



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

Report No.: 50-261/90-20

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: August 11 - September 10, 1990

Lead Inspector:

Robert E. Carroll for
L. W. Garner, Senior Resident Inspector

9/27/90
Date Signed

Other Inspectors: K. R. Jury
R. H. Ld

Approved by:

R. E. Carroll
R. E. Carroll, Acting Section Chief
Reactor Projects Branch 1
Division of Reactor Projects

9/27/90
Date Signed

SUMMARY

Scope:

This routine, announced inspection was conducted in the areas of operational safety verification, surveillance observation, maintenance observation, onsite review committee, 10 CFR 50.59 safety reviews, and action on previous inspection findings.

Results:

Failure to obtain pump bearing temperatures as required and defined per Technical Specifications and ASME Section XI was identified as a violation (paragraph 3).

Failure to identify and control inservice inspection/in-service test (ISI/IST) evaluations as Quality Assurance records was identified a non-cited violation (paragraph 3).

A significant weakness was identified in the quality and promptness of ISI/IST evaluations and consistency of corrective actions (paragraph 3).

The revised 10 CFR 50.59 safety review program implemented in June 1990 was considered a substantial improvement over the one it succeeded (paragraph 6).

REPORT DETAILS

1. Persons Contacted

- J. Adams, Shift Technical Advisor, Operations
- *R. Barnett, Manager, Outages and Modifications
- J. Bass, Shift Technical Advisor, Operations
- C. Baucom, Senior Specialist, Regulatory Compliance
- C. Bethea, Manager, Training
- *S. Billings, Technical Aide, Regulatory Compliance
- R. Chambers, Engineering Supervisor, Plant Performance
- **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
- *R. Farmer, Engineering Programs Supervisor, 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, Outage Management
- A. McCauley, Principal Engineer, Onsite Nuclear Safety
- R. Moore, Shift Foreman, Operations
- **R. Morgan, Plant General Manager
- D. Nelson, Shift Outage Manager, Outage Management
- *M. Page, Manager, Technical Support
- D. Quick, Manager, Plant Support
- D. Seagle, Shift Foreman, Operations
- *J. Sheppard, Manager, Operations
- *R. Smith, Manager, Maintenance
- D. Stadler, Senior Engineer, Nuclear Licensing
- R. Steele, Shift Foreman, Operations
- *B. Slone, Senior Specialist, Records Management
- T. White, Senior Reactor Operator, 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 September 18, 1990.

**Attended exit interview on August 30, 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.

Channel Check Procedure

On September 4, 1990, the inspectors observed that LI-484, B S/G narrow range level indicator, was reading 52 percent verses the 44 percent indicated on the two redundant channels. The channel check tolerance was four percent. The licensee removed the channel from service and took actions in accordance with TS and operating procedures. The channel was repaired and returned to service that day. Attachment 6.11, Minimum Equipment List/RTGB Control Operator/Channel and Miscellaneous Checks, of OMM-008, Minimum Equipment List and Shift Relief, are performed once per shift; the channel checks had been performed early in the previous shift. The attachment contained one block which was checked to document that a channel check was performed on all nine S/G level instruments. This documentation methodology is typical of other TS required channel checks. The inspectors discussed with the Operations Manager the desirability of recording actual values over some interval on the same form, such that adverse trends become more apparent. The Operations Manager agreed to review their current practice.

Hot Particle Exposure

On September 9, 1990, a contract employee received up to 956 mRad of exposure to the neck. Upon entry into the RCA at 9:30 a.m., the individual placed a laundered towel around her neck. During exit of the RCA at 12:00 p.m., the PCM-1A radiation monitor alarmed; a radioactive hot particle was removed from her neck. Analysis identified the material as being 0.09 microcuries of cobalt 60. Other laundered towels were surveyed and three additional towels were found to contain hot particles. The licensee has removed all laundered towels from use until the contamination source can be investigated and determined. These towels were laundered at Interstate Nuclear Services. A survey of other material laundered by this vendor (i.e., PCs) did not reveal any additional problems. The Region II HP section has been notified of the event and plan to followup on the event during the next routine inspection.

