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

Report No.: 50-261/90-22

Licensee: Carolina Power and Light Company
P. O. Box 1551
Raleigh, NC 27602

Docket No.: 50-261 License No.: DPR-23

Facility Name: H. B. Robinson

Inspection Conducted: September 11 - October 10, 1990

Lead Inspector: [signature] 11/6/90
for L. W. Garner, Senior Resident Inspector Date Signed

Other Inspector: K. R. Jury

Approved by: [signature] 11/7/90
R. E. Carroll, Acting Section Chief Date Signed
Division of Reactor Projects

SUMMARY

Scope:

This routine, announced inspection was conducted in the areas of operational safety verification, surveillance observation, maintenance observation, onsite followup of events, written reports of nonroutine events, and action on previous inspection findings.

Results:

Release of Freon R-22 gas into a vital area resulted in an Alert declaration. Incorrect determination that the affected area was a protected area resulted in improper initial event classification as an Unusual Event. Based upon previous inspection findings, the improper classification was a violation for failing to correct an exercise weakness as required by 10 CFR 50, Appendix E (paragraph 5).

Two examples of a violation for failure to properly implement procedures were identified. One example involved valve mispositioning which resulted in draining 8,000 gallons of spent fuel pool water to the containment sump. The other example was the discovery that the primary air and back-up nitrogen supplies to the cavity seal were isolated after vessel defueling with the cavity still flooded (paragraph 2).

9011160172 901107
PDR ADOCK 05000261
Q PNU

A non-cited violation was identified for failure to implement a procedure, in that, the state and county emergency operation centers were not contacted when a Unusual Event notification was made to the warning points (paragraph 5).

A temporary waiver of compliance was granted October 5, 1990, for a one-time change to Technical Specification 3.5.3.3. The waiver allowed reactor containment vessel purging without operable effluent radiation monitors when containment integrity is not required and there is no fuel in containment (paragraph 2).

All 106 guide tube support pins will be replaced this outage as a result of ultrasonic inspections which identified 38 pins with intergranular stress corrosion crack indications (paragraph 3).

At least thirteen flexureless guide tube inserts will be installed in locations which have less than two intact flexures (paragraph 3).

A safety injection pump test into three cold legs resulted in flow rates for which net positive suction head requirements were not specified (paragraph 7).

Frequent management tours and emphasis on housekeeping have generally resulted in maintaining housekeeping at an acceptable or above level during the outage. An exception was the reactor cavity area cleanliness during control rod unlatching commencement(paragraph 2).

Periodic Onsite Nuclear Safety Section distribution of relevant operating experience feedback reminders prior to significant evolutions was noteworthy (paragraph 2).

REPORT DETAILS

1. Persons Contacted

*R. Barnett, Manager, Outages and Modifications
C. Baucom, Shift Outage Manager, Outages and Modifications
J. Benjamin, Shift Outage Manager, Outages and Modifications
C. Bethea, Manager, Training
*S. Billings, Technical Aide, Regulatory Compliance
*R. Chambers, Manager, Operations
D. Crook, Senior Specialist, Regulatory Compliance
*J. Curley, Manager, Environmental and Radiation Control
C. Dietz, Manager, Robinson Nuclear Project
D. Dixon, Manager, Control and Administration
J. Eaddy, Supervisor, Environmental and Radiation Support
S. Farmer, Supervisor - Programs, Technical Support
R. Femal, Shift Foreman, Operations
*E. Harris, Manager, Onsite Nuclear Safety
J. Kloosterman, Director, Regulatory Compliance
D. Knight, Shift Foreman, Operations
E. Lee, Shift Outage Manager, Outages and Modifications
A. McCauley, Supervisor - Electrical Systems, Technical Support
R. Moore, Shift Foreman, Operations
R. Morgan, Assistant to the Manager, Robinson Nuclear Project
D. Nelson, Shift Outage Manager, Outages and Modifications
*M. Page, Manager, Technical Support
D. Quick, Manager, Plant Support
D. Seagle, Shift Foreman, Operations
*J. Sheppard, Plant General Manager
*R. Smith, Manager, Maintenance
R. Steele, Shift Foreman, Operations
D. Winters, Shift Foreman, Operations
*H. Young, Director, Quality Assurance/Quality Control

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

*Attended exit interview on October 18, 1990.

