UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

Report No.: 50-261/94-17

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 Unit 2

Inspection Conducted: June 25 - July 23, 1994

Lead Inspector: L. Stanford for 8/15/94
W. T. Orders, Senior Resident Inspector Date Signed

Other Inspectors: L. Stanford for 8/15/94
C. R. Ogle, Resident Inspector Date Signed

Approved by: 8/15/94
H. O. Christensen, Chief Date Signed
Reactor Projects Section 1A
Division of Reactor Projects

SUMMARY

Scope:

This routine, announced inspection was conducted in the areas of operational safety verification, surveillance observation, maintenance observation, and followup.

Results:

A violation was identified involving inadequate procedures governing equipment control, paragraph 3.e. A second violation was identified involving the licensee's failure to correct improperly routed instrument sensing lines, paragraph 3.b.1. A third violation was identified involving the licensee's failure to include wide range penetration pressurization flowmeters in a calibration program, paragraph 4; a non-cited violation was identified involving an operator's failure to adequately monitor plant status, paragraph 3.d; and an unresolved item was identified involving RHR system flow indication concerns, paragraph 3.b.2.

REPORT DETAILS

1. Persons Contacted

*R. Barnett, Manager, Projects Management
S. Billings, Technical Aide, Regulatory Compliance
*J. Brown, Manager, Design Engineering
A. Carley, Manager, Site Communications
*B. Clark, Manager, Maintenance
D. Crook, Senior Specialist, Regulatory Compliance
J. Eaddy, Manager, Environmental and Radiation Support
*D. Gudger, Specialist Regulatory Affairs
S. Farmer, Manager, Engineering Programs, Technical Support
*B. Harward, Manager, Engineering Site Support, Nuclear Engineering Department
*S. Hinnant, Vice President, Robinson Nuclear Project
*K. Jury, Manager, Licensing/Regulatory Programs
J. Kozyra, Acting Manager, Licensing/Regulatory Programs
*R. Krich, Manager, Regulatory Affairs
*F. Lowery, Manager, Work Control
*J. Lucas, Instructor, Technical Training
A. McCauley, Manager, Electrical Systems, Technical Support
*R. Moore, Acting Operations Manager
*J. Moyer, Manager, Nuclear Assessment
*D. Nelson, Manager Outage Management
*M. Pearson, Plant General Manager
M. Scott, Manager, Reactor Systems, Technical Support
E. Shoemaker, Manager, Mechanical Systems, Technical Support
D. Winters, Shift Supervisor, Operations
*D. Whitehead, Manager, Plant Support Service
L. Woods, Manager, Technical Support

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

NRC Personnel

*H. Christensen, Acting Chief, Reactor Project Branch 1, was on site July 22-23, 1994, to tour site and meet with resident inspectors.

*Attended exit interview

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

2. Plant Status

The unit operated at or near full power for the duration of the report period with no major problems.

3. Operational Safety Verification (71707)

a. General

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.

The inspectors reviewed shift logs, Operation's records, data sheets, instrument traces, and records of equipment malfunctions to verify equipment operability and compliance with TS. The inspectors verified the staff was knowledgeable of plant conditions, responded properly to alarms, adhered to procedures and applicable administrative controls, cognizant of in-progress surveillance and maintenance activities, and aware of inoperable equipment status through work observations and discussions with Operations staff members. 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 were appropriate.

Plant tours 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.

b. Residual Heat Removal Flow Indicator FI-605 Reading Erroneously

At approximately 1:00 p.m. on July 1, 1994, the inspectors questioned Operations management on the impact of a failed FI-605, Residual Heat Removal Total Flow Indicator, on Operation's capability to execute their End Path Procedures. With the RHR pumps secured, the indicator registered approximately 1000 gpm flow. The inspectors were concerned that since the instrument is used during End Path Procedures, EPP-9, Transfer To Cold Leg Recirculation, and EPP-10, Transfer to Long Term Recirculation, the erroneous reading could impact the plant's ability to enter recirculation. This erroneous flow indication had been noted by Operations following RHR pump operation during OST-251, RHR Component Test, earlier that morning. In response to the inspector's question, the plant entered an operability determination on the RHR system at 2:15 p.m. Additionally, Maintenance personnel accelerated their efforts to vent FT-605 in accordance with a work request generated after the instrument

failure was noted by Operations personnel. At 2:35 p.m. transmitter venting was completed and FI-605 indicated zero flow with the RHR pumps off. At 8:24 p.m., the operability determination was completed, concluding that the RHR system was "...operable with erroneous indication of 1000 gpm on FI-605."

