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

Report Nos. 50-413/86-24 and 50-414/86-26

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: May 26 - June 25, 1986

Inspectors: C. W. Burger, for — 7/14/86
P. K. Van Doorn — Date Signed

C. W. Burger, for — 7/14/86
P. H. Skinner — Date Signed

C. W. Burger, for — 7/14/86
M. S. Lesser — Date Signed

Approved by: T A Peebles — 7/24/86
T. Peebles, Section Chief — Date Signed
Projects Branch 3
Division of Reactor Projects

SUMMARY

Scope: This routine, unannounced inspection was conducted on site inspecting in the areas of, review of plant operations (Units 1 & 2); surveillance observation (Units 1 & 2); maintenance observation (Units 1 & 2); review of licensee nonroutine event reports (Units 1 & 2); procedures (Units 1 & 2); survey of Licensee Response to Safety Issues (Units 1 & 2), Followup of Information Notices (Units 1 & 2); and preparations for refueling (Unit 1).

Results: Of the eight (8) areas inspected, two (2) apparent violations were identified, (Failure to follow procedures, paragraphs 6.b and 11.d; and Failure to provide adequate procedures, paragraph 11.b).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

J. W. Hampton, Station Manager
E. M. Couch, Construction Maintenance Central Manager
H. B. Barron, Operations Superintendent
*M. J. Brady, Asst. Operating Engineer
A. S. Bhatnager, Performance Engineer
T. B. Bright, Construction Engineer Manager
S. Brown, Reactor Engineer
B. F. Caldwell, Station Services Superintendent
*J. W. Cox, Superintendent, Technical Services
T. E. Crawford, Operations Engineer
L. R. Davidson, QA Manager Technical Support
B. East, I. & E. Engineer
*C. S. Gregory, I. & E. Support Engineer
C. L. Hartzell, Licensing and Projects Engineer
*J. A. Kammer, Performance Test Engineer
*J. Knuti, Operating Engineer
P. G. LeRoy, Licensing Engineer
W. W. McCollough, Mechanical Maintenance Supervisor
*W. R. McCullum, Superintendent, Integrated Scheduling
C. E. Muse, Operating Engineer
K. W. Reynolds, Construction Maintenance
*F. P. Schiffley, II, Licensing Engineer
G. T. Smith, Maintenance Superintendent
J. Stackley, I. & E. Engineer
D. Tower, Operating Engineer

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

*Attended exit interview.

2. Exit Interview

The inspection scope and findings were summarized on June 25, 1986, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings. 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.

3. Licensee Action on Previous Enforcement Matters (Units 1 & 2) (92702)

a. (OPEN) Unresolved Item 413/84-87-03; Review of operations corrective action program. The inspectors reviewed the employee training presentation for the Problem Investigation Report program being developed to answer this item. This presentation appears acceptable. This item remains open pending full implementation of the new program.

b. (OPEN) Unresolved Item No. 414/85-56-03: Evaluation of Human Engineering Discrepancies in Control Room. The discrepancies identified by this item have been corrected except for numbers on I/R Amps meter and the legends not removed for valves 2RC3, 2RC4, 2ND26 and 2ND60. Further review will be conducted regarding the remaining two items.

c. (CLOSED) Unresolved Item 414/86-22-01 : Review of Licensee Actions Concerning Control of Welding Inserts. The licensee had completed the review of this issue. The inspector held discussions with licensee personnel to review the findings. It appears that reuse of the inserts was being considered only if they could be fully justified by reestablishing traceability plus providing further technical justification. It is clear that new inserts were used and there is no evidence that a coverup was attempted. Quality Assurance personnel were cognizant of the problem during its initial stages. The inspector considers licensee actions regarding this item to be acceptable.

No violations or deviations were identified.

4. Unresolved Items *

A new unresolved item is identified in paragraph 11.c. * An Unresolved Item is a matter about which more information is required to determine whether it is acceptable or may involve a violation.