Acronyms and initialisms used throughout this report are listed in the last paragraph.

2. Operational Safety Verification (71707)

The inspectors evaluated licensee activities to confirm that the facility was being operated safely and in conformance with regulatory requirements. These activities were confirmed by direct observation, facility tours, interviews and discussions with licensee personnel and management, verification of safety system status, and review of facility records.

To verify equipment operability and compliance with TS, the inspectors reviewed shift logs, Operation's records, data sheets, instrument traces, and records of equipment malfunctions. Through work observations and discussions with Operations staff members, the inspectors verified the staff was knowledgeable of plant conditions, responded properly to alarms, adhered to procedures and applicable administrative controls, cognizant of in-process surveillance and maintenance activities, and aware of inoperable equipment status. The inspectors performed channel verifications and reviewed component status and safety-related parameters to verify conformance with TS.

Plant tours and perimeter walkdowns were conducted to verify equipment operability, assess the general condition of plant equipment, and to verify that radiological controls, fire protection controls, physical protection controls, and equipment tagging procedures were properly implemented.

Temporary Waiver of Compliance

On October 5, 1990, the licensee requested an emergency TS amendment and Temporary Waiver of Compliance from the requirements of TS 3.5.3.3, Table 3.5-7, items 3.a and 3.b required action b. The waiver request was verbally granted the same day and subsequently confirmed by letter dated October 9, 1990. The waiver was to remain into effect until emergency TS amendment processing was completed. The emergency TS amendment was subsequently issued on October 16, 1990, as amendment no. 130. The waiver and the amendment authorized purging of the CV without effluent radiation monitors RMS-11, RMS-12, RM-14 and RMS-34 operable. This was a one time change for refueling outage 13, applicable only when fuel is not in the CV and CV integrity is not required. Additionally, CV atmosphere grab samples are to be taken once per 12 hours and analyzed for radionoble gases within 24 hours.

Containment purging during outages is desirable to maintain safe personnel working conditions. The need for the waiver and emergency TS change resulted from the simultaneous installation of two modifications: M-1005, Upgrade Plant Vent Radiation Monitoring and Stack Flow Monitor, and M-1049, Radiation Monitoring System Upgrade. The latter modification was initiated in the third quarter of 1989 by a system team to improve the overall system reliability. In either March or April 1990, engineering identified that CV purging would not be allowed by TS 3.5.3.3, Table 3.5-7, item 3.a and 3.b required action b, if RMS-11, 12, 14, and 34 were simultaneously removed from service.

As a result of an interdepartmental miscommunication, engineering proceeded with development of M-1049 in conjunction with M-1005 such that these monitors would be simultaneously inoperable without initiating actions to obtain relief. On July 31, 1990, this oversight was discovered and discussed by the PNSC. Alternate installation options to maintain at least one of the monitors in service were reviewed; however, they were not considered feasible due to the relatively short time available to perform necessary major changes in the modification packages. If an appropriate TS change request had been promptly submitted subsequent to initial issue identification, a waiver and emergency TS amendment would not have been required.

Prior to October 5, 1990, NRR recognized that the replacement high range noble gas effluent monitor had a maximum detection range one decade less than the existing monitor. The existing monitor met the maximum detection range (100,000 microcuries per cubic centimeter) required by the March 14, 1983 order confirming licensee commitments on post-TMI related issues. The required maximum range was specified in NUREG-0737, item II.F.1-1. Subsequently, the licensee revised the modification to increase the maximum detection range for the replacement monitor to be in compliance with the above order. Based upon commitments to RG-1.97, Instrumentation For Light-Water-Cooled Nuclear Power Plants To Assess Plant And Environs Conditions During and Following An Accident, revision 3, the licensee had improperly determined that item I.F.1-1 was no longer applicable. At the end of the report period, the licensee was reviewing if similar problems exist with other modifications. This is an URI: Review If TMI Item Commitments Have Been Improperly Superseded by RG-1.97 Commitments, 90-22-01.

