

UNITED STATES NUCLEAR REGULATORY COMMISSION REGION II 101 MARIETTA STREET, N.W. ATLANTA, GEORGIA 30323

Report Nos.: 50-338/87-15 and 50-339/87-15Licensee: Virginia Electric & Power Company Richmond, VA 23261 Docket Nos.: 50-338 and 50-339Facility Name: North Anna 1 and 2 Inspection Conducted: May 13 - June 16, 1987 Inspectors: Markell An J. L. Caldwell, Senior Resident Inspector Date Signed L. P. King, Resident Inspector Date Signed Approved by: Markell A F. S. Cantrell, Section Chief Division of Reactor Projects Date Signed

SUMMARY

Scope: This routine inspection by the resident inspectors involved the following areas: plant status, licensee action on previous enforcement matters, licensee event report (LER followup), review of inspector follow-up items, monthly maintenance observation, monthly surveillance observation, ESF walk-down, operator safety verification, design change modifications, verification of containment integrity and plant startup from refuelling. During the performance of this inspection, the resident inspectors conducted reviews of the licensee's backshift operations on the following days - May 13, 14, 18, 19, 22, 23, 26 and 30 and June 1, 2, 3, 4, 5, 8, 9, 10, 11, 12 and 16.

Results: Two violations were identified: Violation of Technical Specification 3.6.1.1, Containment Integrity; and Failure to follow procedure resulting in movement of a fuel assembly while still partially inserted in a fuel rack (see paragraphs 7 and 11, respectively).

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REPORT DETAILS

1. Licensee Employees Contacted

*E. W. Harrell, Station Manager
*R. C. Driscoll, Quality Control (QC) Manager
*G. E. Kane, Assistant Station Manager
*M. L. Bowling, Assistant Station Manager
*R. O. Enfinger, Superintendent, Operations
*M. R. Kansler, Superintendent, Maintenance
*A. H. Stafford, Superintendent, Health Physics
*J. A. Stall, Superintendent, Technical Services
J. L. Downs, Superintendent, Administrative Services
J. R. Hayes, Operations Coordinator
D. A. Heacock, Engineering Supervisor
G. Gordon, Electrical Supervisor
R. A. Bergquist, Instrument Supervisor
F. T. Terminella, QA Supervisor
J. P. Smith, Superintendent, Engineering
D. B. Roth, Nuclear Specialist

- J. H. Leberstein, Engineer
- *G. G. Harkness, Licensing Coordinator
- *D. J. VanDeWalle, Licensing Supervisor (SEC)

Other licensee employees contacted include technicians, operators, mechanics, security force members, and office personnel.

*Attended exit interview

2. Exit Interview (30703)

The inspection scope and findings were summarized on June 16, 1987, with those persons indicated in paragraph 1 above. The licensee acknowledged the inspectors findings. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspectors during this inspection.

(Open) Violation 338,339/87-15-01: Violation of T.S. 3.6.1.1, Containment Integrity (paragraph 7).

(Open) Violation 338/87-15-02: Failure to follow procedure resulting in the movement of a fuel assembly while still partially inserted in a spent fuel rack (paragraph 11). 3. Plant Status

Unit 1

Unit 1 began the inspection period in day 25 of the refueling outage with the fuel removed from the core. The unit completed reloading the core on May 18, 1987, and is presently in Mode 5 day 59 of the refueling outage.

Unit 2

Unit 2 began the inspection period operating at approximately 100% power. On May 21, 1987, the leakoff rate from the #1 seal of "C" Reactor Coolant Pump (RCP) increased to approximately 5.8 gpm indicating a degradation of the #1 seal. By May 23, the "C" RCP seal leakoff had increased to approximately 8 gpm, and the decision was made to shut Unit 2 down. Shutdown commenced on May 23, 1987, after 217 days of continuous operation. Shortly after the "C" RCP was secured following the shutdown, the #1 seal failed completely. The seal leakoff was isolated, and the #2 seal maintained the reactor coolant pressure boundary until the cooldown and depressurization could be completed.

