UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30303

APR 19 1984

Report Nos.: 50-413/84-18 and 50-414/84-12

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

Docket Nos.: 50-413 and 50-414

License Nos.: CPPR-116 and CPPR-117

Facility Name: Catawba 1 and 2

Inspection at Corporate offices in Charlotte, North Carolina, and at the Catawba site near Rock Hill, South Carolina

Inspectors: G A Belisle 4/5/84
G. A. Belisle Date Signed

L. E. Foster 4/5/84
L. E. Foster Date Signed

C. F. Smith 4/5/84
C. F. Smith Date Signed

Approved by: C M Upright 4/5/84
C. M. Upright, Section Chief Date Signed
Engineering Program Branch
Division of Engineering and Operational Programs

SUMMARY

Inspection on February 21 - March 2, 1984

Areas Inspected

This routine, unannounced inspection involved 156 inspector-hours on site in the areas of QA for the startup test program; QA/QC administration; maintenance; design changes; surveillance testing and calibration control; procurement; receipt, storage, and handling; test and measurement equipment; and licensee actions on previously identified inspection findings.

Results

Of the nine areas inspected, no violations or deviations were identified in five areas; five apparent vfolations were found in four areas (Failure to control repaired/salvaged items, paragraph 11.b; Failure to provide adequate handling and

storage procedures and instructions, paragraph 11.a; Failure to perform preventive maintenance as required, paragraph 7; Failure to establish measures to require evaluation of design nonconformances, paragraph 8.a; and Failure to establish measures to recall obsolete drawings, paragraph 8.b).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

R. Abernathy, Test Supervisor
W. Anfin, Support Engineer
N. Banks, Stockman
*J. Barbour, QA Manager, Operation
*W. Beaver, Performance Engineer
*W. Bradley, QA Surveillance Supervisor
D. Brown, Assistant Maintenance Technician
*J. Cox, Technician Services Supervisor
*R. Cox, PM Coordinator
*J. Curtis, QA Vendors Manager
*W. Davis, Radiological Chemistry Supervisor
*S. Dressler, Project Engineer
J. Effinger, Senior QA Specialist
L. Evans, Power Chemistry Coordinator
R. Frazier, Planning Coordinator
*J. Hampton, Catawba Manager
*C. Hartzell, Licensing and Projects Engineer
*A. Jackson, Chemistry Assistant Engineer
R. Johnson, Assistant Technician
*J. Jones, Jr., Instrument Control Engineer
G. Keener, QA Surveillance
J. Knuti, Operating Engineer
R. Lee, QA Receiving Inspector
*P. LeRoy, Licensing Engineer
E. Lindsay, Design Engineer I
*W. McDonald, Materials Maintenance Coordinator
*M. McGuffee, Preventive Maintenance
*H. McInvale, Health Physics Supervisor
J. McPherson, Engineering Associate
*L. Parker, Licensing Technical Associate
T. Roberts, Technical Services QA Supervisor
*C. Robinson, Senior QA Supervisor - Vendors
D. Robinson, Reactor Engineer
C. Rolfe, Research and Projects Manager
A. Roy, Senior QA Supervisor - Vendors
*G. Smith, Maintenance Superintendent
J. Stackley, IAE Support Engineer
C. Stillwell, Materials Coordinator
J. Tames, Design Engineer I
J. Todd, NDE Receiving Inspector
J. Wallace, IAE Support Coordinator
*J. Willis, Operations QA Manager
F. Wilson, HP Supervisor
*R. Wilson, Planning Engineer

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

NRC Resident Inspectors

*K. VanDoorn
*P. Skinner

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on March 2, 1984, with those persons indicated in paragraph 1 above. The licensee acknowledged the following inspection findings:

Violation 413/84-18-01, Failure to Control Repaired/Salvaged Items, paragraph 11.b.

Violation 413/84-18-02, Failure to Provide Adequate Handling and Storage Procedures and Instructions, paragraph 11.a.

Violation 413/84-18-03, Failure to Perform Preventive Maintenance as Required, paragraph 7.

Inspector Followup Item 413/84-18-06, TS Periodic Testing at Less Than Monthly Frequencies, paragraph 9.a.

Inspector Followup Item 413/84-18-07, Frequency Clarification for Periodic Test Scheduling Index, paragraph 9.b.

Inspector Followup Item 413/84-18-08, Clarify Retest Requirements for QA Condition 1 and 3 Items, paragraph 9.c.

Inspector Followup Item 413/84-18-09, Calibration Procedures for Performance Personnel, paragraph 12.