<u>Inadvertent Draining Of SFP Water</u>

On September 22, 1990, during performance of GP-009, Filling, Purification, and Draining of the Refueling Cavity, revision 9, an operator inadvertently opened valve WD-1757C, which is the lower cavity drain to the CV sump. As a result, approximately 8,000 gallons of SFP water was subsequently discharged into the CV sump. This procedure was being performed in preparation for performance of EST-030, Fuel Handling Equipment Interlock and Operation Test, and prior to initial cavity fill. Valve WD-1757C is located in the excess letdown heat exchanger room which is a locked high radiation area, and is covered with lead blanketing for shielding purposes. Valve operation is by means of a reach rod through the room's door and the valve is reverse acting (i.e., clockwise to open), which is a different operation than almost all valves at HBR. Valve WD-1757C is a ball valve with movement limited by mechanical stops.

This valve mispositioning was discovered on September 23, 1990, when an increase in CV sump level was noticed on the RTGB after the SFP gate valve was opened; operations then verified the sump level increase in the CV. The SFP gate valve was subsequently closed and WD-1757C was discovered open. Valve WD-1757C was then closed and CV sump level stabilized. SCR 90-071 was initiated to document this event and determine root cause, including performance of an HPES evaluation. Failure to correctly operate valve WD-1757C as required by GP-009 was identified as a violation: Failure To Adequately Implement Procedures As Required By TS, 90-22-02.

Pneumaseal Supply Air Isolation

On October 8, 1990, during routine CV inspections, operations personnel discovered both the primary air and back-up nitrogen gas supplies isolated to the pneumaseal while the cavity was flooded. The pneumaseal provides the inflatable seal between the reactor vessel flange and the reactor cavity. The seal, which prevents leakage of refueling water from the cavity, was installed per WR/JO 90-AEJI1 on September 22, 1990, in preparation for flooding the cavity for refueling operations. Based on a review of Combustion Engineering's Field Activities Log, adequate air supply to the seal was verified as late as October 2, 1990 (i.e., subsequent to the vessel being defueled).

The licensee initiated SCR 90-077 to document the incident and determine root cause. Maintenance Refueling Procedure MRP-001, Pneumaseal Installation and Removal, revision 3, Step 7.2.9, required that the instrument air and nitrogen supply valves be wired open and a warning sign be provided so that air and the nitrogen supplies would not be interrupted while the pneumasel was in service. Evidently, at some time between October 2 and 8, 1990, the supply valves were closed, resulting in the isolation of supply air and nitrogen. Per MRP-001, prior to pneumaseal installation, the seal is to be inflated and leak checked with verification that the seal maintains pressure for fifteen minutes with the supply air and nitrogen isolated. There are check valves installed downstream of the manual supply valves to prevent back-leakage. Additionally, in 1984 and 1985, pnemaseal tests were conducted to ensure the seal could not be physically maneuvered through an opening equivalent to the size of the opening between the vessel flange and cavity with the cavity flooded. This testing was conducted in response to IEB 84-03 which was generated as a result of the pneumaseal failure at Haddam Neck. The testing demonstrated that the seal would not fail even if it was deflated. As such, even with seal air and nitrogen supplies isolated, seal failure was not expected and did not occur. However, failure to maintain the instrument and nitrogen supply valves open as required is considered another example of violation 90-22-02.

During review of MRP-001, the inspectors noted that there are no procedural sign-offs nor were acceptance criteria provided within the procedure to document acceptable pneumaseal pre-installation testing and installation. Procedure MRP-001 was revised in August 1990 as part of the Maintenance Procedure Upgrade Program. Based on the fact that neither the procedure nor the WR contained sign-offs verifying certain steps within the procedure were adequately performed, it was difficult to ascertain that seal testing and installation was completely performed as specified. This lack of acceptance criteria and verification sign-offs was considered a procedural weakness.

Vital Power Availability During Refueling

The inspectors verified that from the time the reactor was shut down on September 8, 1990, until all fuel was removed from the reactor vessel, both RHR pumps and associated heat exchangers were operable with the vital busses energized from the SAT. During this period, at least one EDG was maintained available. During the majority of this period, both EDGs and the dedicated shutdown DG were available. In addition, two SI pumps, though de-energized per TS, were available for service. It was noted that the licensee has conservatively elected to schedule fuel loading with both emergency busses operable, even though it is allowable to load fuel with only one emergency bus available.