The licensee completed the replacement of the seal package on "C" RCP, and on June 1, 1987, commenced a startup of Unit 2. The unit achieved 100% power on June 4, 1987, and is presently operating at 100% power.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Licensee Action on Previous Enforcement Matters (92702)

(Closed) Violation 338,339/86-28-03: Failure to Document Rubidium 88 Contamination. The licensee has completed the action as stated in their response to the Notice of Violation.

6. Licensee Event Report (LER) Followup (90712)

The following LERs were reviewed and closed. The inspector verified that reporting requirements had been met, that causes had been identified, that corrective actions appeared appropriate, that generic applicability had been considered, and that the LER forms were complete. Additionally, the inspectors confirmed that no unreviewed safety questions were involved and that violations of regulations or Technical Specification (TS) conditions had been identified.

(Open) LER 338/85-03: Flooding Potential not Previously Evaluated. (Reference Inspection Report 338,339/85-12) Corrective action in the LER stated that long-term action was currently being developed. The turbine building contains safety related equipment which could be affected by flooding. A Type I VEPCO engineering study showed possible options to prevent this occurrence. To date, the licensee has not taken any longterm corrective actions. The inspector requested the licensee provide a date when corrective action will be taken or submit a supplemental response to the LER stating that long term action will not be taken and provide the reasons why.

(Closed) LER 339/86-07: Reactor Trip Caused by Turbine First Stage Pressure Spike. This item has been corrected by instrumentation.

(Closed) 10 CFR 21 85-01: K-Line Breaker with Improper Overcurrent Trip Device. The licensee provided the inspector with a memorandum dated May 19, 1987, stating that the breakers in question have not been purchased for use at North Anna.

7. Review of Inspector Follow-up Items (92701)

(Closed) IFI 338,339/86-20-01: Inconsistencies in Locking Requirements for Auxiliary Discharge Valves. 1-0P-31.2A has been revised to lock valves closed similar to Unit 2 valves and an engineering work request was submitted to update the drawings.

(Closed) IFI 338/86-20-02: Inadvertent Safety Injection PT 36.1. The I&C Department has changed PT 37.1A and PT 36.1B on both units to:

- 1) Require single action steps
- 2) Have an operator sign the PT step
- 3) Only reset the train under test

This should preclude further events of this type.

(Closed) IFI 338,339/86-28-06: Determine Source of CS-138 Which Caused a Hi-Hi Air Particle Monitor Alarm. The licensee took appropriate action to determine the cause of the alarm. Air samples were taken and analyzed but a source determination could not be made.

(Closed) URI 338,339/86-28-04: Verify That Rubidium 88 Did Not Exceed MPC Limits of 10 CFR 20. The licensee demonstrated to the inspectors that appropriate action was taken to ensure the 10 CFR 20 limits were not exceeded.

(Closed) URI 338,339/86-28-07: Modification of Commitments to NRC Regarding Inspector Concerns and a Violation. The licensee has taken steps to modify the procedure to ensure it is not misinterpreted.

(Closed) URI 338/85-31-02: Refueling - Fuel Transfer Equipment. The engineering work request for Unit 1 was completed prior to the refueling outage, and the transfer mechanism performed acceptably.

(Closed) URI 338,339/85-05-03: Battery Inspection Comments. The licensee changed the technical specification surveillance requirement for the inspection of diesel fire pump battery cells.

(Closed) IFI 338,339/84-27-05: Organization of Offsite Review Committee. This item will be closed until another review can be made of the Offsite Review Committee. The licensee has responded to all of the inspector's concerns.

(Closed) URI 338,339/86-18-01: Outstanding Work Requests. This item will be closed and monitored on a monthly basis. The licensee made an initial effort to reduce the amount of safety related work requests.

(Closed) IFI 338,339/86-03-03: Rockwell Edward Valve Failure. Periodic tests were prepared for Unit 1 and Unit 2 for those valves which experience high thermal transients. The licensee performed radiography on the RTD bypass line valves and made repairs where flow caused the valve to seat.

