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

Report Nos. 50-413/88-18 and 50-414/88-18

Licensee: Duke Power Company
422 South Church Street
Charlotte, N.C. 28242

Docket Nos.: 50-413 and 50-414 License Nos.: NPF-35 and NPF-52

Facility Name: Catawba 1 and 2

Inspection Conducted: April 26, 1988 - May 27, 1988

Inspectors: P. K. Van Doorn — Date Signed: 6/15/88

M. S. Lesser — Date Signed: 6/15/88

Approved by: T. A. Peebles, Section Chief — Date Signed: 6/16/88
Projects Branch 3
Division of Reactor Projects

SUMMARY

Scope: This routine, inspection was conducted on site inspecting in the areas of review of plant operations; surveillance observation; maintenance observation; review of licensee nonroutine event reports; followup of previously identified items.

Results: A weakness was identified in that a large number of human errors have occurred in 1988. An example of this weakness is the fact that 18 of the first 32 Licensee Event Reports of 1988 involved human error, see paragraph 7.

Within the areas inspected, the following violations were identified:

- Inadequate Measures to Assure Stopwatches used in TS Surveillance are Controlled and Calibrated, paragraph 5.c.

- Failure to Retest Valve 2BB-61B After Maintenance, paragraph 7.b.

One unresolved item was identified involving corrective action regarding valve failures in the Residual Heat Removal System, paragraph 8.a.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

H. B. Barron, Operations Superintendent
W. F. Beaver, Performance Engineer
*W. H. Bradley, QA Surveillance
S. W. Brown, Reactor Engineer
R. N. Casler, Unit 1 Coordinator
R. H. Charest, Station Chemistry Supervisor
S. S. Cooper, Operating Engineer
M. A. Cote, Licensing Specialist
*T. E. Crawford, Integrated Scheduling Superintendent
W. P. Deal, Health Physics Supervisor
*R. M. Glover, Compliance Engineer
C. S. Gregory, I&E Support Engineer
*T. Harrall, Design Engineering
F. N. Mack, Project Services Engineer
W. W. McCollough, Mechanical Maintenance Supervisor
W. R. McCollum, Station Services Superintendent
*C. E. Muse, Unit 2 Coordinator
*T. B. Owen, Station Manager
F. P. Schiffley, II, Licensing Engineer
*G. T. Smith, Maintenance Superintendent
J. M. Stackley, I&E Engineer
*D. Tower, Shift Operating Engineer
*R. F. Wardell, Technical Services Superintendent
*R. White, CSRG
J. W. Willis, Senior QA Engineer, Operations

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

*Attended exit interview.

2. Licensee Action On Previous Enforcement Matters (92702)

a. (Closed) Unresolved Item 413,414/87-36-01: Review of Environmental Qualification of Accident Monitoring PTD Instrumentation.

This issue has been addressed in NRC Report 413,414/88-07 and is, therefore, closed.

b. (Open) Unresolved Item 413,414/87-33-01: Two Channels of Valve Position Indication for PORVs and PORV Block Valves Not Installed As Required by TS 3.3.3.6.

The licensee's design of valve position indications on the PORV and PORV Block valves appears to meet the requirements of TMI-2 Action Plan Item II.D.3 and Regulatory Guide 1.97, Instrumentation for Light water Cooled Nuclear Power Plants to Assess Plant and Environs During and Following An Accident. The instruments are a type D variable Category 2 which do not require redundancy per Reg. Guide 1.97. The Technical Specification, therefore, may be in error. The licensee determined, however, that a second independent channel exists at the test patch panel for the PORV block valves and will use that channel with the control board channel to meet the TS requirements. A modification to display test patch panel information is being generated. The licensee will use a non-qualified, strap on Resistance Temperature Detector (RTD) on the common discharge header of the PORVs as the TS required second channel for the PORVs. PT/1(2)/A/4600/03A, Monthly Surveillances, is being revised to accomplish the required channel checks. These measures were discussed with K. Jabbour of NRR/OD23, Calvin Moon of NRR/OTSB and Barry Marcus of NRR/SICB and found to be acceptable on an interim basis until a TS amendment requiring one channel per valve is submitted and approved by NRR. The licensee will initiate a Licensee Event Report relative to past TS compliance. Further review of historic compliance with TS and the licensee report will be conducted by the inspector.