Midloop/Reduced Inventory

All work activities which would require reduced inventory operations was scheduled to be performed with the reactor vessel defueled (i.e., reduced inventory operation was not scheduled during refueling outage 13). As a result, the licensee had no need to review their controls or administrative procedures governing reduced inventory operation. However, in case reduced inventory operation becomes necessary during the outage, the inspectors verified that procedures were available which adequately address items 3.a through 3.f listed in TI 2515/101, Loss of Decay Heat Removal (Generic Letter No.88-17) 10 CFR 50.54(F). Specifically, the inspectors verified that the current revisions of GP-008, Draining the Reactor Coolant System, revision 20, and OMM-030, Control of CV Penetrations During Mid-Loop Operation, revision 1, contained the proper precautions and instructions. A similar inspection was documented in IR 89-08. The inspectors discussed with the licensee that contingency plans had not been established to repower vital busses from an alternate source if the primary source were lost during reduced inventory operations. If reduced inventory operation becomes necessary, the inspectors will review the proposed plant configuration and discuss with the licensee the need, if any, for power restoration contingency plans.

Outage Status

At the end of the inspection period, the outage was on schedule with modification M-994, Control Room Habitability, the critical path activity, as was anticipated. Obtaining sufficient Q-list fasteners and refrigerant tubing for M-994 continued to be a challenge. Reactor defueling was completed on October 1, 1990. Fuel reload is scheduled to begin on November 8, 1990 (i.e., subsequent to the scheduled completion of S/G eddy current testing and restoration of both E-1 and E-2 emergency busses to service).

Organizational Changes

On September 24, 1990, Mr. J. J. Sheppard, Manager - Operations, replaced Mr. R. E. Morgan as the Plant General Manager. Mr. R. H. Chambers, Technical Support Supervisor - Plant Performance, was promoted to Manager - Operations. Mr. R. E. Morgan has accepted a position as Manager - Nuclear Assessment, Harris Nuclear Project.

OEF Activities

Inspection Report 90-11 documented that prior to the May 1990 transformer upgrade outage, ONS conducted a pre-outage, Focus on Safety meeting. The meeting centered on review of the defined work scope and potential safety concerns based upon OEF reports. Prior to refueling outage 13, ONS sponsored a similar meeting, and has periodically issued OEF reminders prior to significant evolutions. For example, on October 10, 1990, OEF reminder #4 was issued prior to SW system, turbine, S/G sludge lancing, and S/G eddy current test work. This reminder included descriptions of: foreign objects in S/Gs (IEN 88-06); main turbine blade damage caused by foreign objects left in turbines (SER 86-07); loss of reactor coolant inventory while in a shutdown condition (IEN 90-55); release of slightly contaminated material offsite (POER 87-17); and a HPES report involving consequences of using unclear procedures. This effort is considered noteworthy, in that it emphasized management's commitment to learning from industry experiences such that similar problems are avoided.

Management Tours

Plant management, including unit managers and shift outage managers, have made frequent tours of the facility, including the CV, since refueling outage initiation. This effort has resulted in high management visibility at job sites and housekeeping has been generally maintained at or above acceptable levels. One exception was the reactor cavity area cleanliness at the start of control rod unlatching. The inspector noted rubber gloves and a partially torn step-off pad with duct tape within the roped off area around the cavity. Cloth towels and a roll of duct tape were observed on the refueling bridge without being secured. The inspector also observed that items such as tools were being passed in and out of the area without any apparent accountability. At the time the inspector made these observations, a unit manager also observed similar poor conditions and directed that these conditions be corrected prior to resuming work. Subsequently, work in the refueling cavity was again discontinued until the exclusion area was more clearly delineated and additional work and tool controls were established. This item was discussed with the Operations Manager.

One violation, with two examples, was identified.

3. Monthly Surveillance Observation (61726)

The inspectors observed certain safety-related surveillance activities on systems and components to ascertain that these activities were conducted in accordance with license requirements. For the surveillance test procedures listed below, the inspectors determined that precautions and LCOs were adhered to, the required administrative approvals and tagouts were obtained prior to test initiation, testing was accomplished by qualified personnel in accordance with an approved test procedure, test instrumentation was properly calibrated, and the tests were completed at the required frequency. Upon test completion, the inspectors verified the recorded test data was complete, accurate, and test discrepancies were properly documented and rectified. Specifically, the inspectors witnessed/reviewed portions of the following test activities:

SP-386 Safety Injection Hydrostatic Test
SP-938 Safety Injection Pumps Cold Leg Runout Test