Refueling Outage No. 13

HBR Unit 2 commenced shutdown at 10:31 p.m. on September 7, 1990, for Refueling Outage 13. The reactor was shutdown at 2:09 a.m. on September 8 and was in cold shutdown at 11:20 p.m. on September 9. The outage is scheduled for 99 days. Major modifications to be installed are: control room habitability, control room emergency lighting upgrade, removal of the turbine redundant overspeed trip system, electrical penetration replacement, SW piping replacement, redundant RCS level standpipe installation, and a modification to preclude RHR common mode failure. Other major work activities include S/G eddy current testing, reactor vessel upper internals inspections and 10 year ISI inspections and IST hydrostatic testing.

As of September 7, 1990, approximately 10,000 of 12,000 parts required for the outage had been received onsite. Approximately 1,000 parts were on order and the remaining 1,000 parts were still in the procurement process. Some of the latter were due to the normal vendor being in bankruptcy. Though there are potential adverse impacts on the outage, the licensee is aggressively attempting to identify equivalent parts or alternate available suppliers.

As of September 8, 1990, 22 of the 27 scheduled modifications had been approved. In addition, one modification, M-1036, Purchase and Install New Lube Oil Keepwarm System For Emergency Diesel Generators, had been removed from the outage schedule due to the vendor not being able to support the modification. Modification M-1056, MCC-9 and MCC-10 Transformer Replacement and MCC-5 and MCC-6 Load Shedding, was unapproved due to a recent reduction in scope. Suitable transformers were not available to allow installation during this outage; however, the load shedding portion will be accomplished. Another unapproved modification, M-965, Removal of TROTS - Phase I, was awaiting a TS change. The remaining three unapproved modifications involve setpoint changes to the degraded grid voltage relay, changes to the CST alarm setpoint, and upgrade of the radiation monitoring system. Approval of the above scheduled modifications are anticipated to occur such that the outage will not be affected.

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 were obtained prior to test initiation, testing was accomplished by qualified personnel in accordance with an approved test procedure, 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-011 (revision 7)	Rod Cluster Control Exercise & Rod Position Indication
OST-055 (revision 5)	Reactor Vessel Level Instrumentation System (RVLIS)
OST-401 (revision 25)	Emergency Diesels
OST-603 (revision 7)	Motor Driven Fire Water Pump And Engine Driven Fire Water Pump Test

IST Deficiencies

During a review of the sequence of events and the scenario surrounding the incorrect thrust bearing installation in the B SI pump in July 1990 (see IR 90-17), the inspectors identified a concern with SI pump bearing temperature test, EST-005, Safety Injection Pump Bearing Temperature Test, Revision 3. The concern involved the fact that performance of the test as written prohibits the pumps from consistently achieving a stabilized bearing temperature as required per ASME Section XI, IWP-3500 (b). This section explicitly requires that "... each pump shall be run until the bearing temperatures stabilize, and then the quantities specified shall be measured or observed and recorded. A bearing temperature shall be considered stable when three successive readings taken at 10 minute intervals do not vary by more than 3 percent."

The inspector reviewed EST-005 results from late 1984 through 1990, and noted that the B SI pump consistently failed to meet the stabilized bearing temperature criteria for one or both of its bearings. The inspectors were informed that this phenomenon (i.e. non-stabilized temperatures) also routinely occurred on the A and C SI pumps' bearings. The inspectors reviewed the past four years of bearing temperature tests

on the CS, RHR, and AFW pumps, EST-007, EST-089, and EST-013, respectively. These tests also placed time limitations on pump run time; thus, by design, inhibiting bearing temperature stabilization. For the tests reviewed, the inspectors identified that none of the pumps consistently achieved a stabilized bearing temperature as required.