(Closed) IFI 339/84-19-01: Drawing Updates and Valve Lineup Corrections Required on D/G Support System. The licensee has revised the drawing by Engineering Work Request 84-508. All commitments have been completed on this item.

(Closed) URI 338,339/87-10-02: Review Licensee Actions Following Discovery of Potential Unreviewed Safety Question. In a memorandum dated May 13, 1987, from R. M. Berryman, VEPCO, to J. A. Stall, VEPCO, North Anna, the licensee stated that a preliminary analysis on April 16, 1987, indicated there were enough conservatisms in the current accident analysis to consider them still bounding. This preliminary analysis was supplied by Stone and Webster (S&W) and reviewed by the VEPCO corporate Nuclear Engineering Staff on April 16, 1987. S&W completed their final review on April 22, 1987, and the conclusions were reported to be consistent with the preliminary indications.

After discussions with the inspectors, the licensee agreed to perform a formal 10 CFR 50.59 evaluation of the issue. In a memorandum dated May 19, 1987, from R. M. Berryman, VEPCO to J. A. Stall, VEPCO, North Anna, the licensee documented that no unreviewed safety question existed concerning the use of 24.7 psia instead of 30 psia for the Hi-Hi containment pressure setpoint. The determination that an unreviewed safety question did not exist had been addressed previously but not formally documented.

(Closed) URI 338,339/85-12-01: Proper Description & Testing of Thermal Hydrogen Recombiner System. In April of 1985, the inspectors identified a situation to the licensee where performance of Technical Specification (TS) surveillance 4.6.4.2.a on the hydrogen recombiners in Modes 1, 2, 3, or 4 would cause the licensee to be in violation of TS 3.6.1.1 (Primary Containment Integrity). The inspectors also had a concern that the hydrogen recombiners could not withstand the design bases containment pressure increase of 45 psig. In April of 1986, the licensee performed an engineering evaluation, Engineering Work Request (EWR) 86-156, which concluded that the recombiners could withstand the maximum containment pressure caused by a design based accident. However, a TS change allowing the performance of TS surveillance 4.6.4.2.a, which requires non-automatic containment isolation to be open for approximately four hours, was not submitted to the NRC until May 27, 1987. At the time, it was the inspectors' understanding that performance of TS 4.6.4.2.a would not be conducted with the units in Modes 1, 2, 3, or 4 until the licensee received an NRC approved TS change.

During a recent review of the unresolved item, the inspectors discovered that the licensee had performed TS 4.6.4.2.a numerous times, beginning in 1985, with the associated unit operating in Mode 1, 2, 3, or 4. The inspectors had been given the impression that the licensee had not, and would not, perform this surveillance unless the unit in question was in Modes 5 or 6. Based on further discussions with the licensee, there appeared to be a misunderstanding among personnel within the licensee's staff and with the inspectors. Personnel involved with the performance of the hydrogen recombiner surveillance felt that since the recombiner had been demonstrated capable of being an extension of the containment boundary, and since it would be required to be placed in service following an accident, then performance of TS 4.6.4.2.a in Modes 1, 2, 3, or 4 was acceptable. However, the inspectors had made it clear to other licensee personnel that performance of the hydrogen recombiner surveillance, opening of non-automatic containment isolation valves for greater than an hour, with the unit in Modes 1, 2, 3, or 4 would be a violation of containment integrity as presently stated in TS 3.6.1.1.

The inspectors reviewed the procedure for performance of the hydrogen recombiner surveillance and determined there was no mention of shutting the containment isolation valves if an accident occurred. In fact, there was no discussion in the procedure precaution or otherwise which described these valves as containment isolation valves and what should be done in case of an accident. The inspectors concluded that the administrative controls over the operation of these containment isolation valves with the plant operating in Modes 1, 2, 3, or 4 was inadequate.

Based on the fact that this item was identified in April of 1985, the inspectors indicated to the licensee that performance of the surveillance in Modes 1, 2, 3, or 4 was a violation of TS 3.6.1.1, the EWR demonstrating the recombiner could withstand design bases pressure was not completed until a year later in April 1986, the administrative control of the valves did not address the containment integrity issue and finally, the TS change was not issued until May 1987, over two years after the need was identified, the performance of the hydrogen recombiner surveillance with the unit in Modes 1, 2, 3, or 4 will be identified as a violation (338,339/87-15-01) of TS 3.6.1.1.