The inspectors reviewed the operability determination, interviewed personnel involved in its generation, and reviewed the maintenance history associated with FI-605. Based on this review, the inspectors concluded that:

- similar failures of FI-605 had occurred previously

- neither the engineering evaluation nor the operability determination specifically addressed the impact that the erroneous indication would have on the operator's implementation of the End Path Procedures

- the engineering memo contained a technical error regarding the failure of instrument.

Supporting rationale is provided in the following discussion.

1) <u>FT-605 Maintenance History</u>

The inspectors requested a list of previous WR/JOs accomplished to correct deficiencies in RHR flow indication observed on FI-605. Twelve such work requests were identified in the licensee's electronic database. (This database contains maintenance histories for approximately the last 4 years.) The inspectors reviewed the 12 completed work packages and noted that 4 of the work requests described FI-605 anomalies markedly similar to that observed on July 1, 1994. These 4 WR/JOs, dated May 18, 1991; May 15, 1992; January 23, 1993; and April 21, 1994, described flow indications as high as 1800 gpm on FI-605 with the RHR pumps secured. In each of these 4 work requests, the transmitter was equalized or vented to remove the erroneous flow indication. Three of the WR/JOs specifically mention air in the sensing lines.

On November 22, 1993, ACR 93-315 was written to address flow oscillations on FI-605 with RHR in service. The condition description section of the ACR noted that FT-605 required its sensing lines to be vented, and that the condition was repetitive. The ACR evaluation concluded that improperly sloped sensing lines between the transmitter and the flow sensing element could exist. The ACR theorized that gas or air in the lines could be trapped, thereby, causing improper operation of the transmitter. In response to this situation, WR/JO 94-ADAI1 was generated on February 9, 1994, to adjust the sensing lines to eliminate any gas or air

traps. However, the WR/JO specifically prohibited the maintenance technicians from moving any sensing line clamps or fittings. As of July 1, 1994, the WR/JO was scheduled for performance the following week. On July 8, 1994, the inspectors independently verified that the sensing lines for FT-605 failed to rise continuously from the transmitter to the sensing element. This confirmed licensee observations made earlier that week. This arrangement was contrary to the transmitter manufacturer's recommendation that the sensing lines rise approximately one inch for every foot of run between the transmitter and the flow sensing element. At the end of the inspection period, the licensee was making plans to properly route the sensing lines.

The inspectors noted that the two most recent failures of FI-605 on April 21, 1994, and July 1, 1994, both occurred after ACR 93-315 identified gases trapped in improperly routed FI-605 sensing lines as a potential cause of the erratic operation of FI-605.

10 CFR 50 Appendix B, Criterion XVI requires in part that measures be established to ensure that conditions adverse to quality are promptly identified and corrected. Furthermore, Criterion XVI requires that corrective action be taken to preclude repetition of significant conditions adverse to quality.

Contrary to the above, the licensee failed to take corrective action for repetitive failures of Flow Indicator, FI-605, Residual Heat Removal Total Flow, between May 18, 1991; and July 1, 1994. A proposed corrective action to reroute the associated transmitters sensing line was identified in February 1994, but was not implemented before the two most recent failures of the instrument on July 1, 1994; and April 21, 1994. This is identified as a violation, VIO: 94-17-02, Failure To Correct Improperly Routed Instrument Sensing Lines While Troubleshooting Repetitive Gas Binding of RHR Flow Indicator.

On July 15, 1994, the inspectors requested that the licensee evaluate the potential that the previous instances of venting FT-605 may be symptomatic of air trapped in the dead leg of RHR piping immediately downstream of flow element. This request was based on the inspectors concern that the upwardly sloping RHR line and lack of a high point vent on the RHR piping downstream of the flow element could create a potential water hammer situation. The licensee stated that this would be evaluated in their ACR addressing the July 1, 1994, failure of FI-605. The inspectors will monitor this effort as an unresolved item, URI: 94-17-03, RHR System Concerns Resulting From FI-605 Inspection Effort.

2) RHR System Operability

The inspectors reviewed an engineering memo dated July 1, 1994, which evaluated the erroneous FI-605 flow indication on RHR system operability. The memo, which served as the technical basis for Operability Determination, OD# 94-26, concluded that the system was operable despite the 1000 gpm flow indicated in the idle RHR system.

