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

Report No.: 50-261/89-25

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: November 11 - December 15, 1989

Inspectors: H C Dance / for — 1/8/90
L. W. Garner, Senior Resident Inspector — Date Signed

H C Dance / for — 1/8/90
K. R. Jury, Resident Inspector — Date Signed

Approved by: H C Dance — 1/8/90
H. C. Dance, 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, ESF system walkdown, evaluation of licensee self-assessment capability, onsite followup of events at operating power reactors, onsite review committee, reactor operator license verification, and followup.

Results:

No violations or deviations were identified.

Licensee evaluation determined that Agastat time relay tolerances of the SI sequencer combined with anticipated ESF motor acceleration times could have placed multiple loads onto the emergency bus during an accident. These items plus certain grid conditions could have resulted in actuation of the degraded voltage relays during sequencing with offsite power available. Solid state digital timers with 0.5 seconds tolerance have been installed to address this problem. Pending NRC evaluation, the degraded voltage issue was left as an unresolved item.

Adequate controls have been established to ensure that reactor operators on watch have medical examinations and have passed requalification training. Current practices to verify 60 hours per quarter of watch standing were adequate but not incorporated into procedual requirements.

Inspections of the licensee's self-assessment capability revealed that: the PNSC was effectively discharging its charter, however, actions resulting from a proactive function were infrequent; the CNS oversight functions were weak and not being effectively performed; and ONS had identified safety-related issues but its nuclear safety oversight was not evident due to a large workload associated with OEF/procedure reviews and special technical assignments. A project quality team had been established to address problems associated with the CNS oversight functions.

REPORT DETAILS

1. Persons Contacted

R. Barnett, Shift Outage Manager, Outage Management
C. Baucom, Senior Specialist, Regulatory Compliance
C. Bethea, Manager Training
*W. Biggs, Manager, Site Engineering Support
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
J. Eaddy, Supervisor, E&RC Support
R. Femal, Shift Foreman, Operations
*W. Flanagan, Outage Manager, Outage Management
S. Griggs, Technical Aide, Regulatory Compliance
E. Harris, Director, Onsite Nuclear Safety
R. Johnson, Manager, Control and Administration
*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. Myers, Shift Foreman, Operations
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
R. Steele, Shift Foreman, Operations
*K. Williams, Senior Engineer, Onsite Nuclear Engineering Department
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 December 19, 1989.

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

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, operations 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 randomly observed to verify 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.

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.

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, 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-162 (revision 15)	Emergency Diesel Generator Auto Start On Loss Of Power And Safety Injection Emergency Diesel Trips Defeat
*	OST-163 (revision 14)	Safety Injection
*	EST-010 (revision 2)	Containment Personnel Air Lock Leak Test

On December 13, 1989, OST-162 failed the acceptance criteria of TS 4.6.1.2. The TS required that the EDG start and assume required load within 50 seconds after the initial starting signal, e.g., simulated loss of all AC power together with a simulated SI signal. The A EDG assumed loads in 50 seconds. The B EDG assumed loads in 51 seconds. Review of the data indicated that the new SI digital timing relays had performed as expected. However, the EDG output breakers were closing later than anticipated. The A EDG breaker closed after 10.4 seconds. The B EDG breaker closed after 11.2 seconds. Section 8.3.1.1.5.1 of the UPFSAR indicated that the EDGs are capable of accepting load with 10 seconds. The licensee assembled a team to review and make recommendations to correct the deficiency. Another performance of OST-162 was conducted on the same day with similar results. Local observation of the EDG engine/generator panels revealed that the generators had reached 480 volts between 7 and 8 seconds, but the output breakers did not close for another additional 3 seconds. Based upon these observations, the licensee concluded that the undervoltage relay associated with the EDG output breaker control circuits were out of adjustment. These undervoltage relays are used to verify that the generator is at voltage before closing the output breaker. The inspectors observed the as-found testing of the B EDG undervoltage relay. The relay actuated between 2.9 and 3.0 seconds when subjected to 120 volts, the voltage sensed by the relay when the generator is at rated voltage (480 volts). After consulting with the EDG vendor, both the A and B EDG undervoltage relays were adjusted to a one plus or minus one-tenth second reset time. After this corrective action, OST-162 was successfully performed on December 15, 1989. The undervoltage relays performed as expected and both the EDG output breakers closed in approximately 9 seconds. The licensee is conducting an investigation into the adequacy of the last calibration performed in December 1988. This item is identified as an IFI: Review EDG Undervoltage Relay Calibration Problem (89-25-01).

