



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

Report Nos.: 50-413/85-20 and 50-414/85-16

Licensee: Duke Power Company  
422 South Church Street  
Charlotte, NC 28242

Docket Nos.: 50-413 and 50-414

License Nos.: NPF-35 and CPPR-117

Facility Name: Catawba 1 and 2

Inspection Conducted: April 26 - May 25, 1985

Inspectors: C. W. Burger, for  
P. H. Skinner

7/10/85  
Date Signed

C. W. Burger, for  
P. K. Van Doorn

7/10/85  
Date Signed

Approved by: H. C. Dance  
H. C. Dance, Section Chief  
Division of Reactor Projects

7/11/85  
Date Signed

SUMMARY

Scope: This routine, unannounced inspection entailed 210 inspector-hours on site in the areas of site tours (Units 1 and 2); followup of licensee and NRC identified items (Units 1 and 2); review of nonconforming item documentation (Unit 2); followup of IE Information Notices (Units 1 and 2); Instrumentation (components and systems) - observation of work (Units 1 and 2); comparison of as-built plant to FSAR description (Unit 2); maintenance observations (Unit 1); surveillance observations (Unit 1); review of non-routine event reports (Unit 1); and plant operations review (Unit 1).

Results: Of the 10 areas inspected, no violations or deviations were identified in 8 areas; one apparent violation was found in one area - (Failure to maintain cleanliness control in the diesel generator room - paragraph 5.c.), and one apparent deviation was found in one area (Failure to meet commitment to remove teflon tape - paragraph 3.d.).

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## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

J. W. Hampton, Station Manager  
E. M. Couch, Project Manager  
\*B. F. Caldwell, Station Services Superintendent  
W. M. Carwile, Test Director  
\*J. W. Cox, Superintendent, Technical Services  
T. E. Crawford, Operations Engineer  
L. R. Davison, Project QA Manager  
\*C. W. Graves, Jr., Superintendent, Operations  
\*C. L. Hartzell, Licensing and Projects Engineer  
R. D. Hellams, Engineer-Turnover  
\*C. S. Kelly, Instrumentation/Electrical Technical Support  
\*R. A. Jones, Test Engineer  
J. A. Kammer, Test Director  
\*P. G. Leroy, Licensing Engineer  
\*T. D. Mills, Construction Engineer Electrical  
\*E. B. Miller, QA Engineer  
C. E. Muse, Operating Engineer  
\*G. T. Smith, Superintendent, Maintenance  
D. Tower, Operations Engineer

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

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on May 24, 1985, with those persons indicated in paragraph 1 above. The violation, deviation, and unresolved items described in paragraphs 3.d., 5.c., 5.d., and 8.b were discussed in detail. The licensee acknowledged the findings and had no dissenting comments.

The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector during this inspection.

### 3. Licensee Action on Previous Enforcement Matters

- a. (Open) Unresolved Item 413/84-87-03: Review of Operations Corrective Action Program. The inspector met with the NCI/Non-Routine Event Task Force Director and the Catawba Compliance Engineer to be updated on the licensee efforts to address this item. A problem Investigation Report System has been proposed and has been forwarded to appropriate licensee

personnel for comment. The inspector reviewed the proposed Station Directives and PIR Flow Charts and considers the licensee to be making satisfactory progress relative to this item. This item remains open pending further review and implementation of the improved program.

- b. (Closed) Violation 413/84-106-03: Failure to meet Technical Specification (TS) Requirements for Ice Condenser Doors Prior to Changing Modes. The response for this item was submitted on March 29, 1985. The inspector reviewed and verified implementation of corrective actions described in the response and considers licensee actions to be acceptable.
- c. (Closed) Violation 413/84-106-04: Failure to Meet Procedure Requirements For Verification of Operability of the Ice Condenser. The response for this item was submitted on March 29, 1985. The inspector reviewed and verified implementation of corrective actions described in the response and considers licensee actions to be acceptable.
- d. (Open) Violation 413/84-104-01: Failure to Control Use of Teflon Tape. The response for this item was submitted on January 24, 1985 and March 14, 1985. In the response dated January 24, under Response to Part (B) item 5, Duke Power Company states in part that the tape installed by Nuclear Production in the Auxiliary Building will be removed by March 1, 1985. The inspector toured the Auxiliary Building on May 7 and noted several examples where teflon tape was still installed on system components which could possibly come in contact with reactor coolant. This is a deviation 413/85-20-02: Failure to Meet Commitment to Remove Teflon Tape.