In January and April 1984, the licensee submitted ASME code relief requests which in part, requested relief from performing bearing temperature tests. This relief's partial basis was, "It requires at least an hour of pump operation to achieve stable bearing temperatures. The small probability of detection of bearing failure by temperature measurement does not justify the additional pump operating time required to obtain the measurements." The conclusion as stated in Section 2.2.1.4 of the SER dated August 21, 1985, was "The licensee must measure and record bearing temperatures for all pumps in the IST program in accordance with the requirements of Section XI." However, based on the above information, the licensee failed to comply with the code as required. In fact, the RHR, SI, and CS bearing test procedures required pump operation for no longer than 30 minutes (due to vendor recommended limitations on recirculation flow), which is less than the time the licensee determined (per their relief request) that is necessary to achieve stable bearing temperatures. The SER cover letter stated in part, "Required program changes should be submitted to the NRC under separate cover in order to receive prompt attention; but must not be implemented prior to the review and approval by the NRC." No relief had been granted by the NRC as of September 10, 1990. The inspector identified 32 examples of where the above ESTs were performed without achieving stable bearing temperatures as required per ASME Section XI, paragraph IWP-3500. These tests were as follows:

<u>Test</u>	<u>Date(s) Performed</u>	
EST-005, Safety Injection Pump Bearing Temperature Test (Annual)	4/10/86	12/27/88
	5/15/86	4/17/89
	8/14/86	10/21/89
	9/11/86	4/11/90
	12/11/86	7/13/90
	3/12/87	7/20/90
	4/14/88	7/24/90
EST-007, Containment Spray Pump Bearing Temperature Test (Annual)	4/2/86	9/4/87
	5/20/87	2/2/88
	8/6/87	5/2/89
	9/1/87	5/1/90
EST-013, Auxiliary Feedwater Pump Bearing, Temperature Test (Annual)	1/21/87	9/3/88
	2/17/88	3/22/89
	4/19/88	2/20/90
EST-089, Residual Heat Removal Pump Bearing Temperature Test (Annual)	5/13/87	4/9/89
	3/17/89	3/6/90

This is a VIO: Failure to Adequately Perform Bearing Temperature Tests as Required by TS and ASME Section XI, 90-20-01.

In addition to the above problem, the inspectors identified a concern with the timing and adequacy of EST reviews by the ISI/IST group. There were numerous instances where the respective bearing temperatures did not stabilize as specified in the procedure and Operations declared the test unsatisfactory. Upon subsequent review by the ISI/IST Coordinator, the tests were routinely declared as being acceptable, with an accompanying evaluation from the reviewer. However, ASME Section XI, paragraph IWP-3200 requires all test data be analyzed within 96 hours after completion of a test.

This review/analysis of non-stabilized bearing temperatures by the ISI/IST coordinator was routinely performed up to 10 days subsequent to test completion and in one case (EST-013 dated September 3, 1988) was not reviewed/analyzed until 17 days after test completion. Additionally, there was an instance where EST-007 (CS) dated May 1, 1990, did not contain any analysis of the acceptability of the non-stabilized bearing temperatures. The licensee did however, require pump data comparisons to the procedural acceptance criteria by the Shift Foreman per PLP-025, In-Service Testing, revision 3. This review is acceptable when the test meets the acceptance criteria delineated; however, when test anomalies occurred, the analyses performed was not performed by Operations and often times exceeded the required 96 hour interval. More significant than the inadequate timing of these reviews/analysis, was the inadequacy of the reviews themselves, as well as the inconsistency of the corrective actions resulting from the reviews. Regarding the reviews' inadequacies for the ESTs described above, the ISI/IST coordinator routinely based his evaluation of pump and test acceptability on the fact that pump run time was limited and that the tests' respective acceptance criteria was not exceeded. Additionally, the reviews frequently stated that temperature exhibited a "stabilizing trend" toward the end of the test. These reviews were inadequate for several reasons. As the licensee stated in their relief request, "It requires at least an hour of pump operation to achieve stable bearing temperatures." However, for purposes of the EST, they often based a stabilizing trend on only one-half hour pump run time and did not define nor qualify "stabilizing trend". Additionally, the licensee could expect lower bearing temperatures with shorter operating times (i.e., 30 minutes) and would not expect exceeding the acceptance criteria's alert range or required action range during the shorter run times. ASME Section XI, paragraph IWP-1500 delineates that, "The hydraulic and mechanical condition of a pump relative to a previous condition can be determined by attempting to duplicate by test a set of basic reference parameters. Deviations detected are symptoms of changes and depending upon the degree of deviation, indicate need for further tests or corrective action." The licensee rarely performed a comparison of test data to previous data obtained for potential component degradation. The licensee had identified the need for this comparison in 1986; however, this practice was not implemented. The only comparison procedurally performed is against the test acceptance criteria values,