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, and testing controls were adhered to. In particular, the inspectors observed/reviewed the following maintenance activities:

* PIC-805 (revisions 1 and 2) Westinghouse Type CV-7 Undervoltage Relays

*	SPP-011 (revision 3)	Removal and Restoration of SI Actuation
*	WR/JO 89-AKPA1	Replacement of HVH 1 Agastat Relay
*	WR/JO 89-AKWG1	Calibration of SI Relay 2BR2
*	WR/JO 89-AKWH1	Calibration of SI Relay 2BR1
*	WR/JO 89-AKWI1	Calibration of SI Relay 2SID1
*	WR/JO 89-AKWJ1	Calibration of SI Relay 2SID2
*	WR/JO 89-ALLY1	Calibration, Installation of A EDG 27 Device
*	WR/JO 89-ALKZ1	Calibration of EDG 27 Devices

No violations or deviations were identified.

5. ESF System Walkdown (71710)

The inspectors performed a visual inspection of components associated with the MDAFW subsystem. Items inspected included: pumps, motors, piping, instrumentation, instrument tubing, supports and valves. No condition was observed which would prevent the subsystem from performing its intended function. The inspectors also witnessed operation of the subsystem and verified that surveillance activities had been successfully completed. The SDAFW subsystem had not been tested since insufficient steam has been available after the rebuild associated with the current outage. The inspectors intend to witness post-maintenance testing of the SDAFW when performed.

No violations or deviations were identified.

6. Evaluation Of Licensee Self-Assessment Capability (40500)

The inspectors have evaluated the licensee's self-assessment capability on a continuing basis. This evaluation is performed through attendance of PNSC meetings (both special and regular meetings), management meetings (including Project Review), review of performance indicators and LERs, a continuing interface with the ONS group and review of the ONS and PNSC's findings/recommendations and action items.

TS Section 6.5.1.6 delineates the responsibilities, composition, and meeting frequency of the PNSC. The PNSC serves as the principal management overview group for reviewing, evaluating and resolving issues related to plant safety. The inspectors frequently attend both special and regular PNSC meetings; the meeting minutes are routinely reviewed and

action item resolution is monitored for effectiveness. As part of this inspection, the inspectors interviewed PNSC members concerning how they view the activities of the PNSC and their effectiveness in providing an overview and evaluation of plant operational safety.

The PNSC was effective in discharging the responsibilities they are chartered with. All TS required activities were routinely performed, as well as providing an effective monitoring/overview function of non-TS activities. Subcommittees (e.g., Trip Reduction and ALARA) have been utilized by the PNSC. The results of these subcommittees were inconclusive, in that the ALARA subcommittee was changed into an ALARA committee which is no longer under the auspice of the PNSC, and the Trip Reduction program subcommittee responsibilities were being re-evaluated. The PNSC membership is a conglomeration of experienced technical and managerial personnel that has demonstrated the ability to make technically sound and conservative decisions. The safety conscious nature of the PNSC has been demonstrated through their decision making on the RTD thermowell cracking problem, the RHR flooding issue, the AFW system operability concerns, and the recent SI sequencer issue. The PNSC met membership and meeting frequency requirements. The group also frequently utilized special meetings to discuss safety-significant issues that arise.