8. Monthly Maintenance (62703)

Station maintenance activities affecting safety related systems and components were observed/reviewed, to ascertain that the activities were conducted in accordance with approved procedures, regulatory guides and industry codes or standards, and in conformance with Technical Specifications. The licensee informed the inspector that during inspections of several Limitorque Motor Operated Valves (MOVs), grease was discovered in the valve spring packs. This grease was also beginning to separate into an oil-like substance and a wax-like substance. The licensee was concerned that the separated grease could inhibit the operation of the spring pack and consequently prevent the torque switch from stopping the motor. Based on this discovery, the licensee decided to look at the grease in all of the safety related Limitorque MOVs. The licensee also changed their preventative maintenance procedures to require removal of the spring pack cover to inspect for excessive grease and grease separation, and initiated a program to replace the grease on MOVs in containment with Exxon NEBULA EP.1.

On May 21, 1987, the inspector observed the disassembly of Limitorque MOV 1286B, the "B" charging pump discharge valve. This disassembly was being performed under maintenance procedure MEMP-C-MOV-1. The inspector observed the grease separation, and the location of grease in the spring pack. The harder portion of the grease was observed to be still pliable with the consistency of axle grease.

On May 22, 1987, the inspectors reviewed the Engineering Work Request (EWR) 87-375 which provided the instructions for the modification of six incore flux thimbles. These thimbles were being modified because they were discovered to have wall thinning greater than 35% (see Inspection Report 338,339/87-10, paragraph 7). Along with the EWR, the inspectors reviewed the 10 CFR 50.59 safety evaluation which demonstrated that the repairs did not present an unreviewed safety question and the temporary maintenance procedure TMMP-C-RC-8 which provided the instructions to perform the modification. The inspectors did not identify any problem associated with these procedures.

During this inspection period, the licensee performed the disassembly, inspection and repair of the 1J Emergency Diesel Generator (EDG) (see Inspection Report 338,339/87-10, paragraph 7). The preliminary results of this inspection indicated one piston pin floating bushing had extruded. This bushing, from the number 3 upper piston, had extruded to the extent that it had become an interference fit in one section of the bushing. The area of the bushing that had grown showed signs of discoloration, indicating it had been abnormally heated and showed signs of rubbing against the fixed bushings. The discovery of this bushing, and the number 10 upper bushing on the 1H EDG, indicates that the floating bushings can become heated and extruded in one section of the bushing without being identified as a problem during the six-month piston pin bushing gap measurements. The licensee was requested to evaluate this situation and provide some discussion and conclusions in their diesel report due to be issued to the NRC in September 1987.

The licensee has completed the various types of eddy current testing of the steam generators (SG). The results of this testing indicates numerous tubes in each of the SGs require plugging. Based on the results of the sample of tubes required to be inspected by TS, the licensee is required to get NRC concurrence prior to operation of the SGs. In a meeting in Washington with the NRC on June 3, 1987, the licensee described their tube plugging criteria. This criteria basically consists of the following: all indications greater than 40% of nominal tube wall thickness will be plugged which is in compliance with TS, all distorted indications which cannot be accurately evaluated will be plugged, and all tube sheet possible indications will be plugged. Based on this criteria, the number of tubes requiring plugging in SG "A" is 83; SG "B" is 62; and SG "C" is 118. The total percentage of tubes plugged in SG "A" equals 6.17%; SG "B" equals 5.25%; and SG "C" equals 7.99%. The licensee performed a 10 CFR 50.59 evaluation on the effects of plugging SG tubes and determined that with less than 12% plugged, they were still within their accident analysis and did not present an unreviewed safety question.

Based on this meeting, the NRC committed to send a letter to North Anna Power Station stating that it is acceptable to operate the SGs following the completion of the plugging of the SG tubes as committed to by the licensee on June 3, 1987.