No violations or deviations were identified.

c. (Closed) Inspector Followup Item 414/87-16-01: Complete Test Procedures TP/2/A/2650/06 and TP/2A/2100/01 by May 31, 1987.

Photo copies of the completed test procedures were reviewed in the Region II office. The missing initials, dates, and signoffs identified in the inspection were in place. This item is closed.

d. (Closed) Exercise Weakness 413,414/88-03-01: Failure to Provide Timely HP Support to the Site of a Contaminated Medical Emergency.

The licensee committed to conducting a remedial onsite medical drill as a result of this weakness. The drill was witnessed by the inspectors on May 12. HP support was observed to be promptly on the scene. Based upon this, the item is closed.

3. Unresolved Items

One new unresolved item is identified in paragraph 8.a. An Unresolved Item is a matter about which more information is required to determine whether it is acceptable or may involve a violation.

4. Plant Operations Review (Units and 2) (71707 and 71710)

a. The inspectors reviewed plant operations throughout the reporting period to verify conformance with regulatory requirements, Technical

Specifications (TS), and administrative controls. Control room logs, danger tag logs, Technical Specification Action Item Log, and the removal and restoration log were routinely reviewed. Shift turnovers were observed to verify that they were conducted in accordance with approved procedures.

The inspectors verified by observation and interviews, that the measures taken to assure physical protection of the facility met current requirements. Areas inspected included the security organization; the establishment and maintenance of gates, doors, and isolation zones in the proper condition; and that access control and badging were proper and procedures followed.

In addition to the areas discussed above, the areas toured were observed for fire prevention and protection activities. These included such things as combustible material control, fire protection systems and materials, and fire protection associated with maintenance activities. The inspectors reviewed Problem Investigation Reports to determine if the licensee was appropriately documenting problems and implementing appropriate corrective actions.

b. Unit 1 Summary

The unit began the inspection period at 100% power and remained at 100% until May 23 when power was reduced to 95% due to a Main Feedwater (CF) control problem. Power was reduced to allow a CF flow control valve to be placed at less than 100% full open to allow for transient response. The problem was still being evaluated and the unit remained at 95% power at the end of the period.

c. Unit 2 Summary

The unit began the period in Mode 3 in an outage to correct an exciter ground. Startup occurred May 3 and the unit reached 100% power on May 4. The unit remained in power operations, reducing power on weekends for load following, ending the period at 100% power.

No violations or deviations were identified.

5. Surveillance Observation (Units 1 and 2) (61726)

a. During the inspection period, the inspector verified plant operations were in compliance with various TS requirements. Typical of these requirements were confirmation of compliance with the TS for reactor coolant chemistry, refueling water tank, emergency power systems, safety injection, emergency safeguards systems, control room ventilation, and direct current electrical power sources. The inspector verified that surveillance testing was performed in accordance with the approved written procedures, test instrumentation was calibrated, limiting conditions for operation were met,

appropriate removal and restoration of the affected equipment was accomplished, test results met requirements and were reviewed by personnel other than the individual directing the test, and that any deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

b. The inspectors witnessed or reviewed the following surveillances:

Diesel Generator 2A Operability (twice)	PT/2/A/4350/02A
Periodic Surveillance Items	PT/1/A/4600/02A
SSF Diesel Test	PT/0/A/4200/017
Electrical Penetration O-Ring Test	PT/2/A/4200/01B
SSF Makeup Pump Performance Test	PT/2/A/4200/07C
BB Valve Inservice Test	PT/2/A/4200/17
Containment Air Return Fan and Hydrogen Skimmer Fan Performance Test	PT/1/A/4450/05A

c. On May 18 the inspectors witnessed portions of PT/1/A/4450/05A, Containment Air Return Fan and Hydrogen Skimmer Fan 1A Performance Test. The following observations were noted:

- Independent verification of damper position and fan status was not totally independent in that the first checker assisted and influenced the second checker.