thus inhibiting detection of mechanical and/or hydraulic change over time and the potential need for corrective action.

The fact that the reviews/analysis performed contained basically the same acceptability justification for each pump on each test indicated perfunctory reviews were performed. The lack of thoroughness and adequacy of these reviews, coupled with the slow timing of the IST review and inconsistent resultant corrective actions, indicated a significant weakness in the IST program and its management oversight. This is an IFI: Evaluate Adequacy and Timeliness of ISI/IST Evaluations, 90-20-02.

During a review of ISI/IST evaluations which were performed on the CCW pumps during the past year and one-half, the inspectors identified that these evaluations were not procedurally controlled nor stored in accordance with Regulatory Guide 1.88 (1974) and ANSI N 45.2.9 - 1974, Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants. Subsequent to this deficiency being identified, the licensee implemented interim corrective actions by promptly transferring the older evaluations to the records vault for safekeeping. The licensee has committed to identify the evaluations as QA records in PLP-025, In-service Inspection Program, revision 3, and to establish and implement storage requirements for these records. These corrective actions are scheduled for implementation by October 31, 1990. Inadequate record identification and control is considered a violation; however, this violation is not being cited because criteria specified in Section V.A of the NRC Enforcement Policy were satisfied. As a result, the violation is considered an NCV: ISI/IST Evaluations Were Not Adequately Identified Nor Controlled As QA Records, 90-20-03.

Two violations (one being non-cited) 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, and approved procedures. The inspectors determined that these activities did not violate LCOs. The inspectors verified that required administrative and fire prevention controls were adhered to. In particular, the inspectors observed/reviewed the following maintenance activities:

WR 90-AQM364 Perform PM-027 on EOF/TSC/Security DG

WR 90-BJT364 Perform PM-028 on EOF/TSC/Security DG

The inspectors noted that the work was being accomplished with the assistance of a vendor representative. The inspectors observed that the cloths being used for wiping were depositing a small amount of lint and thread on components in the cylinder head. This was pointed out to the mechanics and later discussed with maintenance management.

No violations or deviations were 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 PNSC meetings on August 23, 27, and September 5 involving a proposed control room habitability TS change, modification to eliminate a RHR single failure, and approval of a fire barrier JCO associated with blockouts. It was ascertained that provisions of the TS dealing with membership, 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. 10 CFR 50.59 Safety Review

During the week of August 27, 1990, a review was performed of the licensee's safety review process for plant modifications. The inspectors reviewed implementing procedures, training, and modification evaluations performed since January 1, 1990. The evaluations cover examples prior to and after the new safety review procedure's implementation.