It came to the inspectors' attention, that during the Unit 2 shutdown on May 23, 1987, following the securing of the "B" Main Feed Pump (MFP), the associated discharge check valve hung open. Following discussions with the licensee, the inspector discovered that at least on two other occasions, one in 1985 and one approximately five months earlier, MFP discharge check valves failed to shut following the securing of the associated MFP.

The licensee has inspected and repaired as necessary all of the Unit 1 and Unit 2 MFP discharge check valves. The one that failed during the Unit 2 shutdown was discovered to have one dowel pin and one hinge pin missing. The other past failures could not be determined as to their cause, but the licensee documented replacement of their bushings and pins. The recent inspections of Unit 1 and Unit 2 check valves revealed various problems from degraded wear of the dowel pin, the hinge pins and the bushings to missing dowel and hinge pins.

Based on these findings, the licensee repaired the check valves as necessary and is in the process of establishing a preventative maintenance procedure to periodically inspect these check valves. One important thing to note; unlike the MFP discharge check valves at the Surry Station that failed during the recent feedwater pipe rupture event, the North Anna check valves have their seats welded to valve body and the dowel pins holding the hinge pin in place were welded. These modifications to the check valves were identified to North Anna by Crane through Stone and Webster in 1978 during construction.

The inspectors observed the following maintenance items during this inspection period:

EWR 86-054c, installation of hush trim on main feedwater regulating valves.

The maintenance associated with pulling diesel generator bearing.

Reactor Coolant Pumps - The inspectors observed the replacement of the seal package on the "B" pump, and the teardown of the "A" motor for the five year inspection. The five year inspection on the "A" motor showed signs of overheating on the motor windings.

The recirculation spray heat exchanger diaphragms replacement on the recirculation spray heat exchangers.

The installation of new Exide batteries for the 1-III battery bank.

The maintenance on 1-SI-MOV-1890D, Low Head Safety Injection Pump Discharge to the Cold Leg. A work request had been written because of a body to bonnet leak. The inspectors reviewed the procedure, the material certification and the radiation work permit. No problems were identified.

The replacement of piping and welding of the main feedwater piping.

The installation of the new environmentally qualified cable for the incore thermocouples. This was being done under design change package 85-07.

The installation and torquing of the main steam relief valves.

During the outage, the "B" residual heat removal pump motor showed evidence of smoking. The lug terminal connection was burned off. Megger readings were taken, the lug replaced, and the motor restarted.

New air cylinders and tubing have been installed for the decay heat dump valve and the steam valves to the Terry turbine for the auxiliary feedwater pump.

The service water value to the recirculation spray heat exchangers 101 A&B are being replaced with refurbished values.

No violations or deviations were identified.

9. Monthly Surveillance (61726)

The inspectors observed/reviewed technical specification required testing and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that limiting conditions for operation (LCO) were met and that any deficiencies identified were properly reviewed and resolved.

The inspectors observed portions of the following surveillance procedures;

2-PT-71.1 "Operation of Auxiliary Feedwater Steam Turbine"

1-PT-213.14 "Valve Stroke Test for Instrument Air Supply, TV-1A-102A and 102B.

1-PT-61.2.3 "Containment Type B Equipment Hatch Testing". The "O" ring seals at the enclosure passed, but the "O" rings for the air lock failed and were replaced. They were retested and passed.

1-PT-83.4 "Blackout of Emergency Bus for Shutdown Loads" for the 1J bus portion. The diesel started and picked up the loads.

Type "C" Valve Testing - Approximately 44 valves have to be retested as a result of excessive leakage identified during Type "C" testing. The inspectors reviewed the Type "C" testing requirements outlined in 1-PT-61.3. The "as found" and "as left" conditions are documented on the summary pages of the procedure. A review was made of past Type "C" and Type "A" tests. There are some valves that consistently fail the Type "C" test. These include the air ejector divert check valve in the containment, the recirculation spray heat exchanger service water valves and the containment purge valves.

The inspectors witnessed the Type "C" testing of 1-RH-36 and 1-RH-37 which were leaking approximately 18 SCFH and the Type "C" testing of the containment purge inlet valve.