5. Plant Operations Review (Units 1 & 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, 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, 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.

b. On June 5, 1986, the licensee requested a seventy-two (72) hour extension to the time allowed under the Action statement of Technical Specification (TS) 3/4.4.6.2 "Operational Leakage". This request was made due to an unidentified leakage of 1.9 gpm. The request was to allow the unit to remain in Hot Standby to identify the leak. Relief was granted based on discussions between NRR, Region II, the Resident Inspector and the licensee. The licensee has addressed this issue in a letter to Region II dated June 10, 1986.

c. At approximately 11:00am on June 13, 1986, the computer program for calculating unidentified leakage was showing 1.7gpm unidentified leakage. An Unusual Event was declared at 3:00pm. At 3:42pm, a breaker shorted in a turbine building non-safety related power panel (1MXD) causing smoke and damage to the panel along with a loss of power to all loads served by that panel. One of these loads was the Hydrogen cooling pump, the loss of which caused main generator temperatures to start increasing. The operator began unloading the generator due to temperature increases. A second load was power to the control circuit of the variable letdown orifice control valve (1NV 849). The loss of this control circuit caused this valve to fail full open giving a letdown flowrate of about 110gpm. The operator shifted the letdown orifice to a 45gpm orifice and immediately noted a high charging rate and a very low letdown rate indicating a primary system leak. Due to cooldown caused by unloading the generator and the leak, leakage rate at first appeared to be about 150gpm. After about forty-five (45) minutes the operators shut the letdown isolation valves (1NV-1 and 1NV-2) which stopped the leak. A controlled shutdown of the reactor was continued and the generator taken off the line. The Unit was in Mode 3 at 5:00pm. Subsequent leakage calculation (prior to shutting 1NV-1 & 1NV-2) identified a leak of about 25gpm. A containment entry was made and identified a 360 degree crack in a one (1) inch socket weld to the flange for the variable orifice control valve (1NV 849) outlet side. Cooldown and depressurization was continued and the plant was placed in Mode 5 at 2:15am on June 15, 1986. The resident inspectors were on site and closely monitored this event. The cause of the failure of 1MXD had been identified to be a vendor installed nameplate (size 1" x 2.5"), which had caused a short circuit. Preliminary evaluation by licensee design personnel indicates probable cause of the socket weld failure to be vibration induced fatigue. The weld was sent to the Westinghouse hot laboratory in Pittsburg, Penn. for analysis. Further licensee actions have included radiography of welds, vibration tests on both units, procedural changes limiting use of valve 1NV 849, removal of label plates from transformers in both

units and rewelding to reinstall 1NV 849. The inspectors verified licensee actions. Long term corrections are being reviewed. The residents will continue followup of this problem which will be reported in detail to the NRC as a Licensee Event Report.

No violations or deviations were identified.

6. Surveillance Observation (Units 1 & 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. On June 11, 1986, a reactor trip from 85% power occurred on Unit 1. Investigation into this by the licensee will be documented in a Licensee Event Report. The inspector reviewed this event and identified the following sequence. The instrumentation technicians (IAE) were performing IP 0/A/3240/11, Excore Nuclear Instrumentation System, dated 7/16/85. In accordance with step 10.1.6, IAE had requested the reactor operator (RO) to turn the Steam Generator Program Level Setpoint Indicator to a channel other than the one being tested. The IAE performed the required adjustments on the specific channel he was working. He then proceeded to the next channel without notification to the RO as required by a repeat of doing step 10.1.6. This failure resulted in the IAE performing action on the channel selected to provide input to the steam generator level circuit. The input caused a decrease of feed water to the steam generators and a resultant low-low level steam generator B reactor trip before actions could be taken to correct the situation. The actions by the IAE personnel in not performing step 10.1.6 of IP 0/A/3240/11, is a violation of TS 6.8.1 which requires procedures to be implemented as they are approved. This example is being combined with other examples discussed in paragraph 11.d to constitute one violation 413/86-24-01,414/86-26-01, Failure to follow procedures associated with IP 0/A/3240/11, Station Directive 3.2.2, Operations Management Procedure 2-29 and Maintenance Management Procedure 1.0.