PNSC action items were frequently assigned and tracked to resolution. Other issues were identified by the PNSC; however, if they were not formally tracked as an action item, the item was frequently not re-visited by the PNSC and any action taken may not be visible (e.g., changing of the FR/NCR trending programs and evaluation/resolution of the high number of mechanical inspection rejections). The action items were routinely discussed for status at each regular PNSC meeting and did not appear to remain open for unreasonable periods of time. Action items were normally assigned on a reactive basis, i.e. in response to known problem areas or events. Actions resulting from a proactive overview function were infrequent. This was partially attributed to a lack of effective trending of both programmatic and hardware corrective actions. The licensee has implemented a repetative failure trending mechanism; however; due to this system's infancy, its effectiveness cannot be evaluated. Additionally, CNS has rarely (if ever) utilized the PNSC for a special review, investigation, or report resulting from any independent overview CNS has performed (see TS 6.5.1.6.6.d).

Section 6.5.2 of TS delineated the responsibilities for the CNS Section in performing their off-site independent review function. These responsibilities included: review of significant plant changes, tests, and procedures (including TS and OL); verification that reportable events are investigated in a timely manner and corrected in a manner that reduces the probability of recurrence; and detection of trends that may not be apparent to "day-to-day" observers. The corporate portion of the

CNS Section was made up of two units, the Nuclear Safety Review (NSR) Unit and the Analysis and Evaluation Unit. The Analysis and Evaluation Unit is primarily responsible for the development and refinement of the PRA program. The NSR Unit is primarily responsible for performing independent reviews and special investigations.

During the course of the inspection, the inspectors determined through observations, interviews, and document review that the CNS corporate units are frequently utilized for purposes other than those originally chartered. A corporate QA audit (QAA/0115-89-01) was conducted in September 1989, and although compliance oriented, identified that the responsibilities of the individual units within CNS are not clearly defined nor followed. The audit report also addressed the lack of timeliness of documents requiring OEF reviews. For example, during the semi-annual OEF Review Meeting conducted on August 23, 1989, it was identified that CNS had yet to review approximately ten percent of the 1988 LERs for all three CP&L plants and had yet to review any of the 74 1989 LERs. Additionally, the CNS function of LER reviews was currently being performed by ONS for any immediate required site actions or training (originally identified by CNS). Thus, the TS requirement for verification that reportable events are investigated in a timely manner and corrected in a manner that reduces the probability of recurrence, is not being effectively implemented through the CNS off-site independent review function.

CNS has performed a service to HBR; however, through their use of a special investigation, CNS spearheaded an internal AIT into the issues promulgating the AFW system concerns. CNS was frequently utilized for special investigations; however, these investigations were normally event driven as compared to being a result from independent overview activities. Due to CNS not effectively reviewing on-site events (LERs), they rarely identified trends independently from the site nor had they requested any special reviews or investigations from the PNSC as a result of trends. This utilization of the PNSC and its membership was charted to CNS in the TS. If effectively implemented, it could provide a valuable service to the site.

It appeared that while CNS routinely performed their TS responsibilities (except the weaknesses detailed above), the CNS "oversight" function was not being effectively performed. LER reviews are not performed timely by the group tasked with the responsibility, the PNSC was not utilized for special evaluations nor investigations, and HBR-specific trends have not been identified. Additionally, although the plant recognized the value of CNS conducting Special Investigations, PRA activities, and performing some reviews (i.e., TS changes, FSAR changes, etc.), it did not recognize what, if any, independent oversight function CNS was providing.