The inspectors made a survey of the containment loop rooms and the penetration area to look for valve leaks. No leaks were identified which had not been previously identified by the licensee.

No violations or deviations were identified.

10. ESF System Walkdown (71710)

The following selected ESF systems were verified operable by performing a walkdown of the accessible and essential portions of the systems on June 16, 1987.

The inspectors verified the valve lineup for the 1H and 2J Emergency Diesel Generator (EDG) auxiliaries per the following procedures:

1-OP-46.4A - Valve Checkoff - Diesel Air

1-OP-6.3A - Valve Checkoff - 1H Diesel Engine Lube Oil System

1-OP-6.1A - Valve Checkoff - 1H Diesel Engine Cooling Water

200P-6.2A - Valve Checkoff - 2J Diesel Engine Cooling Water

2-OP-6.4A - Valve Checkoff - 2J Diesel Engine Lube Oil System

No violations or deviations were identified.

11. Operational Safety Verification (71707)

By observations during the inspection period, the inspectors verified that the control room manning requirements were being met. In addition, the inspectors observed shift turnover to verify that continuity of system status was maintained. The inspectors periodically questioned shift personnel relative to their awareness of plant conditions.

Through log review and plant tours, the inspectors verified compliance with selected Technical Specification (TS) and Limiting Conditions for Operations.

In the course of the monthly activities, the resident inspectors included a review of the licensee's physical security program. The performance of various shifts of the security force was observed in the conduct of daily activities to include: protected and vital areas access controls, searching of personnel, packages and vehicles, badge issuance and retrieval, escorting of visitors, patrols and compensatory posts. In addition, the resident inspectors observed protected area lighting, protected and vital areas barrier integrity and verified an interface between the security organization and operations or maintenance.

On a regular basis, radiation work permits (RWP) were reviewed and the specific work activity was monitored to assure the activities were being conducted per the RWPs. Selected radiation protection instruments were periodically checked and equipment operability and calibration frequency was verified.

The inspectors kept informed, on a daily basis, of overall status of both units and of any significant safety matter related to plant operations. Discussions were held with plant management and various members of the operations staff on a regular basis. Selected portions of operating logs and data sheets were reviewed daily.

The inspectors conducted various plant tours and made frequent visits to the control room. Observations included: witnessing work activities in progress; verifying the status of operating and standby safety systems and equipment; confirming valve positions, instrument and recorder readings, annunciator alarms, and housekeeping.

On May 18, 1987, the inspector conducted a tour of the Unit 1 containment building. During this tour, the inspector witnessed the transfer of several fuel assemblies from the fuel pool into the vessel. The inspector observed the licensee's performance of loading fuel into the vessel from the containment refueling bridge. The operation of the transfer system, up-ender and refueling bridge was performed by Westinghouse contract personnel. The VEPCO personnel observing the operation consisted of the refueling Senior Reactor Operator (SRO) and a Quality Assurance (QA) inspector. The reloading fuel operation began on May 15, 1987, and was completed on May 18, 1987. On May 23, 1987, the inspector observed portions of Unit 2 reactor shutdown. The unit was being shutdown due to a degraded "C" RCP #1 seal. Following the completion of the control rod insertion, the licensee secured the "C" RCP. Approximately five minutes after the RCP was secured, the #1 seal failed completely. The licensee followed 1-AP-33 "Reactor Coolant Pump Seal Failure" and shut the #1 seal leakoff valve. The #2 seal maintained the reactor coolant pressure boundary until the unit could be cooled down and depressurized. During the repair, the inspectors made a containment entry to witness replacement of the seal.

Based on a request from the Region, the inspectors reviewed the automatic operation of the Low Head Safety Injection (LHSI) and High Head Safety Injection (HHSI) System transfer from the injection phase to the recirculation phase. This review determined that the suction of the LHSI pumps automatically swaps from the Refueling Water Storage Tank (RMST) to the reactor compartment sump on a low level in the RWST. Not only does the LHSI system change state on a RWST low level, but so does the valve for LHSI discharge to the suction of the HHSI pumps. Therefor, the safety injection system will automatically swap from the injection mc to taking a suction from the RWST to the recirculation mode where the LHSI pumps take a suction from the containment sump and discharges to the reactor vessel and/or supplies the necessary net positive suction head to the suction of the HHSI pumps.

