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

Report No.: 50-261/90-17

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: July 11 - August 10, 1990

Lead Inspector: Robert E Carroll Jr for 9/6/90
L. W. Garner, Senior Resident Inspector Date Signed

Other Inspectors: R. E. Carroll
K. R. Jury

Approved by: for 9/6/90
R. E. Carroll, Acting Section Chief Date Signed
Reactor Projects Branch 1
Division of Reactor Projects

SUMMARY

Scope:

This routine, announced inspection was conducted in the areas of operational safety verification, surveillance observation, maintenance observation, onsite review committee, written reports of nonroutine events, and followup on previous inspection findings (including temporary instruction 2515/93).

Results:

An inadequately detailed maintenance procedure and lack of technical support/job oversight contributed to a non-cited violation for failure to correctly install the B safety injection pump thrust bearing (paragraph 4).

The auxiliary feedwater (AFW) system design basis document identified containment isolation valves for the motor driven AFW pump discharge line containment vessel penetrations other than those identified in the Final Safety Analysis Report and the Appendix J test program (paragraph 4).

Four isolation valve service water system pressure indicators were simultaneously removed without a prior significance evaluation. Leaving this section of manifold tubing and associated valves unsupported without evaluation was considered a weakness (paragraph 4).

Two component cooling water pumps entered their alert range during ASME Section XI flow testing (paragraph 3).

REPORT DETAILS

1. Persons Contacted

R. Barnett, Manager, Outages and Modifications
C. Baucom, Senior Specialist, Regulatory Compliance
C. Bethea, Manager, Training
S. Billings, Technical Aide, Regulatory Compliance
*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 Control
R. Femal, Shift Foreman, Operations
E. Harris, Manager, Onsite Nuclear Safety
*J. Kloosterman, Director, Regulatory Compliance
D. Knight, Shift Foreman, Operations
R. Moore, Shift Foreman, Operations
*R. Morgan, Plant General Manager
*M. Page, Manager, Technical Support
D. Quick, Manager, Plant Support
D. Seagle, Shift Foreman, Operations
J. Sheppard, Manager, Operations
*E. Shoemaker, Project Engineer, Operations Program
R. Smith, Manager, Maintenance
R. Steele, Shift Foreman, Operations
*R. Wallace, Operations Coordinator
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 August 24, 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. Shift changes were routinely observed, verifying that system status continuity was maintained and that proper control room staffing existed. Access to the control room was controlled and operations personnel carried out their assigned duties in an effective manner. Control room demeanor and communications continued to be informal, yet effective.

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.

On August 1, 1990, while performing a walkdown of the MDAFW subsystem, the inspector inadvertently bumped the B MDAFW pump local-remote transfer switch. This resulted in the B MDAFW pump not being capable of automatically starting on an initiation signal nor being manually started from the control room. When the inspector notified the control room that the switch had been inadvertently moved, the control board operator was in the process of instructing an auxiliary operator to investigate the condition and return the switch to the remote position. As only 30 to 45 seconds had passed from the time the switch had been bumped, the control board operator demonstrated a timely response to an infrequently received alarm. The auxiliary operator subsequently returned the switch to its normal position.

No violations or deviations were 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, the tests were completed at the required frequency, and that the tests conformed to TS requirements. Upon test completion, the inspectors verified the recorded test data was complete, accurate, and met TS requirements; test discrepancies were

properly documented and rectified; and that the systems were properly returned to service. Specifically, the inspectors witnessed/reviewed portions of the following test activities:

OST-352 (revision 22) Containment Spray System Component Test

OST-908 (revision 17) Component Cooling System Test

During the OST-908 performance on August 2 and 3, 1990, it was determined that both the A and C CCW pumps had entered their "alert" ranges for required flow. The measured pump flows were 4328 gpm and 4323 gpm, respectively. When pump C was originally tested on August 2, 1990, flow was within the acceptance criteria; however, subsequent to test completion (approximately 2 hours) and during routine rounds, the Operations Shift Foreman identified that the C pump's discharge pressure gauge was operating erratically. As a result, OST-908 was reperformed on August 3, 1990; pump flow was less than the previous acceptable test and the pump was placed in alert. Subsequently, as a result of the reduced flows, WRs 90-AJFU1 and 90-AJGN1 were generated. The licensee has tentatively scheduled a review of test methodology, improved flow measurement methods, and more accurate differential pressure measuring techniques. The results of this evaluation will be tracked by exisiting URI, 90-02-01, which concerns the IST program capability to determine pump operability and degradation.