The inspectors noted that neither the engineering memo nor the operability determination explicitly discussed the potential impact the erroneously reading instrument would have on the operator's ability to implement emergency procedures. Instead, focusing on the Regulatory Guide 1.97 designation of FI-605, the memo concludes that FI-605's only function is to provide an indication that the RHR system is operating. Further, it concludes that Regulatory Guide 1.97 instruments with a higher ranking of significance, such as core exit thermocouples and loop temperatures would provide this same information. The inspectors concluded that this argument was mis-focused, and neglected steps in EPP-9 and EPP-10 which specifically require the operators to take actions based on numerical values taken from FI-605. The inspectors acknowledge licensee arguments that degraded or improperly adjusted ECCS flows would eventually result in inadequate core cooling and hence, elevated primary temperatures and would thus call for the use of functional restoration procedures which exist to counter this situation. However, the inspectors concluded that this approach was less conservative than using properly operating, installed plant instrumentation to progress through the pre-defined End Path Procedures. On July 6, 1994, after inspector discussions with the licensee, Operations management issued a memo to the operators on these concerns. This memo outlined the potential that FI-605 could read erroneously following RHR pump recirculation and that the operators should consult alternate confirmatory indications of RHR pump performance.

The engineering memo also contained a technical error. It states that while FI-605 was reading erroneously, ERFIS indicated the actual flow of zero gpm. The memo attributes this purported divergence in readings to the operation of a square-root extractor in the circuit which only modifies the transmitter signal to the indicator. The engineering memo notes that the square root extractor is not involved in other circuit functions such as the RHR pump low flow alarm annunciator or control of the RHR heat exchanger bypass flow control valve, FCV-605. Based on this, the memo concluded, the erroneous reading would not impact RHR system operation in the cooldown mode.

In fact, an ERFIS printout requested by the inspectors, revealed that the ERFIS input from the FT-605 transmitter was also approximately 1000 gpm for almost 12 hours on June 30, 1994; and July 1, 1994. A significant portion of this period overlapped the period when FI-605 also indicated 1000 gpm. The inspectors determined from a review of the shift supervisor logs, that Operations personnel questioned the divergent ERFIS/FI-605 statement in the Engineering memo on July 1 and July 2, 1994. When apprised of this error, the log states that engineering management determined that the engineering memo conclusions on RHR system operability remained valid. The inspectors were informed that this error was not subsequently corrected in the engineering memo, but would be evaluated in the ACR review of this issue.

ACR 93-315 made reference to RHR system flow anomalies documented in a 1990 engineering analysis by Horace Cofer Associates. The ACR further stated that RHR system enhancements recommended by the study were not implemented but instead, alternate improvements were pursued. Near the end of the inspection period, the inspectors requested that the licensee provide additional information on historical RHR system performance problems and efforts implemented to correct them. At the conclusion of the inspection period this effort was not complete. The inspectors will track this effort as part of URI 94-17-03.

c. Failure To Complete Area Fire Watch Inspection Log

At 2:30 p.m. on July 5, 1994, the inspectors observed that The Area Fire Watch Hourly Inspection Log posted on the blocked open EDG A fire door had not been initialled since 10:00 a.m. that morning. The door had been blocked open to facilitate maintenance efforts on the EDG earlier that day. The inspectors noted four initials to document the performance of the hourly fire watches required by FP-12, Fire Protection Systems Minimum Equipment and Compensatory Actions, were missing. Following notification of this observation, the licensee alerted fire protection personnel and updated the log to reflect the previously undocumented hourly entries. The licensee generated an ACR regarding the event and the plant's Human Performance section also performed an investigation.

The inspectors reviewed the licensee's investigation and interviewed one of the maintenance technicians present for the ongoing maintenance in the EDG A room. Based on this, the inspectors concluded that the EDG A room probably remained occupied throughout the 10:00 a.m. to 2:30 p.m. timeframe in question. (Since the EDG A room is not a unique security zone, this conclusion was based upon the ACR and maintenance technician interview.)