Following the recent discovery of deposits of boron on the vessel head at the Surry Nuclear Station, and the earlier problems at another facility, the inspector requested the licensee make a determination to see if the problem exists on either unit at the North Anna Power Station. At the time of the request, Unit 1 was in a refueling outage and Unit 2 had just shutdown due to a degraded reactor coolant pump seal. The licensee had already inspected the Unit 1 reactor vessel head and bolts and informed the inspectors that they did not discover any boron deposits on the vessel head or the bolts. Unit 2 which had just shutdown was inspected and there did not appear to be any indication of previous leaking or identification of boron deposits in the vessel head area. The licensee also performed a review of past leakage problems since the last refueling outage for Unit 2 and did not discover any in the vessel head area.

On May 26, 1987, the licensee changed modes on Unit 1 from Mode 6 to Mode 5. Following this mode change, the inspectors became aware of a problem associated with the pressurizer code safety that was being taken credit for in TS 3.4.3. This TS requires a minimum of one code safety to be operable in Modes 4 and 5. This specific code safety was fully operational except for a snubber supporting the discharge tail piece which was inoperable. TS 3.7.10 requires snubbers located in systems required to be operable in Mode 5 to also be operable. The licensee evaluated the inoperable snubber and determined that in the condition of the unit at the time of the mode change, approximately 90 degrees Fahrenheit, the snubber was not required to support the operation of the code safety. The licensee also considered in this evaluation that the pressurizer PORVs were blocked open, the RHR reliefs were on line and the vessel was partially drained making it unlikely that the safety would be required to relieve pressure and then it would be water not steam. However, this evaluation did not address all the possible failures of the snubber and code safety discharge pipe and how they could affect the operation of the code safety. One question not addressed, was the possibility of the failure of the discharge pipe in such a vay that would restrict flow out of the safety also, even though reactor coolant temperature was 90 degrees Fahrenheit and the vessel level was partially lowered, Mode 5 allows up to 195 degrees Fahrenheit and the unit could be filled with a steam bubble in the pressurizer.

Based on the condition of the plant at the time of the mode change, the failure of the code safety to relieve pressure would not have presented a safety problem due to the other relief paths. However, IS 3.0.4 states in part... entry into an operational mode or other specified applicability condition shall not be made unless the conditions of the Limiting Condition for Operation are met without relevance on the provision contained in the action statements unless otherwise excepted. Since the snubber was technically required to support the operation of the code safety and the snubber was inoperable also making the code safety technically inoperable, then both TS 3.4.2 and 3.7.10 LCOs were in action statements. Even though the safety significance is minor, the entry into Mode 5 from Mode 6 with a technically inoperable code safety was being considered a viclation of TS 3.0.4. Following the identification of the potential violation the licensee re-examined the circumstances involved in the mode change. This re-examination revealed that one of the other relief valves previously considered inoperable because the valve had not been fully torqued was in fact torqued enough to be considered operable. The licensee stated that the inlet flange had been torgued to at least 250 ft-lbs and an engineering calculation demonstrated that the bolts would take the stresses present at pressures up to 2485 psig. The licensee also stated that the inlet flange was made up metal to metal and would have prevented leakage at the maximum pressures experienced in Mode 5. Based on the fact that all three safeties were installed, the plant conditions at the time of the mode change did not present a potential for an overpressurization event and the TS requirement for one operable safety relief was met without the reliance on an action statement this event is no longer being considered a violation. The inspector will continue monitor the licensee's decision process in making mode changes and complying with TSs.