The ONS unit provided the primary site activity overview that had been charged to the CNS Section. ONS was responsible for reviewing Operating Experience Feedback. The items reviewed/evaluated included, but were not limited to: OERs, POERs, NSSS/Vendor Service Bulletins, INPO SOERs and SERs, IENs, and other industry generated information. ONS was also responsible for procedure evaluations and modifications review, as well as performance of field observations and special investigations. The inspectors routinely reviewed the results of ONS special investigations and reviewed selected IEN and IEB evaluations performed by ONS and/or the plant departments. The ONS section spends the majority of time performing the OEF function, with special investigations performed on an as-needed or requested basis. In the past two years, ONS had performed 15 special investigations. The subjects range from evaluations and investigations into specific site events (i.e., Hydrogen and Instrument Air System Crosstie Event) to program reviews (i.e., EOP Transition Document Review). Most of these special investigations resulted from an event or equipment problems as compared to proactive, trend-generated investigations. This appeared to be due to time constraints placed on ONS personnel and the lack of any currently effective site trending programs which could be utilized for this purpose. The Field Observation Program could also have been effectively utilized in that, plant tours were normally confined to an issue being evaluated by ONS. These tours were normally conducted in non-vital areas as compared to a random tour of vital areas and the witnessing of selected safety-related work in progress.

The inspectors interviewed various ONS personnel to ascertain and evaluate an introspective view of ONS and its functions. ONS's main role on site was perceived to be that of monitoring overall plant safety through oversight. However, due to the large work load imposed on ONS with the OEF and procedure review functions, coupled with time-consuming special technical assignments (e.g., DBD validation and SSFI participation), this nuclear safety oversight function was not evident. ONS had identified safety-significant issues as evidenced by their evaluation/review of the AFW system performance, anomalies which eventually resulted in the current AFW system outage. However, ONS has been handicapped by the "lack of clout" experienced by many independent groups and by the routine de-prioritization by the plant of the necessary OEF review/analysis which ONS initiates.

ONS had a well coordinated and managed tracking system for OEF/ONS item status; however, as discussed above, the lack of the plant's timeliness in responding had the potential to not allow safety-significant items (such as the AFW NPSH concern and IEN 87-66 review of Agastat relays) from being promptly investigated and resolved. It appeared that the plant did not fully comprehend the ONS "role" and may be just now realizing its function and effectiveness.

While performing followup of the Diagnostic Team Inspection at Brunswick, the licensee had identified weaknesses in their corporate (CNS and ONS) self-assessment capability. A task force was charted to develop recommendations to address the modification or deletion of non-productive assessment functions, the addition of more relevant and productive functions, and the merging of any overlapping or duplicated functions where appropriate. The goal was to provide, on a proactive basis, more focused and useful independent assessment information to the proper levels of management. Implementation of initial recommendations of this task force was scheduled to begin before the end of 1989.

No violations or deviations were identified.

7. Onsite Followup of Events at Operating Power Reactors (93702)

<u>SI Sequencer Operation Could Result In Operation Outside FSAR Analysis</u>

On November 15, 1989, NED issued Potential Significant Deficiency No. 89-54. The deficiency identified that operation of the SI sequencer Agastat timing relays within a plus or minus 2 second operating band when combined with safeguard pump motor acceleration times could have resulted in pump motor starts which overlap with one another. When a large motor starts, it may pull locked rotor current until it accelerates to approximately 85% of rated speed. During this time interval, the large current demand can cause the supply bus voltage to drop below the degraded voltage relay setpoint of 415 plus or minus 4 volts. By design, the motor should accelerate at such a rate that the voltage will recover above the degraded voltage relay reset value of approximately 432 volts before the relay trips. The relays trips if not reset within 10 plus or minus one-half seconds after the trip setpoint is reached. If another motor starts before the reset voltage value is reached, another voltage drop will occur, thereby, lengthening the time before the voltage recovers and the degraded voltage relay reset occurs. When a motor starts at a reduced voltage, it requires a longer time to accelerate. Thus, when motor starts overlap, the acceleration time of each can be significantly increased above that which would occur if each was started alone. This synergetic effect could result in actuation of the degraded voltage relay. The deficiency identified that under certain postulated accident scenarios and equipment responses, motor overlap could be sufficient to result in actuation of the degraded voltage relay during SI sequencing. This would cause the emergency busses to be separated from offsite power and a re-sequencing of ESF equipment onto the EDG powered busses. Interruption of SI sequencing, e.g., ESF pumps stopping and then later restarting, is not bound by the existing LOCA analysis.