#### 4. Unresolved Items

New unresolved items are identified in paragraphs 5.d. and 8.b.

#### 5. Independent Inspection Effort (92706) (71302) (Units 1 and 2)

- a. The inspectors conducted tours of various plant areas. During these tours, various plant conditions and activities were observed to determine that they were being performed in accordance with applicable requirements and procedures. No significant problems were identified during these tours and the various evolutions observed were being performed in accordance with applicable procedures.

During Unit 2 site tours, the inspector observed protection/storage of plant equipment such as electrical cables, electrical components, reactor vessel, reactor vessel internals, and safety-related components.

- b. The inspector reviewed Nonconforming Item Reports (NCIs) and corrective action evaluations (R6As) to determine if appropriate documentation and evaluations were being made.

- c. During a tour of the diesel generator room 1B on May 9, 1985, the inspector noted that the room was not being maintained in the cleanliness condition specified by Station Directive 3.11.1, House-keeping and Cleanliness Levels In Safety Related Areas, Revision 9. This cleanliness condition is specified as a Level IV area which specifies all dirt and debris will be removed from the area. At the time of the tour, this room had open buckets of oil, oily rags and material, a portable filter assembly which had leaked onto the floor and other accumulation of material that was not appropriate to this area. This accumulation of material and debris in addition to being a cleanliness problem, was also a fire hazard. The shift supervisor was notified of this problem and took prompt action to reestablish cleanliness requirements. This finding is a Violation 413/84-20-03: Failure to maintain cleanliness control in the diesel generator room.
- d. During the period of May 9, 1985 to May 15, 1985, Catawba experienced nine actuations of Engineered Safety Features (ESF) systems or portions thereof. Four of these actuations were associated with steam generator low low level circuitry and five were associated with low low level circuitry of the Nuclear Service Water System (RN). Preliminary investigation by the inspector indicates that several of these actuations were due to improper planning and communication. This item will be identified as Unresolved Item 413/85-20-04: Multiple Inadvertant Actuation of ESF, pending additional review by the inspector of these incidents and review of investigations conducted by plant personnel.

No violations or deviations were identified.

6. Licensee Identified Items 50.55(e) (99020) (Units 1 and 2)

- a. (Closed) CDR 414/84-05: Damaged Diesel Generator Oil Seals and Turbo Charger Thrust Bearings. Reports for this item were submitted on April 26, 1984 and July 5, 1984. The inspector reviewed these reports and verified implementation of corrective actions identified in the reports and considers licensee actions to be acceptable.
- b. (Closed) CDR 413, 414/84-08: No Circuit Protection Provided for Two DC Welding Circuits. Reports for this item were submitted on May 10, 1984 and March 1, 1985. The inspector reviewed these reports and verified implementation of corrective actions identified in the reports and considers licensee actions to be acceptable.
- c. (Closed) CDR 414/84-10: Rotork Actuators Fitted with Undersized Set Screws. Reports for this item were submitted on May 16, 1984; August 30, 1984; February 1, 1985 and April 1, 1985. The inspector reviewed these reports and verified implementation of corrective actions identified in the reports and considers licensee actions to be acceptable.



