Recirculation Unit (RRU)-4

On August 29, 1981, plant operators noted the RRU-4 was not operating due to its breaker being in the tripped position. The breaker was closed and immediately tripped open again, along with the main supply breaker for motor control center (MCC) 9D. Loss of MCC 9D rendered portions of the HPCI, RHRSW and UPS systems inoperable, and constituted operation in a degraded mode. Subsequent licensee evaluation concluded the problem stemmed from an electrical fault with RRU-4, which was left de-energized and power was restored to MCC 9D within 15 minutes of its loss. A short circuit in the motor of RRU-4 is the suspected cause of the electrical fault. RRU-4 is one of four fan cooler units in the drywell. Operation with three of the four fan cooler units operating was verified to be sufficient to maintain drywell air temperatures below 150°F.

The inspector reviewed the circumstances associated with the event, including certain loads that were started and/or shed from MCC 8. No inadequacies were identified.

The licensee submitted LER 81-23 to report this event. Inspection and repair of RRU-4 has been added to the 1981 Outage Work List.

No items of noncompliance were identified.

b. Condenser Tut Leak

Reactor vessel water conductivity began to increase from normal steady state values of 0.24 umho/cm on August 25, 1981, and gradually trended upward to 1.6 umho/cm during the period from August 26, 1981 to September 5, 1981. Technical Specification limits reactor operation with conductivity in excess of 5.0 umho/cm. Licensee evaluation of reactor coolant chemistry concluded an organic material intrusion into the reactor vessel had occurred, resulting from a probable condenser tube leak.

Reactor power was decreased to less than 50% FP on September 5, 1981, to allow draining and leak testing inside the condenser water boxes. A leaking tube in the "A" condenser section was identified and plugged. Vessel conductivity returned to normal values, and power ascension under fuel pre-conditioning limits resumed on September 6, 1981.

No items of noncompliance were identified.

c. MSIV 86B Packing Leak

During power ascension on September 6, 1981, main steam line tunnel temperature relay K2C tripped at 4:53 P.M., indicating a leak in the main steam tunnel. Power increase was held at about 50% pending investigation of the tunnel. Licensee investigation of the steam tunnel area noted no new or increased leakage from piping, other than that previously identified from the packing of MSIV 86B. Steam tunnel temperature reading taken with an RTD bridge off the Steam Tunnel Temperature Detector Circuitry showed slightly elevated area temperatures; however, the temperature was less than the required trip setpoint for relay K2C. The trip circuitry was re-calibrated and relay K2C was reset at 5:55 P.M.

Samples of the steam tunnel air space were taken; the sample results showed no increase in airborne activity over previous levels (about 1.8E-8 uci/cc). MSIV 86B was cycled to confirm it was the source of the leakage and then left in the open position. No adjustment of the MSIV 86B packing was made. MSIV 86B was satisfactorily stroke time tested at 4:25 A.M. on September 5, 1981.

The inspector had no further comment on this item. No items of noncompliance were identified.

d. RCIC System Operability

During the conduct of routine operability testing of the RCIC system on August 19, 1981, the RCIC turbine tripped on mechanical overspeed

and isolated due to high steam line flow differential pressure. The failure was attributed to a failure of the RCIC EGR controller, which was replaced. The operability test was satisfactorily completed on August 19, 1981.

During the subsequent monthly test of the RCIC system at 3:15 P.M. on September 14, 1981, the EGR apparently failed to operate again, resulting in an isolation of the system on high steam flow. The EGR actuator assembly was again replaced, but repeated start attempts were unsuccessful due to a failure of the turbine control valve to control steam flow. Control circuitry contacts were cleaned, checked and re-tightened to assure connections to the EGR were complete, and the pilot valve plunger on the EGR actuator assembly was readjusted. The RCIC system was subsequently started six times successfully and declared operable at 11:45 A.M. on September 15, 1981.

The inspector reviewed licensee actions regarding the RCIC system on September 17-18, 1981, including actions taken to verify HPCI operability on September 14, 1981, at 2:55 P.M. Although RCIC was successfully tested six times on September 15, 1981, no one repair effort during the September 14-September 15 period conclusively identified the root cause/problem affecting the EGR operation. The inspector's concerns were discussed with the Operations Supervisor and the Plant Manager in a meeting on September 18, 1981. The inspector's concerns were noted and an additional test to demonstrate RCIC operability was conducted on September 23, 1961. The test was successful.