On November 16, 1989, the licensee determined that the potential for operation outside the approved safety analysis could have existed. This unanalyzed condition was reported to the NRC as required by 10 CFR 50.72. This determination was based upon engineering judgement. During

performance of calculations to support potential solutions to the deficiency, it was found that even with the proposed solutions, the voltage might stay below the relay reset value for approximately six seconds. The specific case being analyzed assumed that: a LOCA had occurred with offsite power available, HBR unit 1 was not in service, the ten Darlington County IC turbines were not available, the switchyard capacitor banks were available, system load would result in 113.7 kV at the startup transformer when unit 2 tripped, all loads not automatically stopped by the LOCA would immediately be loaded onto the startup transformer, the emergency busses would be supplied by the 2F and 2G SST, the A and C SW pumps were already running, the HVH 2 and 4 containment fan coolers were already running, HVH 1 and 3 would start 2 seconds later than their nominal sequence time of 30 seconds, A and B MDAFW pumps would start 2 seconds earlier than their nominal sequence time of 40 seconds, containment pressure would cause the A and B CS pumps to start at the same time as HVH 1 and 3 and a transformer tap change had been installed on 2F and 2G SST to raise the voltage on the emergency busses by two and one-half percent. From this case study, it was apparent that if the assumed running HVH units also had to be sequenced onto the emergency busses, the voltage would stay below the reset voltage for greater than 10 seconds. No controls had been in place to assure that the HVH units had always been in service; however, having four HVH units in service was the normal plant operating mode. Furthermore, the licensee did not believe that more than 4 of the 10 IC turbines have been out of service since their installation in the mid-seventies. Whether or not prior to the IC turbine installation, switchyard voltage would have ever been at 113.7 kV or below upon the trip of unit 2 is not known. Also prior to M-860 which installed the 2F and 2G SST, in May 1986, capability of offsite power to support the emergency busses was less. Whether or not the previous configuration would have resulted in an unanalyzed condition has not been determined. Because of all the unknowns and the time and effort it would take to guarantee that a LOCA with offsite power available would never have put the plant in an unanalyzed condition under all past plant operating configurations, the licensee decided to report the item per 10 CFR 50.72.

The licensee conducted an evaluation to assess the impact of the motor overlap question on the EDG emergency power system. The EDGs were procured with a voltage regulator with the capability to recover voltage to 90 percent of the nominal voltage within 1 second after loading a 900 horsepower load. The maximum calculated effective horsepower of the different combinations of motors overlapping within the plus or minus 2 second repeatability of the Agastat time relays and the CS pumps starting was less than 900 horsepower. Thus, the licensee determined that operation of the EDGs were not adversely impacted by motor overlap.

On the evening of November 21, 1989, the inspectors reviewed the vendor's (Amerace) statement concerning repeatability of the 7000 series Agastat

time relays. The 7000 series relay is one of the relay series installed in the SI sequencer. The vendor's catalogue material indicated that the tolerance is plus or minus 10 percent of setting. For the 7000 series Agastats used in applications of more than 20 seconds, this would result in tolerances of greater than the plus or minus 2 seconds used in the analysis. This was discussed with plant management on November 22, 1989. The licensee's initial response indicated that this had been discussed earlier by system engineering and NED. The licensee indicated that refueling interval OST-163 contained a plus or minus 2 second acceptance criteria for the relays, hence, this would provide confidence that they would perform better than the vendor guaranteed, e.g. with a 2 seconds operating band. However, subsequent review by the licensee and inspectors of previous Agastat performance history, from OST-163 and other available data sources, revealed that this was not the situation.

Evaluation of a longer than a 2 second Agastat operating band revealed that a combined load in excess of 900 horsepower could be loaded onto the EDGs due to additional motor overlapping. The licensee considered various JCO approaches, including use of PRA to justify operation until the relays could be replaced. However, based upon safety considerations, it was best to keep the plant shutdown until the relays could be replaced.