The inspectors conclude that the safety significance of the observation was minimal and most probably reflected a failure to document the continuous presence of an area fire watch in the room. The ACR concludes that the failure to designate a single individual the responsibility for the sheet was a key contributor to this event. The inspectors concur with this assessment. In addition to training and counseling on the event, the ACR also states that the log will be revised to designate a responsible individual for the hourly reviews.

d. Operator Failure To Adequately Monitor Plant Status

At 2:19 p.m. on July 7, RCS Loop 2 Flow Indicator, FI-424, failed to "0". No annunciator alarms or bi-stable indicator lights were received. At approximately 2:40 p.m. the Reactor Operator (RO) started his review of control room indications per Operations Directive 93-016, Control Room Indicator Review. After completing his review at approximately 3:15 p.m. he initialed the cover sheet of the ERFIS printout and initialed the Hot Operation Log. He did not detect that FT-424 was indicating "0", or that the ERFIS "Current Quality" code for the ERFIS ID Point Number for FI-424 had printed out as "BAD", or that the 3:00 p.m. ERFIS reading for that point had printed out as "0".

While doing the 4:00 p.m. Control Room Indicator review, the same Reactor Operator found FI-424 reading "0" and asked the Senior Control Operator (SCO) if he knew of any reason for the "0" reading. The Reactor Operator checked the 4:00 p.m. ERFIS printouts and found the quality code for 3:00 p.m. indicating "BAD" and the reading for FI-424 to be "0". The Shift Supervisor was notified of the failed indicator. The Reactor Operator then went back to the 3:00 p.m. ERFIS printout and found that the quality code for the point had printed out "BAD" at that time, and that it was also indicating "0". He initialed the 3:00 p.m. "BAD" indication at this time, but did not document that it was a late entry. After management reviewed the event, the Reactor Operator was relieved of his watch at 5:40 p.m., and was subsequently terminated.

Work Request 94-AJNL1 was written and I&C was notified. FT-424 was taken out of service (bi-stable tripped) per Operations Work Procedure, OWP-31-LFT-4, at 4:25 p.m. A blown fuse was found in the isolation amplifier for FI-424. All protective functions remained operable for the channel before and after the bi-stable was tripped. FI-424 was placed back in service at 7:19 p.m. that evening.

The Control Room Indicator Review includes monitoring of the RTGB indicators, recorders, lighted annunciators, Control Room panels, scheduled ERFIS printouts, alarm printouts, and the Fire Alarm Computer display. The operator stated that several activities were in progress at the time of the review, including the

performance of MST-021, "Reactor Protection Logic Train "B" at Power", and maintenance work on feedwater heater level control switches. He also stated that two individuals were standing at the RTGB recording information related to FI-605, and that he stepped around them to continue his review. FI-605 is located in the same area of the RTGB as FI-424. It appears that the RO missed reading the indicator as he moved around the individuals at the RTGB. In any case, the review was inadequate.

Once the RO completed his 3:00 p.m. RTGB review, he started his review of the ERFIS printouts. The printout is typically 10-12 pages. On the Hourly Hot Log there were two indications that problems existed with the FI-424 reading. This log provides a "Current Quality" code for each of the data points and the actual hourly reading of each indicator over the last 24 hour period. The report listed the Current Quality code as "BAD"" and the 3:00 p.m. reading as "0" for FI-424.

The RO indicated that his normal method of reviewing the log was to check the quality codes and then compare the current reading to the previous hours. He was uncertain as to how both indications could have been missed during his review.

Operations Directive 93-016 requires the individual performing the review to initial the Hot Operations Log Sheet once the hourly Control Indicator Review is complete. While no other initials are required, there is a standard practice of initialing the ERFIS printout cover sheet to indicate that the logs have been reviewed. The RO indicated that he typically initials the first time that an indication is "BAD". In this particular case the RO did not identify that FI-424 had failed to "0" until he performed his 4:00 p.m. RTGB review. Once he noted the failed indicator, he asked the Senior Reactor Operator if there was any reason the indicator should be reading "0". He also reviewed the 4:00 p.m. ERFIS printout and noted that the indicator read "0" at 3:00 p.m. and 4:00 p.m. He then retrieved the 3:00 p.m. ERFIS printouts and determined that the printout indicated that the FI-424 Current Quality code had been "BAD" and the reading had been "0". He then initialed the 3:00 p.m. printout to indicate that this was the first time that code was listed as "BAD". In an interview with the Operations Manager and Shift Operations Manager immediately following the event he admitted that he did not detect the bad indication at 3:00 p.m., but initialed the 3:00 p.m. quality code after it was identified during the 4:00 p.m. review. Licensee management, after reviewing the circumstances of the event, relieved the Reactor Operator of his watch at 5:40 p.m., and subsequently terminated him.