Upper Internals Inspection

As a result of the reactor vessel internals inspection, issues have been identified concerning IGSCC in control rod guide tube flexures and support pins (i.e., split pins). The split pins are utilized to provide attachment of and lateral support for the guide tubes at the upper core plate. Each of the 53 guide tubes contains two split pins for a total of 106 pins. Split pins have experienced IGSCC and resultant failures in the shank to collar and/or leaf area. This issue was identified by Westinghouse in the early 1980's as a domestic industry concern for split pins with certain heat treatments. In March 1989, the licensee experienced a split pin failure (failure location other than those described above, see IR 89-08) and subsequently shut the plant down to retrieve the loose part from S/G C. During September 1990, as a result of this failure and recommendations from Westinghouse, the licensee performed UT on all 106 split pins. The results revealed 38 split pins with crack indications; 37 pins had only shank crack indications, one pin had a leaf crack indication only, and one of the 37 pins with a shank crack indication also had a leaf crack indication. Subsequent to the report period, the licensee conservatively decided to replace all 106 split pins during the present refueling outage. This adequately addresses IFI 89-08-02, Review Long Term Resolution Of Split Pin Cracking Issue. Hence, item 89-08-02 is considered closed.

The control rod guide tube flexure issue, also a previously identified generic industry problem, involved cracking and resultant flexure failures. There are four flexures on each guide tube which contain the removable inserts on the top end of the upper guide tubes. The removable insert provides a flow restriction to minimize bypass flow from the outlet plenum to the upper head plenum and simultaneously provides guidance for the drive rod. As a result of the flexure inspection, the licensee determined that there were 13 guide tubes which currently require a flexureless insert (i.e., had one or no sound flexures remaining). The flexureless insert was developed by Westinghouse to replace the inserts previously contained by flexures. There were 19 guide tubes with two remaining flexures, the minimum number of flexures needed for insert restraint. The licensee plans to have a minimum of 34 flexureless inserts available for installation; however, the licensee is evaluating if, and how many, additional flexureless inserts will be installed other than the required 13. The results of this evaluation will be documented in IR 90-23.

No violations or deviations were identified.

4. Monthly Maintenance Observation (62703)

The inspectors observed safety-related maintenance activities on systems and components to ascertain that these activities were conducted in accordance with TS, approved procedures, and appropriate industry codes and standards. The inspectors determined that these activities did not violate LCOs and that required redundant components were operable. In particular, the inspectors observed/reviewed portions of the following maintenance activity:

WR/JO 90BCC435	Perform Annual PMs on A EDG

EDG PM

During PM activities on the A EDG, the following conditions were identified: two piston heads had locations where the chromium clading was burned through; one of the above pistons had the lower oil scraper ring cracked; and both turbocharger nozzle rings were cracked. The two lower pistons had been selected for inspection based upon their cylinder exhaust temperatures being at the high end of the acceptance range. Based upon the inspection results, two additional lower pistons were removed for inspections. These cylinders had also tended to operate at slightly higher than average temperatures. No damage was observed on these piston heads. The later two pistons were re-installed and the two damaged pistons were replaced. The upper pistons in the above mentioned cylinders were also examined for burn locations; none were observed. This was expected, as the upper pistons operate at lower temperatures than the lower pistons due to the way fuel is injected into the cylinders.

Both turbochargers were replaced. The inspectors examined the cracked nozzle rings. Each nozzle ring had one crack at approximately the same location. The Colt Industries' technical representative indicated that this has been a problem on Fairbanks Morse Model 38 TD 8 1/8 engines. Such cracks are not anticipated to affect the performance of the turbocharger unless: (1) another crack would occur and a piece of the nozzle ring were to break off, or (2) the crack would propagate into the turbocharger housing. Neither failure mechanism appeared likely since there was no evidence of additional cracks and crack propagation into the housing was not considered feasible as the nozzle ring was bolted to the housing.

No violations or deviations were identified.

5. Onsite Followup of Events (93702)

On September 11, 1990, at 8:50 a.m., the control room was notified of a Freon leak/tube rupture in the control room HVAC equipment room which is located immediately below the main control room. The shift foreman directed that the area be evacuated and that control room ventilation be secured. All personnel who had been in the area were verified to have exited the area and no injuries occurred. The freon release lasted for approximately one minute (i.e., the time it took the HVA unit to discharge). The area was then secured and preparations for temporary HVAC equipment room ventilation were initiated. At 9:10 a.m., after review of the EAL flow chart, the shift foreman declared an unusual event due to a toxic gas release into the protected area.