The licensee has developed and implemented a modification, M-1035, to replace the electro-pneumatic type time delay relays with solid state Agastat DSC digital timers. However, the DSC timer contacts were not rated for the DC current required to actuate the DB-50 breakers associated with the ESF pump motors. This required the addition of interposing relays with heavier duty contacts to be included into the circuits. The DSC timers will energize the interposing relay coils. The interposing relays when energized will close contacts which will then supply DC control power to actuate the DB-50 breakers. Agastat GP series AC powered relays were chosen as the interposing relays because there were no DC powered relays available on short notice which were suitable for the application. The AC power required for operation of the interposing relays is from the A and B inverters associated with the safety-related A and B batteries. The inspectors verified that the new equipment was properly installed. In addition, the inspectors also verified, that based upon performance of OST-162 and OST-163, both trains of the safeguard sequencer, functioned properly. The new timers resulted in actuation of the DB-50 breakers with a repeatability of plus or minus one-tenth of a second as measured by ERFIS. Region II DRS personnel have reviewed the design modification of M-1035. This item is an unresolved item: Sequencer Load Overlap Problem-Agastat Relays (89-25-02).

During installation of M-1035, Operations personnel observed that loss of AC power to the interposing relays may not be detectable from the control room or locally. Currently, the loss of DC power to the safeguards logic would be annunciated in the control room. Subsequent discussions between

operations and NED resulted in a loss of AC power alarm being added to the modification. The inspectors considered that Operations personnel's sensitivity to the potential for existence of an undetected fault which would render a train of safeguard inoperable was especially noteworthy.

No violations or deviations were identified.

8. 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 PNSC on November 22, 1989, concerning a proposed tap change to 2F and 2G SST (M-1034). 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. The inspectors also followed up on selected previously identified PNSC activities to independently confirm that corrective actions were progressing satisfactorily.

No violations or deviations were identified.

9. Reactor Operator License Verification (71707)

The inspectors conducted a review per enclosure 1 of RAI 89-34 to assess the licensee's methods for control of license status of reactor operators on watch and the thoroughness with which these was being implemented. The primary responsibility for ensuring that a list of fully qualified licensed personnel are available to stand watch was assigned to the operations support section scheduler. This position was filled by a former shift foreman.

The training department maintained status of requalification exams and medical certifications. During a training cycle if an individual unsuccessfully completed the written examination, the Operations Manager was immediately notified by telephone with written followup. Upon verbal notification, the scheduler removed the individual's name from the schedule. The inspectors verified that within the previous year this situation had occurred only once and that the individual had not assumed licensed duties until he had completed accelerated retraining. If an individual unsuccessfully completed the simulator senarios, he would be given an addition chance to demonstrate his proficiency during the training week before he was removed from duty. Medical physical dates were tracked by computer. A computer printout was generated monthly of the individuals who must obtain physicals within the subsequent two months. This was provided to the scheduler. The scheduler notified the individuals and scheduled appointments. If a physical was not completed

by the due date, the individual's name was removed from the schedule. Records indicated that this had not occurred within the last year. Shift foreman were responsible for calling in individuals to replace personnel not reporting for duty. The replacements are chosen from those assigned to the relief/training shift and who were on the schedule and were not actively in training. The inspectors consider that these controls are adequate to ensure that reactor operators on watch have passed requalification training and have a current medical certification.

Both the training department and the operations support unit tracked that licensed operators maintained a minimum of 60 hours per quarter of watch standing. However, personnel have not submitted their watch hours for up to three weeks after the end of the month. Both tracking groups were revewing the information after two months into a quarter to identify personnel who needed hours in the third month to meet the requirement. This information was submitted to the scheduler. The inspectors verified that during the current quarter one active licensed operator was identifed by this process. He was subsequently scheduled for additional hours and had met the requirement by the end of report period. The current practices were adequate to verify the 60 hour per quarter requirement but these were not required by procedure. This was discussed with the Operations Manager.