During the performance of the testing on August 2, 1990, the inspectors noticed that shortly after the B CCW pump was started, it was stopped and restarted. The operators performing the test indicated that the one of the two B CCW pump seals has a tendency to leak when the pump is started. Apparently, the seal somehow becomes cocked, thus allowing leakage when initially started; once the pump is stopped and restarted, the seal realigns itself prohibiting leakage. The inspectors questioned the need for addressing (documenting and resolving) this discrepant/abnormal condition, and was informed that there may have been a WR previously generated documenting the condition. During subsequent followup, the inspectors determined no WR had been initiated. Subsequent to the inspectors' followup, WR 90-AKAN1 was generated on August 23, to repair the leak on the B CCW pump. Plant management has been attempting to instill a questioning/aggressive attitude in problem identification and resolution; however, this example indicates that this attitude has not completely pervaded throughout line personnel. Operations management however has demonstrated their belief in this attitude and continue to re-emphasize its necessity to personnel.

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. The

inspectors verified that required administrative, material, testing, radiological, and fire prevention controls were adhered to. In particular, the inspectors observed/reviewed the following maintenance activities:

WR 90-AIJE1	Repair Packing Leak on AFW-62
WR 90-BUT311	Calibration of IVSW Pressure Indicators

B SI Pump Seal Leak

On July 12, 1990, during performance of OST-155, Safety Injection System Integrity Test, a seal leak was discovered on the B SI pump. WR 90-AILQ1 was initiated and specified that the mechanical seal and bearings be replaced as needed, and the pump reassembled as per applicable steps in CM-009, Safety Injection Pump Maintenance (Worthington Type 3WTS-811). The mechanics assigned to perform the task on July 13, believed the thrust bearing had been incorrectly installed as the bearing came apart when the pump was disassembled. When the pump was reassembled as per applicable steps in CM-009, the thrust bearing was incorrectly installed by the mechanics in the manner in which they perceived to be correct. Applicable sections of OST-151, Safety Injection System Component Test, and EST-005, Safety Injection Pump Bearing Temperature Test, were performed and the B SI pump was placed back in service within the 24 hour LCO. However, during the performance of EST-005, an abnormally elevated bearing temperature necessitated further investigation. The maintenance foreman consulted the mechanics for description of the maintenance activities performed on the pump. The mechanics, using a spare thrust bearing, demonstrated how they had mounted the bearing during reassembly of the pump. The maintenance foreman recognized that the bearing had been installed incorrectly (i.e., not in accordance with the procedure drawing). The foreman contacted the pump vendor and verified his conclusions.

On July 19, 1990, at 5:40 p.m., the B SI pump was removed from service per WR 90-AISC1 to replace the incorrectly installed bearing. The bearing was mounted correctly and the B SI pump was placed back in service at 2:30 a.m., on July 20, 1990. A subsequent oil leak due to alignment problems was successfully corrected under the auspices of the vendor technical representative.

This item is significant, in that, although the mechanics believed that they were installing the bearing correctly, if either adequate technical support/job oversight had been provided or the pump drawing in procedure CM-009 had been detailed sufficiently, the condition might have been prevented. The procedure was promptly revised with an enhanced technical drawing prior to subsequent repair efforts. Technical Support intradepartmental communicatons were not adequately implemented, in that the Technical Support supervisor failed to notifiy the responsible system engineer of the scheduled pump maintenance. The inspectors believe that

this exemplified Technical Support supervision's lack of sensitivity to the necessity of providing technical assistance for routine and infrequent maintenance activities. This was discussed with the Technical Support Manager.