Upon hearing the subsequent PA announcement, the inspector went to the control room. At that time, approximately 9:20 a.m., preparations were in progress to make the required emergency notifications. At 9:22 a.m., the emergency communicator notified the State of South Carolina, Darlington County, Lee County, and Chesterfield County warning points of the UE. At 9:36 a.m., the NRC was notified in accordance with 10 CFR 50.72. At approximately 9:40 a.m., while reviewing the EAL flow chart, the inspector questioned the Operations Manager as to the affected area's proper security classification. The inspector was informed that based upon a similar question from an SRO, security was verifying the area's security classification. At 9:46 a.m., a security supervisor indicated that the area was not listed in the security plan as a vital area; however, it was within security doors bounding the auxiliary building and should therefore be considered a vital area. Based upon this information, the SEC reclassified the event as an Alert (i.e., toxic gas release into a vital area). The emergency communicator then notified state and county EOCs of the reclassification. The TSC was incorporated into the protected area at 10:08 a.m.. At 10:13 a.m., after approximately one-half hour of room ventilation, initial remote Freon sampling detected 0.5 ppm Freon in the HVAC equipment room. At 10:14 a.m., the OSC was fully manned and activated. At 10:21 a.m., the control room was notified that local sampling results indicated that oxygen levels were 20.8 - 21.0 percent and Freon levels were 1.9 ppm. The TLV for Freon is 1000 ppm. Based upon this information, the SEC terminated the Alert at 10:21 a.m. The TSC had been fully manned and was prepared to activate when the Alert was cancelled.

The licensee's review of the event and associated response was documented in SCR 90-069. The event was initiated when a worker inadvertently cut a Freon line to the operating control room heating and air conditioning unit HVA-2. The worker had been instructed to cut four empty Freon lines associated with HVA-1 as part of M-994, Control Room Habitability. The worker had made several cuts on two of the lines, was transferred temporarily to another task, then resumed the Freon line cutting. Prior to work resumption, another employee pulled one of the cut lines through a wall penetration. Upon resumption of work, the worker thought he had only cut one line and continued to cut three more lines. The fifth line (which he thought was the fourth) was the HVA-2 charged Freon line that was adjacent to the HVA-1 empty Freon lines.

The SCR also identified several concerns/weaknesses. The shift foreman had to determine whether the gas was toxic and if so, whether or not the affected area was a protected or vital area. Without adequate procedural guidance available to define what gases onsite are toxic, he conservatively assumed that Freon R-22 was toxic. Additionally, after consulting the security plan, which did not provide a clear definition of the affected area's status as a vital or protected area, as well as consulting with other individuals who were also unsure of the area's classification, he decided that the area was only in the protected area. As discussed above, this decision was later determined to be incorrect. The shift foreman stated that to his knowledge the equipment in the room was not considered vital equipment and that much of the equipment in the room was in the process of being dismantled per modification M-994. Hence, lacking definitive guidance from the security plan, the shift foreman determined that the area was not a vital area. Though this specific event had minimal safety significance as the total refrigerant quantity released was small, it did highlight a fundamental weakness in emergency plan implementation (i.e., guidance and training on EAL flowchart specific decision blocks have been inadequate). Previous inspection findings concerning emergency classification problems are contained in IRs 88-07, 88-16, and 89-27. Specifically, IR 89-27 identified the shift foreman's failure to recognize the occurrence of an initiating condition for an UE as an exercise weakness. Though the drill's artificiality was a major contributor to this weakness, as discussed in IR 89-27, the identification of this item as an exercise weakness underscored the concern that previously identified problems in this area were not completely corrected. The September 11, 1990 event indicated that proper emergency classifications, especially for non-FSAR Chapter 15 events, continue to be a weakness. The failure to correct an exercise weakness identified in IR 89-27 is a violation of 10 CFR 50 Appendix E Section IV.F.5: Failure To Correct An Exercise Weakness Concerning Event Classification, 90-22-03.