The inspectors discussed with two shift foremen their ability to independently verify during backshifts, weekends and holidays the current status of operators on shift. If they had cause to question an individual's licensed status, they could review records and/or contact the training department. This process could take up to 1 hour.

The shift foreman had the primary responsibilty for determining that a person was capable of assuming his duties (temporary physical impairments and aberrant behavior). In instances of self-referrals of problems such alcoholism or drug dependency, plant management was informed and the individual's duties and assignments were reviewed as well as whether or not unescorted access would be continued. No licensed operators had participated in this program within the previous year.

No violations or deviations were identified.

10. Followup (92701)

(CLOSED) URI 89-12-04, Review Resolution of Single Failure Impact on SW System Performance. As described in IR 89-12, the licensee had put procedural controls in place to close the turbine building SW supply valves remotely from the RTGB if the automatic function failed to perform properly. The licensee has completed sufficient modeling of the HBR systems such that an order of magnitude PRA analysis could be performed. Preliminary results indicated that a failure to isolate the SW to the

turbine building when required would result in a core damage frequency of 8 E-03. Installation of a modification to remove the single failure modes from the automatic closure feature would improve the core damage frequeny to 3 E-04. The license installed M-1021 to remove the single failure modes from the isolation circuitry. The inspectors reviewed the modification package and have no questions.

No violations or deviations were identified.

11. Exit Interview (30703)

The inspection scope and findings were summarized on December 19, 1989, 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
89-25-01	IFI - Review EDG Undervoltage Relay Calibration Problem (paragraph 3)
89-25-02	URI - Sequencer Load Overlap Problem - Agastat Relays (paragraph 6)

12. List of Acronyms and Initialisms

AC	Alternating Current
AFW	Auxiliary Feedwater
AIT	Augmented Inspection Team
ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
CNS	Cooperate Nuclear Safety
CP&L	Carolina Power & Light
CS	Containment Spray
DBD	Design Basis Documentation
DC	Direct Current
DRS	Division of Reactor Safety
EDG	Emergency Diesel Generator
EOP	Emergency Operation Procedures
ERFIS	Emergency Response Facility Information System
ESF	Engineered Safety Feature
EST	Engineering Surveillance Test
FR	Field Report
FSAR	Final Safety Analysis Report
HBR	H. B. Robinson
HVH	Heating Ventilation Handling

IC	Internal Combustion
IEN	Inspection Enforcement Notice
IFI	Inspector Followup Item
INPO	Institute of Nuclear Power Operations
IR	Inspection Report
JCO	Justification For Continued Operation
KV	Kilovolts
LCO	Limiting Condition for Operation
LER	Licensee Event Report
LOCA	Loss of Coolant Accident
M	Modification
MDAFW	Motor Driven Auxiliary Feed Water
MST	Maintenance Surveillance Test
MWt	Megawatts Thermal
NCR	Non-conformance Report
NED	Nuclear Engineering Department
NRC	Nuclear Regulatory Commission
NSR	Nuclear Safety Review
NSSS	Nuclear Steam Supply System
OEF	Operating Experience Feedback
OER	Operating Experience Report
OL	Operating License
ONS	Onsite Nuclear Safety
OST	Operations Surveillance Test
PNSC	Plant Nuclear Safety Committee
POER	Plant Operating Experience Report
PRA	Probabilistic Risk Assessment
QA	Quality Assurance
RAI	Resident Action Item
RHR	Residual Heat Removal
RTB	Reactor Trip Breaker
RTD	Resistence Temperature Detector
RTGB	Reactor Turbine Generator Board
SER	Safety Evaluation Report
SI	Safety Injection
SOER	Significant Operating Experience Report
SSFI	Safety System Functional Inspection
SST	Station Service Transformer
SW	Service Water
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
WR/JO	Work Request/Job Order