- Difficulty was encountered in using keys to turn locked test switches since the key labeling did not match the switch labeling.

- Unauthorized writing and inscriptions were observed near component labels with information such as key numbers, power supplies, additional switch names, etc.

These items were discussed with plant management. The licensee has recognized weaknesses with operator/technician independent verification as a result of previous problems with jumpers, sliding links, etc., and is upgrading training and guidance in this area (refer to Unresolved Item 413,414/88-13-02). Additionally, the

licensee is reviewing their key labeling program and feedback program for component labeling problems.

Part of the test required the technicians to verify 1ARF-D2, Containment Air Return Fan Discharge Damper, begins opening after a delay of 10 +/-0.8 seconds upon an Engineered Safety Features signal. This meets the requirements of Technical Specification 4.6.5.6.1.d. The technicians incorrectly timed the damper from signal initiation until the damper fully opened instead of until the damper began opening and thus exceeded the acceptance criteria. They later realized the error, however, the test was declared acceptable without being performed again based upon observing the damper beginning to open within the 10+/-0.8 second criteria while the stopwatch continued to run. When the inspectors questioned the acceptability of this method the licensee decided to conduct the test again and successfully did so on May 20.

While witnessing the May 18 test, the inspectors observed the technicians using an uncontrolled personal wrist watch to measure the delay time. The inspectors informed the licensee that this was unacceptable. The licensee stated that controlled stopwatches are available for use however they do not have a program to periodically check and calibrate the stopwatches. The licensee had been in the process of procuring calibrated stopwathces and later informed the inspectors that some have been obtained and will be used. This is identified as a violation of 10 CFR 50, Appendix B, Criterion XII, violation 413,414/88-18-01: Inadequate Measures to Assure Stopwatches Used in T.S. Surveillances are Controlled and Calibrated.

One violation was identified as described above.

6. Maintenance Observations (Units 1 and 2)(62703)

a. Station maintenance activities of selected systems and components were observed/reviewed to ascertain that they were conducted in accordance with the requirements. The inspector verified licensee conformance to the requirements in the following areas of inspection: the activities were accomplished using approved procedures, and functional testing and/or calibrations were performed prior to returning components or systems to service; quality control records were maintained; activities performed were accomplished by qualified personnel; and materials used were properly certified. Work requests were reviewed to determine status of outstanding jobs and to assure that priority is assigned to safety-related equipment maintenance which may effect system performance.

b. The inspector witnessed the following maintenance activities:

Installation of Air Cooling Fans of 7300 Process Control Cabinet	NSM CN20367 (TN/2/A/0367/BL1)

Inspect/Repair Starting Air Valves of D/G 1B	MP/0/A/7400/52

No violations or deviations were identified.

7. Review of Licensee Nonroutine Event Reports (Units 1 and 2) (92700)

a. The below listed Licensee Event Reports (LER) were reviewed to determine if the information provided met NRC requirements. The determination included: adequacy of description, verification of compliance with Technical Specifications and regulatory requirements, corrective action taken, existence of potential generic problems, reporting requirements satisfied, and the relative safety significance of each event. Additional inplant reviews and discussion with plant personnel, as appropriate, were conducted for those reports indicated by an (*). The following LERs are closed:

*414/88-12	Reactor Trip Followed by Swap of AFW System to NSW System due to Equipment Failures
*414/88-15	Technical Specification Violation Caused by Missed Retest Due to a Personnel Error (See below)

b. On March 15, 1988, the Unit 2 supervisor authorized maintenance activities on 2BB-61B, Steam Generator 2C Blowdown Containment Isolation Valve, to repair a packing leak while the unit was in Mode 4. The valve was not recognized as a containment isolation valve by the unit supervisor and therefore failed to be stamped "Tech Spec Related" and declared inoperable. This contributed to the failure of the valve to be retested prior to unit startup on March 18. The licensee reported this in LER 414/88-15. The valve was properly tested on March 29.