Technical Specification 6.5.1.1, Procedures, Tests and Experiments, requires in part, that written procedures be established, implemented and maintained covering the activities

specified in Appendix A of Regulatory Guide 1.33, Rev. 2, February 1972, including power operation and process control.

Operations Directive 93-016, Control Room Indicator Review provides instruction to the operators concerning the performance of control room indication review. Implicit in this requisite is the expectation that the operators know the status of the plant.

Contrary to the above, at 2:19 p.m. on July 7, 1994, RCS Loop 2 Flow Indicator, FI-424, failed to "0". At 3:15 p.m., the operator completed a control room indicator review per Operations Directive 93-016, Control Room Indicator Review. The operator failed to detect that FI-424 was indicating "0", that the ERFIS "Current Quality" code for the ERFIS ID Point Number for FI-424 had printed out as "BAD", or that the 3:00 p.m. ERFIS reading for that point had printed out as "0".

After careful consideration of the circumstances associated with this event, foremost being the safety significance, this violation will not be subject to enforcement action because the licensee's efforts in identifying and correcting the violation meet the criteria specified in Section VII.B of the Enforcement Policy. This event will be tracked as NCV: 94-17-04, Operator Failure To Adequately Monitor Plant Status.

e. Followup on Previous Operation Findings

(Closed) URI 94-16-02 Inoperable Post Accident Containment Vent Path.

As reported in Inspection Report 5-261/94-16, on May 31, 1994, during a routine tour of the BIT room, the inspectors observed that the inlet and outlet dampers for the B PACV filter were closed with clearance tags attached. The inspectors questioned the shift supervisor on the operability of the system since the dampers blocked flow through the B train PACV flowpath. Specifically, the inspectors were concerned that access to these dampers would be restricted following a LOCA due to prohibitive radiation levels from adjacent piping in the room which would contain reactor coolant. Later that day, the clearance tags were removed and the dampers were returned to the open position.

On June 8, 1994, the inspectors were advised that licensee analysis indicated that calculated radiation exposures would not have precluded restoring the system to service following a LOCA. Based on times obtained to restore the dampers during trial runs and calculated radiation levels, the licensee stated that the train could be returned to service with an exposure of about 150 mRem.

During this report period, the inspectors reviewed the regulatory requirements associated with the PACV system as well as the

description of the system's function and design basis as delineated in the UFSAR.

The Post-Accident Venting System consists of two full capacity supply lines through which hydrogen-free air can be admitted to the containment, two full capacity exhaust lines through which hydrogen bearing gases may be vented from the containment, and associated valving and instrumentation.

Operation of the Post-Accident Venting System does not require the use of fans during venting. Rather, based on the containment hydrogen concentration and on the hydrogen generation rate, the operator will determine the flow rate required to maintain the hydrogen concentration at three percent by volume by venting the containment. The operator will determine the containment pressure necessary to obtain the required vent flow, and hydrogen-free air will be pumped into the containment, using either the station air compressor or one of the two instrument air compressors, until the required containment pressure is reached. The air supply will then be stopped and the supply line isolated. Venting will then be started by opening the containment exhaust line to the plant vent through the B train of PACV, and adjusting the throttling valve to obtain the required flow. Operation will continue as required to maintain the hydrogen concentration at approximately three percent by volume.

Operation of the Post-Accident Venting System is performed via Operating Procedure OP-922, Post Accident Containment Hydrogen Reduction/Venting System. Although the preferred method of hydrogen abatement is through the use of a shared hydrogen recombiner which is normally stored at another facility, in the event the recombiner was not available, the technique described above would be employed. In such an event, OP-922 directs the operators to align the system such that containment would be vented through the B PACV filter unit, which during the time in question, would have been isolated by the aforementioned dampers.

The inspectors reviewed the circumstances which lead the operators to render the PACV filter unit inoperable, yet take no compensatory measures, or limit the time the system would be inoperable.

The applicable Technical Specification 3.3.5, requires only that the valves in the system be operable before the unit is critical. Although it could be argued that implicit in this requirement is the requisite that the system be maintained operable during the operation of the plant, the licensee disagrees. The licensee stated that the PACV system would not be required to be used until approximately 30 days after the accident, and that time would be sufficient to make any necessary repairs to the system if needed. The inspectors do not totally disagree with the licensee's position, but surmised that the position was predicated on the

belief that the portions of the system in need of repair would be readily accessible in the post LOCA environment. This may not be the case, depending on the component in need of repair.