On May 16, 1987, while moving fuel in the spent fuel pool in preparation for transferring the fuel to the Unit 1 containment, a fuel assembly, G-56, was moved in the lateral direction while still partially inserted in the spent fuel rack. The fuel handling operator recognized that something was wrong after moving the spent fuel handling bridge approximately 4 to 12 inches and immediately returned the fuel handling equipment back directly over the fuel rack. The fuel assembly was withdrawn and inspected to determine if any damage occurred. The inspection included a visual, with binoculars, and a video tape examination. The licensee reported that neither examination revealed any damage to the fuel assembly. Following the licensee's investigation into the cause of the event, the fuel assembly was transferred to the Unit 1 containment for loading into the core. The mishandling event resulted in an approximate four and one-half hour delay in the core reload.

Refueling operations were performed by a contractor (Westinghouse) under the supervision of a VEPCO SRO. Just prior to the mishardling event, the fuel handling equipment operator had been relieved, and the turnover did not include the position of the fuel assembly. The on-coming operator assumed that the assembly was fully withdrawn and did not icc. at the assembly to ensure that it was withdrawn. This was further complicated by the fact that VEPCO policies require two operators on the bridge; one handling the fuel assembly tool and the other operating the bridge. At the time of the event, there was only one operator on the bridge performing both functions.

This policy, along with other VEPCO sefueling procedures and policies, were explained to the contractor personnel prior to any fuel manipulation. However, the inspector was informed that on several occasions, the licensee had to reinform the operators on the correct procedures and methods of operation required to be performed during fuel assembly manipulations.

The licensee's investigation into the event revealed several discrepancies. The contractor's operator failed to follow both the VEPCO policies and instructions and the contractor's fuel handling procedure. The contractor's fuel handling procedure F-5, step 6.2.3, prohibits lateral movement of the fuel handling hoist while any part of the latched fuel assembly is inserted into the storage cells, transfer system or elevator. The VEPCO policies and instructions, which were explained to the contractor's personnel on several occasions, require two operators on the bridge during fuel manipulation. These policies, however, are not spelled out in the licensee's procedures. The operator failed to conduct an adequate shift turnover, and the turnover was not performed at an appropriate point in the fuel handling operation. Finally, the Westinghouse operators were not following the directions of the refueling senior reactor operator as demonstrated by the need on several occasions to caution the operators on their fuel handling techniques.

Technical Specification 6.8.1 requires written procedures be established, implemented and maintained covering refueling operations. Contrary to the above, on May 16, 1987, the spent pool refueling bridge operator failed to follow the contractor's refueling procedure. F-5 and the licensee's policies and instructions for fuel handling operations which resulted in the lateral movement of a fuel assembly while still partially inserted in the spent fuel rack. This mistandling event could have resulted in a damaged fuel assembly and is a violation (338/87-15-02). The following completed design changes were reviewed.

84-59 - Reg. Guide 1.97, Pressurizer Liquid Temperature Modification

83-34 - Class IE RTD, Replacement Safety Related

84-46 - Reg. Guide 1.97, Waste Gas Decay Tunic Instrument Modification

84-005 - Reactor Trip Breaker Shunt Modification.

The design changes were reviewed to verify that drawings and procedures had been updated and the testing had been completed. The inspector verified that the written basis upon which the change was based was technically correct and no unreviewed safety question existed.

The inspectors noted that several design changes had been installed but not completed. In one case, DCP-84-72 "Pressurizer Safety and Relief Valve Discharge Pipe Support Modification" was not completed because the pressurizer belly band support was not modified.

A review of other design change packages indicated that too much time elapses before closing out the design change deficiency reports. This results in changes being installed, but not completed for long periods of time.

No violations or deviations were identified.

13. Verification of Containment Integrity (61715)

Verification was made of integrity of the equipment airlock on June 6, 1987, by witnessing 1-PT-61.2.3.

The containment penetration area inside the containment was inspected to ensure proper valve lineup. Included in the penetrations checked were Penetrations 22, 18, 17, 35, 37, 44, 48 and 54.

The accumulator systems were walked down as part of this module.

No violations or deviations were identified.

14. Plant Startup from Refueling (71711)

Valve checkoff 1-0P-7.3A was used to verify the position of the accumulator valves on "A" Accumulator. The motor operator was removed from the accumulator outlet valve as part of the program to change out the grease.

No violations or deviations were identified.