The procedure which provided guidelines for performing nuclear safety reviews as required by 10 CFR 50.59 and TS Section 6.5.1.1 and 6.5.1.2, was PLP-032, 10 CFR 50.59 Reviews of Changes, Tests and Experiments. This procedure was adopted by the licensee in June 1990 as a result of a corporate effort to follow the current industry guidance for performing 10 CFR 50.59 reviews which was contained in NSAC-125, Guidelines for 10 CFR 50.59 Safety Evaluations. This new procedure replaced the previous plant procedure, MOD-13, and closely follows the guidance of NSAC-125. The present procedure is a substantial improvement in providing guidance for safety review performance. Specifically, three inadequacies of MOD-013 identified in IR 89-23 have been addressed by PLP-032. Each identified inadequacy and its resolutions are presented below:

- Lack Of Guidance On USQ Determinations

Detailed guidance on USQ determinations was incorporated into PLP-032. Section 8.4.4 of PLP-032 contains a step-by-step procedure for these determinations, as well as a list of questions that a reviewer should answer when making such a determination.

- Lack Of Guidance For Safety Evaluations Associated With SSC Which Are Not Discussed In The FSAR

Procedure PLP-032 requires 10 CFR 50.59 safety reviews for modifications other than those directly associated with the SSC discussed in the FSAR. For example, PLP-032 requires an evaluation with regard to changes associated with the Offsite

Dose Calculation Manual, the Process Control Program, the Quality Assurance Program, and the Emergency Plan.

° No Procedure For Safety Evaluation Disposition

Guidance on the classification and routing of modification evaluations for disposition based on their findings have been incorporated into PLP-032. A specific area identified previously by the inspectors as a weakness and which the new program adequately addresses was the procedure for incorporation of modifications into revisions of the FSAR.

The licensee has conducted an extensive training program (Qualified Safety Reviewer Program Training) to train and qualify personnel for conducting safety reviews in accordance with the new program. The training included a 12-hour class followed by a written examination. The licensee had completed the training for and qualified over 240 safety reviewers on-site, covering every major engineering discipline. There were two QA/QC personnel qualified as safety reviewers. However, the licensee did not have a plan for QA review of either the training and qualification process or the 10 CFR 50.59 safety review packages. This was discussed with the licensee during the exit on August 30, 1990.

The following modification safety evaluations were reviewed:

° M-998 Service Water System Pit Single Failure

The purpose of this modification was to correct a single failure vulnerability of the service water system. Isolation valves V6-12B and V6-12C were vulnerable to incapacitation from flooding in the common service water system pit area. The modification involved the installation of a non-safety (non-Q) grade water level detection system with alarm functions in the control room. The operators would be alerted of the potential flooding; thereby, allowing timely corrective action to establish a safe valve alignment. However, the safety review did not address the safety functions of valves V6-12B and V6-12C and did not provide justification for the non-safety classification in the modification safety criteria.

° M-1014 Relocate Power Supplies for Service Water Booster Pumps

The operating margin of MCC 5 and 6 would approach the continuous rating of the MCCs (600 amps) upon a safety injection signal. The purpose of this modification was to reduce the loading of MCC 5 and 6 by relocating the SWBP loads to the new MCC 16-SA and 18-SB. The safety review did not address the loadings and ratings of the new MCCs; hence, the safety review did not analyze the adequacy of the power source for the SWBPs. Therefore, the review did not fully address the three criteria for USQ per 10 CFR 50.59(1)(2).

- ° M-1059 Emergency Cooling Connection for Spent Fuel Pool Heat Exchanger

The purpose of this modification was to upgrade the SFPHx emergency cooling connection from a 2-inch connection to a 6-inch connection. The connection will be used for providing temporary cooling during refueling outage hydrostatic tests. The safety review for this modification was very thorough and met the requirements of 10 CFR 50.59. The review brought out the concern and need for review by fire protection since the modification increased the demand on the fire safety system. The subsequent review by fire protection assured that fire protection capabilities will not be impaired by the modification.

Both the M-998 and M-1014 safety evaluations were performed prior to PLP-032. The inspectors observations concerning M-998 and M-1014 were provide to the licensee for their review and disposition as they deemed necessary.