The inspectors reviewed OMM-005, Clearance And Test Request, OMM-004, Operations Work Procedure, OMM-007, Equipment Inoperable Record and OMM-008, Minimum Equipment List And Shift Relief and interviewed a number of Senior Reactor Operators to comprehensively evaluate the means employed by the operators in removing equipment from service. From this review, the inspectors concluded that there exists no procedural guidance to assist the operators in properly evaluating and/or removing a piece of equipment from service if that piece of equipment does not have a specific TS action statement associated with its removal. This is true even if the equipment may be called upon to function during or after an accident. Two examples of such equipment are the AMSAC and PACV systems.

10 CFR 50 Appendix B Criterion V requires that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstances, that these instructions, procedures or drawings include appropriate acceptance criteria, and that the activities be performed in accordance with these instructions, procedures, or drawings.

On May 31, 1994, the inspectors concluded that there exists no procedural guidance to assist the operators in properly evaluating and/or removing a piece of equipment from service if that piece of equipment does not have a specific TS action statement associated with its removal, (examples are fire protection equipment, RETS equipment, and dedicated shutdown equipment), even though the equipment in question may be called upon to function during or after an accident.

Two examples of such equipment are the AMSAC and PACV systems. This lead operators to render the B train of the PACV system inoperable with no time limit on the time the equipment could remain inoperable or if the equipment could be returned to service, during or after an accident. This is identified as a violation, VIO: 94-17-01, Inadequate Procedures Governing Equipment Control. URI 94-16-02, Inoperable Post-Accident Containment Vent Path, is closed.

4. Maintenance Observation (62703)

a. General

The inspectors observed safety-related maintenance activities on systems and components to ascertain that these activities were conducted in accordance with TSs and approved procedures. 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 followed. In particular, the inspectors observed/reviewed the following maintenance activities detailed below:

WR/JO 94-BYG191	Calibrate Narrow Range PPS Flow Transmitters
WR/JO 94-ABAW1	Repair Air Leak On Solenoid For EDG B
WR/JO 94-AJCQ1	Repair Air Leak Between DA-19B and DA-20B

b. PPS Wide Range Flow Instruments

The inspectors witnessed performance of a portion of WR/JO 94 BYG191 Calibration Of Narrow Range Flow Transmitters on June 23, 1994. The conduct of the calibration was satisfactory.

During the post-maintenance review of the work, the inspectors questioned the licensee on why no calibration was performed on the wide range flow indicators. These wide range rotameters were installed in May 1992 by MOD-1094 to expand the range of PPS flow rates which could be monitored by installed plant instrumentation. Though the "C" train PPS wide range instrument had been in service at least since the end of RFO-15 (in excess of three months), neither it nor any of the other wide range PPS flow instruments were included in the licensee's calibration program. Given that the licensee utilizes the PPS system to accomplish 10 CFR 50 Appendix J and Sensitive Leak Rate Testing per TS 4.4.1.2.a, the inspectors were concerned that required testing was being accomplished using instruments outside the calibration program.

In response to their questions, the inspectors were provided Engineering Evaluation 93-065, Rotameter Calibration and Range Evaluation dated July 26, 1993. This EE concluded that calibration of the wide range PPS rotameters was not necessary unless improper operation of the instruments was suspected. Instead, the EE recommended an inspection of the rotameters at least every refueling outage.

The inspectors reviewed the EE and concluded that the logic presented to not routinely calibrate the wide range flow transmitters was weak. Specifically, the EE:

- cited contacts with other utilities, many of which calibrated rotameters used in alternate applications

- failed to address the implications of a TS 4.4 bases sentence which states that the PPS flow measurement

accuracy is within plus or minus one percent. (This was noted in a licensee review of the EE but dismissed by stating that the PNSC had approved a then proposed TS basis change.)

- failed to resolve a conflict with a requirement in Section 8 of the corporate QA manual that instruments used to verify data points required by TS be in a calibration program. (This issue was also raised by a licensee review of the EE but no clear rebuttal was made by the NED author.)

- failed to document consideration of the fact that ANSI/ANS 56.8-1987, Containment System Leakage Testing Requirements, recommends specific calibration frequencies for flow instruments used in Type B testing. (The licensee is not committed to this standard.)