LER 81-24 was submitted by the licensee on September 18, 1981. The inspector had no further comments on this item at the present. Testing of the RCIC system will be followed on subsequent routine inspections.

No items of noncompliance were identified.

13. <u>In-Office Review of Licensee Event Reports</u>

The licensee event reports (LERs) listed below were reviewed in the NRC Resident/Regional Office. The reports were reviewed to determine whether: the information provided was clear in the description of the event and identification of safety significance; the event cause was identified and corrective actions taken (or planned) were appropriate; the report satisfied requirements with respect to information provided and timeliness of submittal per NUREG 0161 and Technical Specification 6.7 criteria. Those reports annotated with an asterisk (*) concern events that required inspector followup action and inspector review/evaluation of the event is documented elsewhere, in this or other inspection reports.

*+ LER 81-20, Sheared Motor Mount bolts on the limitorque operator for valve RHR-31B (Upper Containment Spray) event date July 15, 1981, report date August 14, 1981.

*+ LER 81-23,Loss of MCC-9D, event date August 29, 1981, report date September 28, 1981.

*+ LER 81-24, RCIC Inoperable due to Loss of Governor Control, event date August 19, 1981, report date September 10,1981.

*+ LER 81-19, SGT System Train B Inoperable, event date March 10, 1981, report date August 20, 1981.

+ LER 81-07, RB Vacuum Breaker DP Switch Setpoint Drift, event date February 5, 1981, report date March 4, 1981.

+ LER 81-03, Diesel Fuel Oil Surveillance Frequency Exceeded, event date January 6, 1981, report date February 6, 1981.

+ LER 81-02, Missed Stack Particulate Analysis, event date January 6, 1981, report date February 5, 1981.

+ LER 81-04, Loss of Monthly Environmental TLD Data, event date January 21, 1981, report date February 16, 1981.

+ LER 80-05, Environment Station Quarterly Analysis Period Exceeded, event date January 15, 1980, report date February 14, 1980.

+ LER 80-22, Vacuum Breaker Failed To Seat Completely, event date July 9, 1980, report date August 6, 1980.

*+ LER 80-30, RPIS for Rod 38-35 Inoperable, event date September 29, 1980, report date October 29, 1980.

+ LER 80-38, Level Channel Removed From Service Without First Failing the Trip System, event date October 27, 1980, report date November 26, 1980.

+ LER 80-39, Type C Leak Rate Test Results, event date October 25, 1980, report date November 24, 1980.

+ LER 80-42, Refuel Platform Travel Limit Switch Malfunction, event date December 11, 1980, report date January 12, 1981.

+ LER 80-43, Type C Leak Rate Test Results, event date December 20, 1980, report date January 16, 1981.

Except as noted below, no inadequacies were identified and the inspector had no further comments on the reporting of the above events.

-- Events reported under LERs 80-05, 80-38, 81-02, 81-03 and 81-04 are deemed licensee identified items of noncompliance that have been satisfactorily corrected.

-- Licensee reporting of LER 81-19 is addressed further in paragraph 2.i. of this report.

14. Licensee Event Followup

The licensee event reports listed below were reviewed in the NRC Resident Office as described by paragraph 13 above and, additionally, received further followup review by the inspector. Additional reviews at the site included: a verification that corrective actions had been completed as described by the report; whether the events had been reviewed by the PORC as required by Technical Specification requirements; whether generic considerations were incorporated in the licensee's reviews and corrective actions; whether the events constituted operation in excess of Technical Specification Limiting Conditions for Operations; and, whether the events show causal linkage with other failures. The following LERs were reviewed:

+ LER 80-06, Inoperable Offgas Radiation Monitors, dated February 4, 1980

+ LER 80-07, HPCI Found Inoperable During Surveillance Testing, dated February 27, 1980

+ LER 80-09, RHRSW Supply Breaker Failure, dated March 17, 1980

+ LER 80-11, Potential Safeguard Bus Voltage Degradation, dated March 26, 1980

+ LER 80-12, Pipe Support Inadequacies Identified During IEB 79-14 Inspections, dated April 11, 1980