Upon determination that the bearing was installed incorrectly, the licensee promptly initiated SCR 90-52 to document the situation and to perform a root cause/HPES evaluation. Resultant corrective actions should be sufficient to preclude recurrence of this situation. Inadequate procedural establishment and implementation was considered a violation; however, this violation is not being cited because criteria specified in Section V.G.1 of the NRC Enforcement Policy were satisfied. As a result, the violation is considered an NCV: CM-009 Was Not Adequately Prescriptive and Implemented During B SI Pump Maintenance, 90-17-01.

Containment Isolation Valve Document Inconsistencies

On July 9, 1990, the inspectors observed that AFW-62, the manual MDAFW pump discharge to A S/G isolation valve, had a one drop per second packing leak; WR 90-AIJE1 was performed that same day to correct the leak. Review of FSAR Table 6.2.4-1 and Figure 6.2.4-3, indicated that AFW-62 may be a containment isolation valve. Procedure TMM-005, 10 CFR 50 Appendix J Testing Program, dated May 23, 1989, identified AFW-62 as a containment isolation valve which is exempt from testing per section II.H of Appendix J. However, the validated AFW preliminary use DBD (statement 4.10.3), did not classify AFW-62 as a containment isolation valve. The DBD defined the MDAFW pump discharge valves V2-16 A, B, and C as containment isolation valves. An NED supervisor indicated that this DBD statement is in error. The statement is to be corrected when the next revision of the AFW DBD is issued. A similar problem, with the DBD incorrectly identifying containment isolation valves, was described in IR 90-03.

The inspectors reviewed TMM-005 and the above referenced FSAR sections for consistence to determine which plant valves are containment isolation valves. In general, the FSAR table identifies more valves than listed in TMM-005; however, there were instances in which valves listed in TMM-005 were not described in the FSAR table and figures. The licensee indicated that TMM-005 is the official list of containment isolation valves. The Technical Support Manager indicated that he would provide information to the inspectors concerning the technical basis for the discrepancies between the FSAR and TMM-005. This is an URI: Review The Basis For Discrepancies In Containment Isolation Valves Identified In The FSAR And The Appendix J Test Program, 90-17-02.

IVSW Maintenance

On July 30, 1990, the inspectors observed during the performance of WR 90-BUT311, that the removal of PI-1915, PI-1916, PI-1917, and PI-1918 had resulted in a section of the IVSW manifold tubing and associated valving

being unsupported. The other normal anchor points for this section (the flow indicators) had previously been removed. The pressure indicators were calibrated and placed back into the system the same day they were removed. As the IVSW system is a seismic class 1 system, the inspectors questioned the effect on the system's seismic qualifications with all four PI instruments simultaneously removed. No evaluation was performed prior to work initiation. The licensee indicated that this concern would be resolved prior to the next scheduled calibration. Failure to evaluate the effect of maintenance activities on a system's seismic qualification is considered a work control weakness.

One non-cited violation was identified.

5. Onsite Review Committee (40500)

The inspectors evaluated certain activities of the PNSC to determine whether the onsite review functions were conducted in accordance with TS and other regulatory requirements. In particular, the inspectors attended the special PNSC on July 12, 1990, which dealt with JCO 90-02 on Rosemount transmitters and a proposed TS change which will be required prior to restart after installation of the control room habitability modification during RO 13. It was ascertained that provisions of the TS dealing with member, review process, frequency, and qualifications were satisfied. Previous meeting minutes were reviewed to confirm that decisions and recommendations were accurately reflected in the minutes.

No violations or deviations were identified.

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

(Closed) LER 87-29, Service Water Flange Leak In Containment; Minimum Component Redundancy Violation. This LER addressed two related occurrences (i.e., a breach of primary containment and the untimely reporting of a reduction in TS required minimum component redundancy). Both occurrences involved a November 18, 1987 HVH-2 motor cooler SW discharge spool piece flange leak during 100 percent power operations. Although the licensee took steps to isolate the leak, post-maintenance testing revealed that this primary containment breach continued to exist during flange gasket replacement, since V6-34B (HVH-2 outlet isolation valve) had not fully closed as indicated in the control room. In addition, the removal of HVH-2 from service while the B EDG (emergency power source for HVH-3 and 4) was out of service for maintenance, resulted in only HVH-1 being operable per TS. The B EDG was returned to service within the TS LCO time limits.