10 CFR 50 Appendix B Criterion XII requires that measures be established to assure that instruments used in activities affecting quality are properly controlled and calibrated.

Contrary to the above, on June 23, 1994, the penetration pressurization system wide range flowmeters were not included in the licensee's calibration program. At the time of this observation, the C train penetration pressurization system flowrate was being monitored by the wide range instrument. This is a violation, VIO 94-17-05: Failure To Include Wide Range Penetration Pressurization Flowmeters In Calibration Program.

The inspectors were advised at the end of the inspection period, that the an engineering evaluation will be performed to address the appropriate calibration interval for the PPS wide range flowmeters. Additionally, the licensee stated their intention to generate an ACR to review this event.

5. Surveillance Observation (61726)

a. General

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 procedure 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 test

instrumentation was properly calibrated. Specifically, the inspectors witnessed/reviewed portions of the following test activity:

OST-252 RHR Component Test (Quarterly)

b. RHR System Component Test

On July 6, 1994, the inspectors witnessed performance of Operations Surveillance Test, OST-252, RHR Component Test (Quarterly). This test cycles various RHR system related valves to assess their performance and operational readiness.

Overall, the inspectors concluded that the performance of the test was satisfactory. Strengths noted included consistent use of the licensee's self-check program by the operators, identification and documentation of procedural deficiencies by control room watchstanders, and involvement of the SCO and STA in overseeing and monitoring the test.

During performance of the test, the inspectors questioned the shift supervisor on the need to declare an entry into a TS LCO action statement based on the cycling of the RHR-752 A and B and RHR-759 A and B valves. These valves isolate the appropriate RHR pump suction and RHR heat exchanger discharges, respectively. The valves are normally open and do not receive a signal to open when an SI is initiated. The inspectors were concerned that if an SI signal were actuated with any of the 4 valves shut, a train of RHR would be unavailable for automatic injection. Following this discussion and after a review of the system drawing, the SS entered and exited the appropriate TS LCO action statement prior to cycling these valves.

The inspectors noted that entry into a TS LCO action statement was not documented for the last two performance of this surveillance test contained in the vault. However, the inspectors are aware that action statements are routinely entered for some other safety system surveillances. During followup discussions on this issue on July 7, 1994, licensee management indicated they had generated an ACR to evaluate the need for a consistent approach to TS LCO action statement entry for surveillance testing as a result of a recent, similar NAD finding. The inspectors will monitor licensee efforts in this area during monitoring of surveillance testing.

6. Exit Interview (71701)

The inspection scope and findings were summarized on July 22, 1994, 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. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

Item Number	Description/Reference Paragraph
VIO: 94-17-01	Inadequate Procedures Governing Equipment Control/paragraph 3.e.
VIO: 94-17-02	Failure To Correct Improperly Routed Instrument Sensing Lines/paragaph 3.b.1.
URI: 94-17-03	RHR System Concerns Resulting From FI-605 Inspection Effort/paragraph 3.b.2.
NCV: 94-17-04	Operator Failure To Adequately Monitor Plant Status/paragraph 3.d.
VIO: 94-17-05	Failure To Include Wide Range Penetration Pressurization Flowmeters In Calibration Program/paragraph 4.

7. List of Acronyms and Initialisms

ACR	Adverse Weather Condition
AMSAC	ATWS Mitigating System Actuation Circuitry
AWC	Adverse Condition Report
ATWS	Anticipated Transient Without Scram
BIT	Boron Injection Tank
ECCS	Equipment Core Cooling System
EDG	Emergency Diesel Generator
EE	Engineering Evaluation
EPP	End Path Procedure
ERFIS	Emergency Response Facility Information System
FI	Flow Indication
FT	Flow Transmitter
gpm	Gallons Per Minute
I&C	Instrument & Control
LCO	Limiting Condition For Operation
LOCA	Loss of Coolant Accident
MST	Maintenance Surveillance Test
NAD	Nuclear Assessment Department
NCV	Non-Cited Violation
NED	Nuclear Engineering Department
OMM	Operation Management Manual
PACV	Post Accident Containment Vent
PPS	Penetration Pressurization System
QA	Quality Assurance
RETS	Radiological Environmental Technical Specifications
RHR	Residual Heat Removal
RTGB	Reactor Turbine Gage Board

STA	Shift Technical Adviser
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
WR/JO	Work Request/Job Order