One violation was identified as described in paragraph 6.b. above. No deviations were identified.

7. Maintenance Observations (Units 1& 2) (62703)

Station maintenance activities of selected systems and components were observed/reviewed to ascertain that they were conducted in accordance with 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.

No violations or deviations were identified.

8. Review of Licensee Nonroutine Event Reports (Units 1 & 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:

*LER 413/85-53	Diesel Generator 1A Battery Charger Inoperable Due to Blown Fuses
LER 413/85-67 Rev.1	Reactor Trip on Loss of Main Feedwater Pump Due to Design Deficiency
*LER 413/86-01	Procedural Deficiency Caused Missed Surveillance of Control Room Carbon Filters
LER 413/86-06	Reactor Trip Due to Trip of the 1C2 Heater Drain Tank Pump
*LER 413/86-07	Auxiliary Feedwater Start on Loss of Main Feedwater Pump Turbine Condenser Vacuum
*LER 413/86-10	Alternate Power Sources Not Verified Operable While Diesel Generator 1B Inoperable
*LER 413/86-11	Both Trains of Annulus Ventilation System Inoperable Due to Personnel Error

*LER 413/86-12 Rev.1	Both trains of Containment Valve Injection Water System Inoperable Due to Defective Procedure
LER 413/86-13	Termination of Containment Release Due to Spurious Radiation Alarm
LER 413/86-14	Control Rod Surveillance Not Performed Due to Defective Procedure
LER 413/86-16	Penetration Surveillance Interval Exceeded Due to Personnel Error and Defective Procedure
*LER 413/86-17	Axial Flux Difference Requirements Not Met Due to Computer Malfunctions
*LER 413/86-23	Reactor Trip Due to Failure to Block Source Range High Flux Trip Setpoint
LER 414/86-03	ESF Actuation - High/High Steam Generator Level Caused By Main Feedwater Isolation
LER 414/86-09	Failure to Place Inoperable Steam Generator In A Tripped Condition Within One Hour
LER 414/86-10	ESF Actuation - Auxiliary Feedwater Auto Start Due to High/High Steam Generator Level
LER 414/86-12	ESF Actuation - Main Feedwater Isolation on Steam Generator 2A Due to High/High Steam Generator Level

b. (CLOSED) CDR 413/84-16, 414/84-16: Unconsidered effects of superheated steam on safety-related components. The inspectors observed safety related equipment in the Unit 2 exterior doghouse to verify that the licensee responses appropriately identified equipment possibly affected by superheated steam. Final NRC approval of the licensee analysis is complete.

No violations or deviations were identified.

9. Survey of Licensee's Response to Safety Issues (Units 1 & 2) (92701)

The inspector reviewed the licensee's response to the issue of biofouling of cooling water heat exchangers as addressed in Inspection and Enforcement Manual TI 2515/77.

The licensee has developed several procedures that are used to monitor flow through service water heat exchangers. These procedures are conducted on a quarterly basis by the performance engineering personnel. Installed instrumentation is not used to monitor degradation but more precision test equipment is installed. Trends are maintained by these engineers. Heat exchangers that are not feasible to measure various parameters, have been scheduled for routine periodic cleaning. Fire protection systems are periodically flushed and, in addition, are being modified to include a chlorination system for chemical treatment. Based on this review, the actions taken and scheduled by the licensee appear to be acceptable.

No violations or deviations were identified.