Associated 10 CFR 50.72 reports were made on: November 19, 1987, to address the 4 hour breach in containment while flange repairs were made with valve V6-34B unknowingly open; November 25, 1987, to identify the failure to report in a timely manner the reduction in TS required HVH

containment fan cooler minimum redundancy; and December 3, 1987, to revise the original report to reflect an eleven and one-half hour breach of containment, beginning at leak detection.

Licensee investigation revealed that the actuators on valve V6-34B and V6-34C, were improperly installed following an earlier flushing procedure. The inspector verified that CM-112, Butterfly Valve Maintenance (Allis-Chalmers 150 FR Streamseal Valves), revision 0 adequately addressed operator-to-valve orientation. Subsequent precautionary flange gasket and bolt replacement on all 4 HVH units was confirmed through a review of completed WRs. As an apparent lack of reportability guidance was illustrated by the necessity of two followup notifications to the NRC, the inspector verified that AP-030, NRC Reporting Requirements, was appropriately revised to provide the additional reportability guidance needed for such an event.

(Closed) LER 88-13, Surveillance Test Exceeded TS Test Interval. On January 6, 1988, OST-902, Containment Fan Cooler Component Test, was performed with the exception of the CV portion. The rescheduling of the CV portion to coincide with the next scheduled CV entry resulted in exceeding the plus 25 percent margin allowed by TS. In June 1988, QA personnel conducted a special surveillance/review of NCRs which had been issued against TS surveillances over the period of January 1, 1985 to June 14, 1988. The resulting NCR (number 88-087) documented 16 examples of TS related surveillance tests exceeding the 25 percent margin and 5 examples of surveillance tests not addressing TS surveillance requirements. The inspector reviewed corrective actions associated with the NCR which was closed out in February 1990. Specifically, the inspector verified that OMM-015, Operations Surveillance Testing, was appropriately revised to strengthen methods for scheduling and tracking surveillances. Actions taken to assure that TS surveillance requirements are adequately addressed in surveillance tests will be evaluated during inspection followup of violation 90-11-01.

(Closed) LER 89-04, Safety Injection/Reactor Trip Due to Inadvertent Turbine DC Power Supply Electrical Short. The subject February 27, 1989, SI actuated reactor trip and subsequent plant restart were discussed in IR 89-07. The initiating event was an induced short circuit on the E-H power supply. Actions to preclude recurrence included: (1) instructions to remove the amp test input fuse from volt/amp multimeters, thereby reducing their inadvertent use as an amp meter (which caused the short in this case); and (2) discussion of the event with maintenance crews to sensitize them to the need for close attention to detail and proper test equipment configuration. A March 4, 1989 event involving steam dump actuation identified a problem with the steam dumps failing to properly modulate closed once the demand signal diminished. This may have resulted in the higher than normal steam flow which was a factor in reaching the SI setpoint on February 27, 1989. The steam dump signal summator was subsequently replaced, as it was found to be saturated, thereby producing a full output signal which resulted in the inability of the steam dump

valves to properly modulate. The saturated condition of the summator was caused by the de-energization and re-energization of its power supply (i.e., Hagan racks) in support of an earlier RCS RTD bypass manifold piping removal modification. The summator was replaced and the system returned to service. A modification to eliminate the summator's susceptibility to saturation, WR 89-ADNC1, was completed on August 30, 1989. The inspectors had no other concerns involving these events.

No violations or deviations were identified.

7. Action on Previous Inspection Findings (92701, 92702, 71707)

(Closed) Violation 88-01-01, Failure To Meet Reportability Requirements. Similar to the reportability problems of LER 87-29 discussed below, the problems delineated in this violation primarily resulted from unclear guidance in AP-030 (revision 6). Revision 7 to AP-030, which was implemented subsequent to the events of LER 87-29 and this violation, involved a total rewrite to provide a "user friendly" format that included pertinent examples and guidance on TS 3.0. Review of the current AP-030 (revision 8) with respect to 10 CFR 50.72 reports, found its guidance in the areas of concern to be appropriate. The inspector did note, however, that subsequent to revision 8 of AP-030 being implemented, another reportability violation was identified (see violation 89-23-07 discussed below). As this matter involved a lack of appropriate interface between Engineering and Operations/Regulatory Compliance, as opposed to unclear/inadequate reportability determination guidance, violation 88-01-01 is considered closed.