Based upon the above, the new program represented a substantial improvement over the one it replaced. Specifically, this program provides adequate guidance for the performance of safety reviews. The licensee was completing an extensive effort on the training and qualification of safety reviewers for the new program. However, it was noted that the licensee did not plan to include the 10 CFR 50.59 review process (training and qualification process as well as the safety review packages) into the QA/QC process. An audit of a selected sample of the safety reviews found significant improvement after the adoption of the new program. Since the sample size was small, the inspectors plan to perform future inspections in this area to determine if the improvements are being consistently implemented.

No violations or deviations were identified.

7. Action on Previous Inspection Findings (92700)

(Closed) P2187-02, Modification To Component Cooling System May Affect Containment Isolation. On June 19, 1987, Westinghouse letter, CPL-87-581, notified CP&L of a potential violation of containment isolation capability for plants which had implemented modifications to address previous CCW overpressurization concerns. The letter also provided four available alternatives to address the containment issue for those plants which had installed the recommended modification. Alternative 3 was to leave the recommended modification in place and qualify the CCW system inside containment as a closed system.

The recommended modification to address the CCW overpressurization concern had been implemented at HBR as M-835, Gag Open RCV-609. On September 9, 1987, EE 87-127 was approved which demonstrated that the CCW system could

be considered a closed system inside containment (i.e., alternative 3 described above). The inspectors reviewed EE 87-127 and have no questions concerning the licensee's conclusion.

No violations or deviations were identified.

8. Exit Interview (30703)

The inspection scope and findings were summarized on August 30, 1990, and September 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. The licensee disagreed with the violation (90-20-01) stating that their practice of evaluating non-stabilized bearing temperatures was sufficient to meet ASME Section XI requirements. Proprietary information is not contained in this report.

<u>Item Number</u>	<u>Description/Reference Paragraph</u>
90-20-01	VIO - Failure To Adequately Perform Bearing Temperature Tests As Required By TS and ASME Section XI (paragraph 3)
90-20-02	IFI - Evaluate Adequacy and Timeliness of IST/IST Evaluations, 90-20-03 (paragraph 3)
90-20-03	NCV - ISI/IST Evaluations Were Not Adequately Identified Nor Controlled As QA Records (paragraph 3)

9. List of Acronyms and Initialisms

AFW	Auxiliary Feedwater
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
CCW	Component Cooling Water
CFR	Code of Federal Regulation
CP&L	Carolina Power & Light
CS	Containment Spray
CST	Condensate Storage Tank
DG	Diesel Generator
EE	Engineering Evaluation
EOF	Emergency Operation Facility
EST	Engineering Surveillance Test
FSAR	Final Safety Analysis Report
HBR	H. B. Robinson
HP	Health Physics

HVH	Heating Ventilation Handling
JCO	Justification For Continued Operation
IR	Inspection Report
IST	Inservice Testing
LCO	Limiting Condition for Operation
LI	Level Indicator
M	Modification
MCC	Motor Control Center
MOD	Modification and Design Control Procedure
mRad	Millirad
NCV	Non-cited Violation
NRC	Nuclear Regulatory Commission
NSAC	Nuclear Safety Analysis Center
OMM	Operations Management Manual
OST	Operations Surveillance Test
PC	Personnel Clothing
PCM	Personnel Contamination Monitor
PLP	Plant Procedure
PNSC	Plant Nuclear Safety Committee
QA	Quality Assurance
QC	Quality Control
RCA	Radiation Control Area
RCS	Reactor Coolant System
RCV	Radiation Control Valve
RHR	Residual Heat Removal
RTGB	Reactor Turbine Generator Board
RVLIS	Reactor Vessel Level Instrumentation System
SAR	Safety Analysis Report
SER	Safety Evaluation Report
SFPHx	Spent Fuel Pool Heat Exchanger
S/G	Steam Generator
SI	Safety Injection
SSC	System Structure or Component
SW	Service Water
SWBP	Service Water Booster Pump
TROTS	Turbine Redundant Overspeed Trip System
TS	Technical Specification
TSC	Technical Support Center
USQ	Unreviewed Safety Question
W/R	Work Request