The licensee has failed to properly retest components after maintenance on several occasions over the past two years. The following examples are listed.

- LER 414/86-25, Main Feed (CF) and Blowdown (BB) containment isolation valves not retested after maintenance (Violation 413/86-24-01, 414/86-26-01)

- LER 413/87-19, Auxiliary Feedwater (CA) check valves not retested after replacement (Licensee Identified Violation)

- LER 413/87-30, 1NI-120 not retested after torque switch replacement

- LER 413/87-32, 125V vital batteries not retested after battery strap replacement

- LER 414/87-31, Diesel Generator Air Start Valves (VG) not retested after maintenance

- LER 414/88-15; 2BB-61B not retested after maintenance.

Various personnel errors and deficiencies from different departments have contributed to the missed retests. The end result, however, is that failures to retest continue to reoccur. The failure to retest 2BB-61B is therefore identified as violation 414/88-18-04; Failure to Retest Valve 2BB-61B after maintenance.

c. The inspectors also reviewed LER 413/88-17, Activation of Reactor Trip Breaker Due to Personnel Error and LER 413/88-18, Auto Swap Signal for NSW Swap to Standby Nuclear Service Water Pond Due to Personnel Error. Although these individual events do not appear significant, the inspectors are concerned that a high number of personnel errors continue to occur. A review of the first 32 LERs for 1988 disclosed that 18 involved personnel errors. Two other incidents involving inoperability of the Containment Air Return System on May 6 and a situation where the wrong input was disconnected for Steam Generator Level Control and Rod Speed Control on May 11 appear to also involve personnel error, although these are still being evaluated by the licensee. The licensee appears to be taking stronger and more generic corrective actions as evidenced by the corrective actions described in the LERs. In addition, licensee management has agreed with the inspectors that improvement is necessary and appropriate corrective actions will be implemented. The inspectors will continue to follow the licensee's corrective actions in this area. this is Inspector Followup Item 413,414/88-18-02: Followup of Corrective Actions Regarding Excessive Personnel Errors.

One violation was identified as described above.

8. Action On Previous Inspection Findings (92701)

a. (Closed) Inspector Followup Item 414/87-10-03: Review of RHR Hot Leg Suction Valves Maintenance. This item was identified on May 14, 1987 and questioned maintenance for the normal suction valves for the Residual Heat Removal System (ND). These valves (ND1B, 2A, 36B and 37A) had repeatedly been sticking at the time the item was established. Although these valves are not used in accident scenarios difficulties are experienced when the normal ND suction path cannot be established during cooldown. In the past these valves had to be opened manually. A recent event occurred during which a valve motor was defective and the valve also could not be opened manually. The licensee was requested to reevaluate the technical significance of this issue based on the recent event. In addition, the corrective action for this problem appears to be untimely. This item is upgraded to Unresolved Item 413,414/88-18-03: Evaluation of Repetitive Sticking of RHR Hot Leg Suction Valves.

b. (Open) Inspector Followup Item 413,414/88-15-04: Evaluation of Corrective Action for Diesel Generator Failures. The inspectors continued to review licensee actions relative to Diesel Generator failures, assisted by RII NRC inspectors. Additional information regarding this issue is contained in NRC Report 413,414/88-20.

9. Exit Interview

The inspection scope and findings were summarized on May 27, 1988, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings listed below. No dissenting comments were 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 and Reference
413,414/88-18-01	Violation - Inadequate Measures to Assure Stopwatches used in TS Surveillances and Controlled and Calibrated, paragraph 5.c.
413/414/88-18-02	Inspector Followup Item - Followup of Corrective Actions Regarding Excessive Personnel Errors, paragraph 7.c.
413,414/88-18-03	Unresolved Item - Evaluation of Repetitive Sticking of RHR Hot Leg Suction Valves, paragraph 8.a.
414/88-18-04	Violation - Failure to Retest Valve 2BB-61B After Maintenance, paragraph 7.b.