(Closed) Violation 89-23-07, Failure To Make A 10 CFR 50.72 Report Within 4 Hours As Required. This violation involved a situation where Engineering confirmed on Saturday, November 4, 1989, that both trains of accumulator fluid level instrumentation utilized unqualified patel conduit seal configurations. However, Engineering did not inform Operations or Regulatory Compliance as to the extent of the condition until Monday morning, November 6, 1989. A 10 CFR 50.72(b)(2)(iii)(D) report was subsequently made that morning. As the plant was shutdown and the accumulators were not required by TS to be operable, the EQ engineer had focused his efforts towards resolving the problem and not on reportability. The licensee's corrective actions included: (1) re-emphasizing the importance of reportability determinations and the importance of communicating significant conditions to appropriate organizations for reportability evaluation; and (2) implementating via Site Manager memorandum dated October 25, 1989, interim guidelines for operability determinations when the operability of a component or system is in question. The inspector reviewed this interim guidance and verified that it included the prompt involvement of Regulatory Compliance. The licensee has committed to procedurally formalize this process prior to the startup from RO 13. As this formal process will be reviewed as part of the corrective action followup for violation 89-18-01, violation 89-23-07 is considered closed.

(Closed) IFI 88-10-01, Review NCR Associated With Containment Spray Pump Section XI Flow Test. The inspector reviewed associated NCR 88-083 and the related correspondence between CP&L and NRC regarding ASME Section XI CS pump flow testing. The inspector verified that CS pump flow testing as defined in OST-352, Containment Spray System Component Test, is now in accordance with the NRC safety evaluation dated November 28, 1988. Specifically, the test is conducted utilizing a Controlotron ultrasonic clamp-on multipulse transit-time flow measuring system (Uniflow-Model 990), which is installed on the 2-inch RWST recirculation line. With regard to the weakness discussed in IR 88-10, the inspector reviewed TMM-004, Inservice Inspection Testing, and confirmed that changes had been made to: (1) reflect the quarterly performance of OST-352; (2) recognize the use of EST-099, Controlotron Model 990 Ultrasonic Flow Testing; and (3) require the development/implementation of special tests to validate new testing methods prior to program implementation or making related commitments to the NRC.

In an attempt to improve the information being obtained on the pumps' performance, the licensee has plans to conduct special testing with the sensing device closer to the discharge of the pumps (i.e., upstream of where the pumps' associated eductor and 2-inch recirculation line tie in) during the upcoming refueling outage. As with the existing installation, the licensee plans to use Controlotron Corporation's engineering assistance in determining the appropriateness of this location. Accordingly, the inspector had no further concerns.

(Closed) IFI 88-19-01, Review of SDAFW Special Test Results and PM Frequency Determination on Air Filter Cleaning. In response to IEN 86-14, SP-837, SDAFW Pump Low Steam Pressure Operation, was performed on November 12-13, 1988, to demonstrate that the SDAFW turbine would not trip on overspeed with a loss of instrument air. Review of the completed test results confirmed that the SDAFW turbine did not trip. As indicated in IR 88-19, an overspeed trip was not anticipated during this test since the pumping horsepower required for such high flow demand starts exceeds that during the lower flow surveillance tests. The inspector questioned the applicability of the test results with respect to the August 1989 AFW outage modifications (i.e., SDAFW pump flow is now mechanically limited to 300 gpm vs. the 600 gpm indicated in SP-837). The inspector was informed that OST-206, SDAFW Pump Flow Test, has been utilized since the AFW outage to demonstrate that the SDAFW turbine will not trip on overspeed with a loss of instrument air. Review of the December 22, 1989 performance of OST-206 resolved the inspector's concern.

With regard to the cleaning frequency of the SDAFW control system internal instrument air filter, the licensee now replaces it every two years under PM route 2E-2R-304 (List E-055).