The SCR also discussed the emergency communicator identifying that he did not correctly dial the automatic ringdown circuit to simultaneously contact both the state and county warning points and EOCs when the NOUE was made. The failure to properly notify state and county EOCs of the UE as required per PEP-171, step 5.2.1.1 is a violation. This violation meets the criteria specified in Section V.G.1 of the NRC Enforcement Policy for not issuing a Notice of Violation and is not cited. The violation is identified as a NCV: Failure To Implement Procedure PEP 171, 90-22-04.

Additionally, the SCR also identified that manning of the OSC and TSC occurred without problems. This was significant in that augmentation has been identified as a weakness in previous emergency exercises. Specifically, the new beeper notification method for ERO personnel worked well. Although this cannot be considered a demonstration of the licensee's augmentation ability during nights and weekends, ERO beeper tests conducted on weekends and in the evening have indicated that both the OSC and TSC could be activated within procedural guidelines during off-normal hours.

Two violations, one being non-cited, were identified.

6. Onsite Followup of Written Reports of Nonroutine Events (92700)

(Closed) LER 89-10, Inadequate Auxiliary Feedwater Pump Net Positive Suction Head. This issue was discussed in IR 89-17, 89-18, 89-20, 89-23, and 89-32. Inspector Followup item 89-32-01 was established to review acceptance test ST-2 for modification M-1018, Auxiliary Feedwater - NPSH. The inspectors reviewed the acceptance test performed on December 27, 1989. The test successfully demonstrated that the modified AFW suction piping was adequately sized with sufficient NPSH available to allow simultaneous operation of all three AFW pumps.

(Closed) LER 89-14, Loading of Safety-Related Equipment Could Exceed Assumptions Of Accident Analysis. This issue was discussed in IR 89-25, 89-31, and 89-32. The inspectors verified that Agastat digital timing relays were installed as committed in the LER. However, the hardware installation did not completely resolve the concern involving potential emergency bus overloading during accident load sequencing. Specifically, under certain grid conditions, sequencing with offsite power available could result in undesirable emergency buss undervoltages. This concern was addressed by the placement of: administrative controls on the VAR sharing between the coal fired unit (unit-1) and the nuclear unit (unit-2); restrictions on switchyard capacitor bank usage; and procedural controls requiring certain loads be in service so they do not have to sequence onto the their respective emergency buss. Periodically during the last cycle, the inspectors verified that these items were being implemented. Modification M-1043, Modification of Degraded Grid Voltage Relay Logic, is scheduled for installation this outage to address this concern.

(Closed) LER 90-02, Reactor Trip During Performance of Nuclear Instrumentation Surveillance Test And VIO 90-02-02, Failure To Follow Procedure OST-007 Resulted In Reactor Trip. In the April 9, 1990 response to the NOV, the licensee committed to make changes to OST-007 to help ensure procedure format will not contribute to personnel error. Revision 5 to OST-007 was issued on May 7, 1990, with an improved format. A review of other OSTs identified that similar procedure format weaknesses existed in OST-001 through OST-006. The inspectors verified that these procedures were reformatted as committed in a May 10, 1990 supplemental response to the NOV. Subsequently, OST-009 was similarly formatted in September 1990, to provide consistent formats among OST procedures.

(Closed) LER 90-05, Failure To Test RPS Logic Channels In Accordance With Technical Specifications. On May 3, 1990, a telephone conference was held between Region II management and the licensee concerning RPS logic testing. By letter dated May 11, 1990, the licensee confirmed four verbal commitments. The inspectors verified that these four items were completed as committed. Corrective actions to ensure similar logic testing deficiencies do not exist will be inspected as part of violation 90-11-01.

No violations or deviations were identified.