+ LER 80-18, Drywell Leakage System, dated June 12, 1980

+ LER 80-23, Recirculation Pump Snubber Inoperable, dated August 6, 1980

+ LER 80-29, Improper APRM Gain Factor, dated October 17, 1980

+ LER 80-31, Main Steam Line "C" Snubber Inoperable, dated October 31, 1980

+ LER 81-01, MSIVs Inoperable, dated January 30, 1981

+ LER 81-05, Loss of Environment Sample Station Data, dated February 20, 1981

+ LER 81-06, RPT High Pressure Trip Setpoints, dated April 21, 1981

+ LER 81-08, RCIC Inoperable Due to Faulty EGR, dated March 20, 1981

+ LER 81-09, Environmental Sample Station Inoperable, dated April 15, 1981

+ LER 81-10, Recirculation Pump MG Set Breaker Failure, dated April 15, 1981

+ LER 81-13, Environmental Sample Station Inoperable, dated June 4, 1981

+ LER 81-17, Failure of PCIS Valve to Close During Testing, dated July 29, 1981

+ LER 81-21, Failure of PCIS Valve to Close During Testing, dated August 28, 1981

Except as noted below, the inspector had no further comments on these items.

a. LERs 81-09 and 81-13 concern failures in Environmental Station Air Sample Pumps due to bad windings and/or bearings. These events constitute examples of a series of failures with the pumps over the last 12 months. The licensee is presently considering use of a different pump vendor to improve reliability of the sample stations. This item is unresolved pending completion of licensee actions in this area and subsequent review by the NRC (UNR 50-271/81-15-05).

b. LERs 81-17 and 81-21 concern failures of PCIS valves to operate due to an accumulation of dirt on critical components. The source of the dirt is from the Instrument Air Supply to the valves. Licensee evaluation of the cause and proper corrective actions is in progress and is considered unresolved pending subsequent review by the NRC (UNR 50-271/81-15-06).

c. LER 80-12 concerns modifications made to piping to correct discrepancies identified during IEB 79-14 inspections. This item is considered unresolved pending further inspector review of the support modifications completed by the licensee (UNR 50-271/81-15-07).

d. LER 81-10 concerned the failure of the breaker on the B recirculation pump MG Set which rendered the RPT system partially inoperable. The licensee added the MG Set breakers to the annual outage breaker inspection work list, as noted by review of the 1981 Outage Plan. The inspector had no further comments on this item.

e. LER 81-06 concerned the RPT high pressure trip setpoints that were first reported as inoperable by letter dated February 25, 1981.

The licensee subsequently reported on April 21, 1981, that the setpoints were proper, but that a procedural error lead to an improper calculation of the allowable pressure range. This item is unresolved pending inspector review of the procedure involved and verification that appropriate revisions have been completed (UNR 50-271/81-15-08).

15. Observations of Physical Security

The inspector made observations, witnessed 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.

a. Physical Protection Security Organization

-- observations indicated that a full time member of the security organization with authority to direct physical security actions was present as required.

-- manning of all shifts on various days was observed to be as required.

b. Access Control

-- identification, authorization and badging.

-- access control searches, including, when applicable, the use of compensatory measures during periods when equipment was inoperable.

-- escorting.

c. Physical Barriers

-- selected barriers in the protected area and vital areas were observed and random monitoring of isolation zones was performed, Observation of vehicle searches were made.

-- inspector tours of gate houses 1 and 2, the Central and Secondary Alarm Stations were conducted at random periods.

-- construction activities relating to Gate House 2 were monitored to verify licensee compliance with Security Special Memo #81-23 dated July 17, 1981.

No items of noncompliance were identified. Except as noted below, the inspector had no further comments in this area.

16. Unresolved Items

Unresolved items are items about which more information is required to ascertain whether they are acceptable items, items of noncompliance, or deviations. Unresolved items are discussed in Details 6.a, 9.b, 14.a, b, c, and e, and 15.d.(1) and (2).

17. 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 Plant Manager noted the items of noncompliance during a meeting on September 25, 1981.