(Closed) TI 2515/93, Verification of Quality Assurance Request Regarding Diesel Generator Fuel Oil, Multi-Plant Action Item A-15. This module's

purpose was to conduct a review to assure that EDG fuel oil is included in the licensee's quality assurance program under 10 CFR Part 50, Appendix B requirements. By letter (file no. NG-35414R) dated November 20, 1981, the licensee committed to including EDG fuel oil in the QA program. As stated in this letter, "This will be done by developing procedures, which will be included in the POM, for the testing of DG fuel oil under the QA program". This letter also states that the procedures will meet the EDG manufacturer's (Colt Industries) specifications for specific gravity, water, sediment, viscosity, and cloud point. By NRC letter (Varga to Jones) dated December 10, 1981, this approach was accepted regarding QA requirements for EDG fuel oil.

Additionally, in February and March 1989, QA performed a surveillance of the HBR EDG Fuel Oil Program (QASR 89-019). During this surveillance, it was verified that "the diesel oil stored in the fuel oil storage tank meets the EDG manufacturer's specification for specific gravity, water and sediment, and viscosity". A cloud point temperature is not provided by the manufacturer; however, the surveillance states that regarding cloud point temperature... "the CP&L purchase specification and procedure are more conservative than the EDG manufacturer's specification".

Chemistry Procedure CP-001, Chemistry Monitoring Program, revision 21, specifies monthly testing of EDG fuel oil for API gravity, cloud point, viscosity, and water/sediment. This testing is conducted in accordance with chemistry procedures CP-061, 062, 063, and 064, respectively. Testing prior to tank transfer is required per OP-909, Fuel Oil System, revision 12. Based on the above, this TI is closed.

No violations or deviations were identified.

8. Exit Interview (30703)

The inspection scope and findings were summarized on August 24, 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	Status	Description/Reference Paragraph
90-17-01	Closed	NCV - CM-009 Was Not Adequately Prescriptive and Implemented During B SI Pump Maintenance (paragraph 4)
90-17-02	Open	URI - Review The Basis For Discrepancies In Containment Isolation Valves Identified In The FSAR and Appendix J Test Program (paragraph 4)

9. List of Acronyms and Initialisms

AFW	Auxiliary Feedwater
API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
CCW	Component Cooling Water
CFR	Code of Federal Regulations
CM	Corrective Maintenance
CP	Chemistry Procedure
CP&L	Carolina Power & Light
CS	Containment Spray
CV	Containment Vessel
DBD	Design Basis Document
DG	Diesel Generator
EDG	Emergency Diesel Generator
E-H	Electro-hydraulic
EQ	Environmental Qualifications
EST	Engineering Surveillance Test
FSAR	Final Safety Analysis Report
gpm	gallons per minute
HBR	H. B. Robinson
HVH	Heating Ventilation Handling
HPES	Human Performance Evaluation System
IEN	Inspection and Enforcement Notice
IR	Inspection Report
IVSW	Isolation Valve Seal Water
JCO	Justification for Continued Operation
LCO	Limiting Condition for Operation
LER	Licensee Event Report
MDAFW	Motor Driven Auxiliary Feedwater
NCR	Non-conformance Report
NCV	Non-cited Violation
NED	Nuclear Engineering Department
NRC	Nuclear Regulatory Commission
OMM	Operations Management Manual
OP	Operating Procedure
OST	Operations Surveillance Test
PI	Pressure Indicator
PNSC	Plant Nuclear Safety Committee
POM	Plant Operating Manual
QA	Quality Assurance
QASR	Quality Assurance Surveillance Report
RCS	Reactor Coolant System
RO	Refueling Outage
RTD	Resistance Temperature Detector
RTGB	Reactor Turbine Generator Board
RWST	Refueling Water Storage Tank
SCR	Significant Condition Report
SDAFW	Steam Driven Auxiliary Feedwater

S/G	Steam Generator
SI	Safety Injection
SP	Special Procedure
TI	Temporary Instruction
TMM	Technical Support Management Manual
TS	Technical Specification
URI	Unresolved Item
WR	Work Request