7. Action on Previous Inspection Findings (92701)

(Open) URI 89-09-02, Determine If One SI Pump Injection Into Three Cold Legs Should Be Demonstrated. On September 25, 1990, SP-938, Safety Injection Pumps Cold Leg Runout Test, was performed to measure pump discharge pressures and flow rates of the A and B SI pumps when each pump injected into the three cold legs. The measured cold leg injection header flow for both pumps was approximately 640 gpm at 360 psig. Due to these values being outside the stated acceptance criteria, each pump was secured prior to the specified two-minute run time data point. However, the inspectors observed that both flows and discharge pressures stabilized before the pumps were secured. In accordance with their established procedure, a 72-hour operability determination period was entered. The established acceptance criteria, flow less than 600 gpm and pressure greater than 500 psig, had been chosen by engineering based upon historical anticipated pump performance. Thus, failure to meet the procedural acceptance criteria did not demonstrate the pumps were incapable of meeting their intended safety function nor that performance was degraded. Initial review indicated that the higher flow rates would not adversely affect the pump motors; however, the 1968 Worthington Corporation estimated NPSH curves did not provide required NPSH values for flow rates greater than 600 gpm. Vendor curve extrapolation by the inspectors indicated that the required NPSH at 640 gpm would be between 33 and 35 ft. In comparison, a 1988 calculation, FRSS/SS-CPL-1131, showed with a maximum flow rate of 596 gpm, one SI pump would have 29.8 ft. NPSH available at the low-low RWST level. As the NPSH adequacy concern could not be resolved within 72-hours, the licensee conservatively declared the SI pumps inoperable and reported the potential problem per 10 CFR 50.72. At the end of the report period, another SP was being developed to obtain more accurate flow and pressure data, as well as additional data which would characterize the pump and pump motor performance.

(Closed) IFI 89-08-02, Review Long Term Resolution of Split Pin Cracking Issue. (See paragraph 3, Upper Internals Inspection.)

No violations or deviations were identified.

8. Exit Interview (30703)

The inspection scope and findings were summarized on October 18, 1990, with those persons indicated in paragraph 1. The inspectors described the areas inspected and discussed in detail the inspection findings listed below and in the summary. Dissenting comments were not received from the licensee. Proprietary information is not contained in this report.

Item Number	Description/Reference Paragraph
90-22-01	UNR - Review If TMI Item Commitments Have Been Improperly Superseded By RG-1.97 Commitments (paragraph 2)

90-22-02	VIO- Failure To Adequately Implement Procedures As Required By TS (paragraph 2)
90-22-03	VIO - Failure To Correct An Exercise Weakness Concerning Event Classification (paragraph 5)
90-22-04	NCV - Failure To Implement Procedure PEP-171 (paragraph 5)

9. List of Acronyms and Initialisms

AFW	Auxiliary Feedwater
CFR	Code of Federal Regulations
CV	Containment Vessel
DG	Diesel Generator
EAL	Emergency Action Level
EDG	Emergency Diesel Generator
EOC	Emergency Operation Center
ERO	Emergency Response Organization
EST	Engineering Surveillance Test
ft	Feet
gpm	Gallons Per Minute
HBR	H. B. Robinson
HPES	Human Performance Evaluation System
HVAC	Heating Ventilation Air Conditioning
IEB	Inspection Enforcement Bulletin
IEN	Inspection Enforcement Notice
IGSCC	Intergranular Stress Corrosion Cracking
IR	Inspection Report
LCO	Limiting Condition for Operation
LER	Liscense Event Report
M	Modification
MRP	Maintenance Refueling Procedure
NOUE	Notification of Unusual Event
NOV	Notice of Violation
NPSH	Net Positive Suction Head
NRC	Nuclear Regulatory Commission
OEF	Operating Experience Feedback
OMM	Operations Management Manual
ONS	Onsite Nuclear Safety
OSC	Operations Support Center
OST	Operations Surveillance Test
PM	Preventive Maintenance
PPM	Parts Per Million
PNSC	Plant Nuclear Safety Committee
POER	Plant Operating Experience Report
psig	Pounds per square inch - gage
RHR	Residual Heat Removal

RM	Radiation Monitor
RMS	Radiation Monitoring System
RO	Reactor Operator
RPS	Reactor Protection System
RTGB	Reactor-Turbine Generator Board
RWST	Refueling Water Storage Tank
SAT	Station Auxiliary Transformer
SCR	Significant Condition Report
SEC	Site Emergency Coordinator
SER	Safety Evaluation Report
SFP	Spent Fuel Pool
S/G	Steam Generator
SI	Safety Injection
SP	Special Procedure
SRO	Senior Reactor Operator
TI	Training Instruction
TMM	Technical Support Management Manual
TLV	Threshold Limiting Value
TS	Technical Specification
TSC	Technical Support Center
UE	Unusual Event
URI	Unresolved Item
UT	Ultrasonic Testing
VAR	Volts-Amps Reactive
VIO	Violation
WD	Waste Disposal
WR	Work Request
WR/JO	Work Request/Job Order