- d. (Open) CDR 414/85-02: Vendor Weld on SI Accumulator Tank-Rejectable Radiographic Indications. The inspector observed repair welding of the shell to upper head weld of Accumulator 2D. Control of Welding and non-destructive examination appeared to be adequate. This item remains open pending completion of repair welding and radiography.
- e. (Closed) CDR 414/85-04: Stainless Steel Valves Welded with Carbon Steel Filler Material. The report for this item was submitted on April 19, 1985. The inspector reviewed this report and verified implementation of corrective actions identified in the report and considers licensee actions to be acceptable.
- f. (Open) CDR 414/85-06: Overpressurization and Rupture of Volume Control Tank During Cold Hydrostatic Testing. The inspector observed welding in progress of the new Volume Control Tank being accomplished by the vendor (RECO). This including review of welding procedures, review of licensee surveillance of the vendor and visual inspection of fitup and selected welds. This item remains open pending completion of the repair work and completion of further evaluations being conducted by the licensee.

No violations or deviations were identified.

7. Followup of IE Information Notices (92717) (Units 1 and 2)

The inspector verified that the licensee had reviewed and taken appropriate corrective actions relative to Information Notice 85-15: Nonconforming Structural Steel for Safety-Related Use. The licensee evaluated the one shipment received from the vendor to be acceptable for its use in the Unit 2 Turbine Building.

No violations or deviations were identified.

8. Instrumentation (Components and Systems) - Observation of Work and Work Activities (52153) (Units 1 and 2)

- a. Requirements for installation of instrumentation are contained in various licensee specifications and site procedures. The inspector observed installed instrumentation for conformance to requirements in the areas of location, conformance to installation procedure requirements, use of specified materials and components, mounting of instruments, routing of tubing, tubing supports, inspection, separation, physical protection and record keeping. The inspector also reviewed instrumentation Departmental Audit No. CD-84-16 dated December 28, 1984. The instrument loops observed were process control loops 2KC PG 7980 (Component Cooling Pump Motor Cooler) and 2CAPG5020 (Auxiliary Feedwater Pump A Suction Pressure); ESF loops 2NSPT 5040 and 2NSPT 5380 (Containment Pressure); and safety-related display and safe shutdown loops 2FWLT5120 (Refueling Water Storage Tank Level) and 2NILT 5260 (Containment Sump Level).

b. During this review, questions arose which were unable to be fully addressed prior to the end of the inspection period. These questions involve loop 2FWLT5120 and involve additional verification required of the inspector and evaluations required by the licensee. These questions are as follows:

- (1) Verification that insulators and heat tracing personnel are adequately trained to prevent damage to safety-related instrument tubing. This verification is required since this work is conducted after construction inspections are complete.
- (2) Verification that insulation does not prevent expansion loops from functioning properly.
- (3) Verification that instruments mounted in electrical boxes are seismically mounted and properly inspected. There appeared to be some confusion as to inspection requirements for mounting of these types of instruments.
- (4) During review of the inspectors questions the licensee noted that a change to the instrument inspection instruction (M61D) had inadvertently deleted inspection of mounting. The licensee indicated that a preliminary evaluation indicated that mounting had been inspected anyway. This must be verified and the instruction must be corrected.
- (5) Loop 2FWLT5120 does not appear to meet minimum slope criteria at the expansion loop. Inspection of similar loops in Unit 1 disclosed possible slope violations in loops 1FWLT 5000, 5010 and 5120. The licensee was requested to evaluate this problem as to significance and cause.
- (6) During inspection of Unit 1 loops it was noted that heat traced loop 1FWLT5000 was not insulated. The licensee was requested to evaluate this condition.

These questions are assigned Unresolved Item No. 413/85-20-01, 414/85-16-01: Verification of Adequate Installation of Instrumentation.

No violations or deviations were identified.

9. Comparison of As-Built Plant to FSAR Description (37301) (Unit 2)

The inspector verified that control and logic instrumentation met the FSAR description for Train A of the Residual Heat Removal System.

No violations or deviations were identified.

10. Maintenance Observations (62703) (Unit 1)

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: (1) that the activities were accomplished using approved procedures, and functional testing and/or calibrations were performed prior to returning components or systems to service; (2) quality control records were maintained; (3) that the activities performed were accomplished by qualified personnel; and (4) parts 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 affect system performance. Examples of this observation was work performed to correct seat leakage of valves 1KC 50A, 1KC 53, and 1KC 995.