10. Preparations for Refueling (Unit 1) (60705)

The inspector reviewed preparations for refueling of Unit 1 presently scheduled to commence August 15, 1986 and complete on October 23, 1986. The inspector reviewed procedures for fuel handling, transfers, and core verification; inspection of fuel to be reused; and various other procedures that will be required during refueling. The inspector reviewed the following specific procedures:

IP 1/A/3230/06	Procedure for Disconnecting and Connection of Incore T/C Cables, dated 6/2/86
MP 0/A/7150/43	Reactor Vessel Internals Removal and Replacement, dated 4/25/86
MP 0/A/7150/50	UHI Piping Removal and Replacement, dated 9/30/85
MP 0/A/7150/76	Rod Drive Assembly Installation and Removal, dated 11/21/85
MP 1/A/7150/42	Reactor Vessel Head Removal and Replacement, dated 2/4/86
OP 0/A/6550/04	Transferring New Fuel to the Elevator, dated 6/19/84
OP 0/A/6550/05	Primary Neutron Source Handling, dated 6/27/84
OP 0/A/6550/07	Reactor Building Manipulator Crane Operation, dated 2/20/86
OP 0/A/6550/08	Fuel Transfer System Operation, dated 6/27/84
OP 0/A/6550/09	RCCA Change Fixture Operation, dated 6/21/84
OP 0/A/6550/14	Draining and Filling Spent Fuel Pool Transfer Canal and Cask Area, dated 6/26/84

OP 1/A/6200/13	Filling, Draining, and Purification of Refueling Cavity, dated 6/29/84
OP 1/A/6550/06	Transferring Fuel With the Spent Fuel Manipulator Crane, dated 6/21/84

In addition, although procedure identification numbers have been assigned for areas such as Vessel Irradiation Sample Removal, Refueling Procedure, Total Core Unloading, Total Core Reloading and Spent Fuel Pool Shuffle of Core Components, these procedures have not been issued at this time. The inspector identified to the licensee his concern over issuance of these procedures and minor errors in the procedures listed above including that a two year review had not been performed to date.

The inspector also reviewed a proposed schedule for the refueling that identifies major work to be accomplished during the outage. This schedule also shows the Nuclear Station Modifications that are scheduled to be performed.

No violations or deviations were identified.

11. Plant Procedures (Units 1 & 2) (42700)

a. The inspector reviewed various plant procedures to determine whether overall plant procedures are in accordance with regulatory requirements, procedure changes were made in accordance with TS requirements, the technical adequacy of the reviewed procedures is consistent with desired actions and modes of operation, and procedures, when used, are being followed as required. In addition to the procedures identified in paragraph 10 above the below listed procedures were also reviewed:

PT 1/A/4200/02A	Monthly Outside Containment Integrity Verification
PT 2/A/4200/02A	Monthly Outside Containment Integrity Verification
PT 1/A/4200/02B	Cold Shutdown Inside Containment Integrity Verification
PT 2/A/4200/02B	Cold Shutdown Inside Containment Integrity Verification
IP 0/A/3240/11	Excore Nuclear Instrumentation System
IP 1/A/3101/02	Refueling Water System Instrumentation Calibration
SD 3.1.17	Fuel Handling Interlocks

TP 1/A/1450/18 Spent Fuel Pool Filter Train Functional Test

As a result of this review one violation and one unresolved item was identified as discussed below.

b. The review discussed above identified several examples of inadequate procedures. The first example is contained in PT 2/A/4200/02A, Monthly Outside Containment Integrity Verification for Unit 2. The purpose of this PT is to insure that containment penetration integrity is being maintained by verifying conditions of the penetration isolations located outside of the containment. A review by the licensee of this PT identified approximately twenty-five (25) valves located on various penetrations that were not included in this procedure. These are identified in the licensee's non-routine event report C86-77-2 dated 6/5/86. The omission of these valves resulted in a violation of TS 4.6.1.1.a , which requires the penetrations to be checked every thirty one (31) days. A subsequent check of these valves found them all in their required positions. Adequate corrective actions would have included the prompt identification and correction of the following examples and therefore this licensee identified example is a violation.

A second example was associated with PT 2/A/4200/02B, Cold Shutdown Inside Containment Integrity Verification. The purpose of this PT is to insure that containment penetration integrity is being maintained by verifying conditions of penetrations inside the containment. A review of this procedure identified twelve (12) valves that are a part of these penetrations that were not included in this procedure. As a result of this the licensee violated T.S. 4.6.1.1.a. A subsequent check of these valves found them all in their required position.

The third example of inadequate procedures is associated with PT 1/A/4200/02A, Monthly Outside Containment Integrity Verification for Unit 1. A review of this procedure by the inspector identified one valve that should be included in the procedure. The omission of this valve also resulted in a violation of TS 4.6.1.1.a. This valve was also found in its required position.

These three examples are combined to constitute one Violation, 413/86-24-02 414/86-26-02, Failure to provide adequate procedures resulting in a violation of TS 4.6.1.1.a.

c. During the inspectors review of PT 2/A/4200/02A several additional questions were identified. A comparison of this PT to the Unit 1 procedure identified approximately twenty (20) valves that were on the Unit 1 procedure that were identified by the licensee, but similar Unit 2 valves were not identified. Positions for Numerous valves on the Unit 2 procedure were identified as "CLOSED" whereas the Unit 1 procedure and the system flow diagrams identify these same valves as "LOCKED CLOSED". These questions are being identified as an Unresolved Item 413/86-24-03, 414/86-26-03: Procedural discrepancies associated with similar procedures between Units 1 & 2 pending review by the

licensee and additional review by the inspector to determine the extent and significance of the discrepancies.

d. The inspector also reviewed several administrative procedures that are used to control work and testing associated with work. The specific procedures reviewed were Station Directive (SD) 3.2.2, Development and Conduct of the Periodic Testing Program, Operations Management Procedure (OMP) 2-29, Technical Specifications Logbook, and Maintenance Management Procedure (MMP) 1.0, Work Request Preparation. In addition to this review, the inspector reviewed various work items to insure they were conducted in accordance with these administrative procedures. SD 3.2.2, Section 8.0 requires after a valve has undergone maintenance and prior to its return to service, it shall be tested as necessary to demonstrate that the parameters affected by the maintenance are within acceptable limits. On May 17, 1986, 2CF-87, 2CF-33, and 2CF-60 were repaired and returned to service on May 19, 1986, without being tested to demonstrate that the parameters affected were within acceptable limits. OMP 2-29, Section 3.3.B requires inoperable equipment that causes operation in an ACTION statement of TS for the existing mode be logged in the TS Action Item Log (TSAIL). Work request 31838 OPS, 31841 OPS, 32033 OPS and 32046 OPS were all processed to be performed on May 14, 1986, and were not logged in the TSAIL. The results of this failure allowed work to be performed without performance of the required functional testing. MMP 1.0, paragraph 4.3.10 states that the section of the Work Request entitled "Procedure Numbers" shall reflect a complete listing of procedures to perform work, A review of the work requests identified above identified that the procedures that were required to be used to perform the required retesting was omitted contributing to the failure to retest the work activity. The above examples are combined with the example discussed in paragraph 6.b to be identified as one Violation : 413/86-24-01, 414/86-26-01; Failure to follow procedures associated with IP 0/A/3240/11, Station Directive 3.2.2, Operations Management Procedure 2-29 and Maintenance Management Procedure 1.0.

Two violations were identified as described in paragraphs 11.b. and d. above. No deviations were identified.

12. Followup of IE Notices and IE Bulletins Sent For Information (Units 1 & 2) (92701)

The inspector reviewed the actions taken by the licensee upon receipt of an IE Notice (IEN) sent for information purposes only. The Compliance Engineer, at present, controls receipt and distribution of these documents to assure appropriate personnel review the contents and determine actions that may be required as a result. The following notices were reviewed to assure receipt, review by appropriate personnel, and any resulting action identified, documented and followed to completion:

IE Notices 85-33
85-59

No violations or deviations were identified.