No violations or deviations were identified.

11. Surveillance Observations (61726) (Unit 1)

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, residual heat removal, control room ventilation, and DC electrical power sources. The inspector verified that surveillance testing was performed in accordance with 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.

Typical of the surveillance items that were witnessed in part or in full were weighing of high pressure carbon dioxide cylinders, 125 VDC Essential Diesel Auxiliary Power System Battery Service Test, and various calibrations of portions of the nuclear instrumentation and radiation monitoring systems.

No violations or deviations were identified.

12. Review of Licensee Nonroutine Event Reports (92700) (Unit 1)

The below listed Licensee Event Reports (LERs) were reviewed to determine if the information provided met NRC requirements. The determination included: adequacy of description, verification of compliance with TS 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 asterisk (\*). The following LER's are closed:

84-22*	11/15/84	Inoperable Emergency Core Cooling Flowpath
84-23*	11/19/84	ESF Actuation-Auxiliary Feedwater Pump Start Due To Trip Of Main Feedwater Pump
84-24*	11/24/84	Low-Low Steam Generator LC Level Actuation Of Motor Driven Auxiliary Feedwater Pumps
84-25*	11/27/84	Auto Start Of Auxiliary Feedwater Pumps On A Trip of Main Feedwater Pumps
84-26	11/27/84	Required Fire Watches Not Performed
84-28	12/5/84	ESF Acutation Due To Blackout on Essential Switchgear
84-29*	12/6/84	Potential Loosening Of Control Rod Drive Mechanism Set Screws
84-30	11/29/84	Containment Penetration Leak Rate Test Improperly Performed
85-02*	12/31/84	Ice Condenser Lower Inlet Doors Blocked Open
85-04*	1/14/85	Manual Trip Of Reactor Following Loss Of Cooling Water To Reactor Coolant Pumps Motors
85-06	1/20/85	Inadvertant Cooldown During Natural Circulation Test
85-10	2/1/85	Power Range Instrumentation Neutron Flux - High Negative Rate Trip
85-12	2/9/85	Safety Injection Caused By A Static Inverter Failure
85-16	3/2/85	Incorrect Calibration Of Power Range Trip Setpoints
85-20	3/14/85	Reactor Trip Caused By A Loose Power Range Detector Cable
85-21*	3/13/85	Inoperable Turbine Driven Auxiliary Feedwater Pump



85-23

3/29/85

Seventy-five Percent Power Exceeded  
During Testing Prior To Authori-  
zation

No violations or deviations were identified.

13. Plant Operations Review (Unit 1) (71707 and 71710)

The inspectors reviewed plant operations throughout the reporting period to verify conformance with regulatory requirements, TS and administrative controls. Control room logs, danger tag log, TS 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 also verified by observation and interviews, that measures taken to assure the 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, 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 and construction activities.

During this inspection period the inspector reviewed the Auxiliary Shutdown Panels instrumentation and controls against the controls listed in FSAR Tables 7.4.7-1, 7.4.7-2, and 7.4.7-3. A comparison of the listed instruments actually installed on these panels shows that there are several instruments and controls that do not agree with the instruments identified in these tables. This was discussed with the licensee. The licensee provided the inspector a proposed change in the FSAR (Revision 12) which identifies some of the differences but this proposed change does not identify all the differences. The licensee has stated that another revision is being developed for submittal to the NRC for approval prior to fuel load on Unit 2. Based on this discussion, this item is identified as an Inspector Follow-up Item 413/85-20-05: Correction of FSAR Tables 7.4.7-1, 7.4.7-2, and 7.4.7-3.

No additional violations or deviations were identified.

14. Previously Identified Inspector Findings (92701) (Unit 1)

(Closed) Inspector Followup Item 413/84-79-02: Completion of Core Damage Mitigation Training. The licensee committed to completion of core damage mitigation training for applicable personnel by completion of full power testing. The inspector reviewed the training and selected training records of various personnel. Based on this review this item is closed.