Inspector Followup Item 413/84-18-10, Indirect Technical Specification Calibration Program Development, paragraph 9.d.

Inspector Followup Item 413/84-18-11, Inservice Inspection Program Development, paragraph 9.e.

Inspector Followup Item 413/84-18-12, Performance TS Procedure Development, paragraph 9.f.

Inspector Followup Item 413/84-18-13, Operations TS Procedure Development, paragraph 9.g.

Inspector Followup Item 413/84-18-14, Chemistry TS Procedure Development, paragraph 9.h.

Inspector Followup Item 413/84-18-15, IAE TS Procedure Development, paragraph 9.i.

Inspector Followup Item 413/84-18-16, Transmission TS Procedure Development, paragraph 9.j.

Inspector Followup Item 413/84-18-17, Health Physics TS Procedure Development, paragraph 9.k.

Inspector Followup Item 413/84-18-18, Maintenance TS Procedure Development, paragraph 9.l.

Inspector Followup Item 413/84-18-19, Security TS Procedure Development, paragraph 9.m.

Inspector Followup Item 413/84-18-20, Reactor Engineering TS Procedure development, paragraph 9.n.

Inspector Followup Item 413/84-18-21, Lack of Shelf Life Program, paragraph 10.b.

Inspector Followup Item 413/84-18-22, Lack of a Program to Control the use of aerosols, paragraph 10.d.

Inspector Followup Item 413/84-18-23, Lack of Control of Shaft keys, paragraph 10.c.

Inspector Followup Item 413/84-18-24, Determination of Level "A" Storage area, paragraph 11.c.

Inspector Followup Item 413/84-18-25, Removal of Vendor from Approved Vendors List, paragraph 10.a.

Based on Region II management review of the inspection results, the following items appear to violate NRC requirements. The licensee acknowledged these items in a telephone conversation between C. Smith and R. Sharp on March 14, 1984.

Violation 413/84-18-04, Failure to Establish Measures to Require Evaluation of Design Nonconformances, paragraph 8.a.

Violation 413/84-18-05, Failure to Establish Measures to Recall Obsolete Drawings, paragraph 8.b.

3. Licensee Action on Previous Enforcement Matters

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection

5. QA for the Startup Test Program (35501)

References: (a) Appendix B to 10 CFR 50 - Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants.

(b) Duke Power Company Topical Report, Duke-1, Amendment 6, Section 17.2, Quality Assurance for Station Operation.

(c) Regulatory Guide 1.33, Revision 2, Quality Assurance Program Requirements (Operation)

(d) ANSI N18.7-1976, Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants.

(e) Regulatory Guide 1.68, Revision 2, Initial Test Program for Water Cooled Nuclear Power Plant.

The inspector reviewed the licensee quality assurance program for startup testing required by references (a) through (e) and verified that it is in conformance with regulatory requirements, commitments in the application, and industry guide and standards. The following criteria were used during this review:

- Requirements have been established and procedures or checklists developed for inspection of the following activities on a regular basis by the onsite Quality Assurance organization:

  . Conduct of testing
  . Tracking of test deficiencies
  . Test documentation
  . Control of measuring and test equipment

The documents listed below were reviewed to verify that the previously listed criteria had been incorporated into the licensee QA program for the startup testing.

Catawba FSAR, Section 14.0, Initial Test and Operation.

QA-500, Operations Division Surveillance Program, Revision 16.

QA-502, Evaluating and Approving QC Inspection Records

QC-509, Preparation and Issue of QC Procedures, Revision 8.

QA-130, Qualifications and Training of Lead Auditors, Revision 8.

QA-131, QA Training, Revision 6.

QA-150, Trend Analysis, Revision 5.

QA-160, Performance of Corporate QA Audits, Revision 1

QCK-1, Control of Nonconforming Items, Revision 15.

The inspector interviewed licensee QA personnel to determine the extent of surveillance activities conducted during preoperational testing and discussed the QA program to be implemented during the startup test program. Quality Assurance procedure QA-500, Operations Division Surveillance Program, Revision 16, delineates the reporting requirements and conduct to be used for performing QA department surveillance during station operation. This procedure is generic in that it addresses surveillances of various plant activities, including station testing, and is the controlling document for performance of surveillance by QA personnel. The inspector reviewed the surveillance schedule prepared for conducting surveillance of station testing and measuring and test equipment. The following surveillance packages were selected for detailed review:

Surveillance No.	Subject
81-5	Measuring and Test Equipment (S-1)
82-2	Station Testing (S-6)
82-3	Measuring and Test Equipment (S-4)
82-6	Measuring and Test Equipment (S-2)
82-15	Station Testing (S-6)
83-1	Measuring and Test Equipment (S-1)
83-7	Measuring and Test Equipment (S-4)
83-10	Station Testing (S-6)
83-16	Measuring and Test Equipment (S-2)
83-18	Station Testing (S-6)
83-34	Measuring and Test Equipment (S-1)
83-36	Measuring and Test Equipment (A-3)
84-4	Station Testing (A-5)

The inspector determined from a review of the above surveillance packages that licensee QA personnel performed surveillances of preoperational and functional tests of various QA Condition 1 systems during the period January 1982 to January 1984. Surveillances were also performed on QA Condition 2 and QA Condition 3 systems. A total of five surveillances of

station testing were performed during this period. The inspector requested information concerning the adequacy of resources allocated to surveillance of station testing, in addition to licensee management plans for conduct of the startup and power ascension test program. Licensee management stated that the present QA surveillance staff consists of three persons. Licensee management further added that they anticipate an addition of two persons to the staff in preparation for surveillances to be conducted during the startup power ascension test program.

The inspector interviewed licensee management concerning the QA training program for personnel within the QA department. Licensee management stated that training is provided to QA department personnel in accordance with quality assurance procedures QA-131, Revision 6, and QA-140, QA Inspector Training, Revision 7. The inspector interviewed QA department personnel to determine their understanding of their responsibilities as applied to the startup test program. The inspector determined that one QA department staff member performed surveillance activities during the startup test program for McGuire Station. Licensee management stated that this individual will be located in the control room during the startup test program for Catawba Unit 1 and that other QA department personnel will be assigned, on an as needed basis, to other surveillance activities.

The inspector interviewed licensee management to determine the status of licensee auditing activities conducted for preoperational testing and discussed plans for implementation of the audit program during the startup and power ascension test program. The inspector reviewed the 1984 audit schedule with licensee management, in addition to reviewing audit numbers NP-83-13(CN) and NP-83-1(CN).

Within this area, no violations or deviations were identified.

6. QA/QC Administration (35740)

Reference: (a) 10 CFR 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants

The inspector reviewed the licensee QA/QC administration program required by reference (a) to verify that activities were conducted in accordance with regulatory requirements, industry guides and standards, and Technical Specifications. The following criteria were used during this review:

- Licensee QA program documents identify those structures, systems, components, documents, and activities to which the QA program applies.

- Procedures and responsibilities have been established for making changes to these documents.

- Administrative controls have been established for QA/QC department procedure review, inspection, and auditing. These controls assure review and approval prior to implementation, provide methods to make

changes and revisions, and establish methods for distribution and obsolete procedure recall.

- Responsibilities have been established to assure QA program review for overall effectiveness.

- Administrative controls have been established to modify the QA program based on identified problem areas.

The documents listed below were reviewed to verify that these criteria had been incorporated into the licensee's administrative procedures for QA/QC administration activities.

Nuclear Safety Related Structures, Systems and Components, Revision 1

QA-100, Preparation and Issue of Quality Assurance Procedures, Revision 7

QA-210, Departmental Audit Procedure, Revision 15

QA-211, Departmental Audit Scheduling and Followup, Revision 9

QA-509, Preparation and Issue of Quality Control Procedures, Revision 6.

The inspector reviewed QA program controls at the Corporate offices and on site.

Within this area, no violations or deviations were identified.

7. Maintenance (35743)

References: (a) 10 CFR 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants

(b) Regulatory Guide 1.8, Personnel Selection and Training, Revision 1-R

(c) ANSI N18.1-1971, Selection and Training of Nuclear Power Plant Personnel

(d) Regulatory Guide 1.30, Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electrical Equipment

(e) ANSI N45.2.4-1972, Installation, and Testing Requirements for Instrumentation and Electric Equipment During the Construction of Nuclear Power Generating Stations

(f) Regulatory Guide 1.33, Quality Assurance Program Requirements (Operations), Revision 2

(g) ANSI N18.7-1976, Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants

(h) Regulatory Guide 1.37, Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants

(i) ANSI N45.2.1-1973, Cleaning of Fluid Systems and Associated Equipment During Construction of Nuclear Power Plants

(j) Regulatory Guide 1.39, Housekeeping Requirements for Water-Cooled Nuclear Power Plants, Revision 2

(k) ANSI N45.2.3-1973, Housekeeping During the Construction Phase of Nuclear Power Plants

(l) Regulatory Guide 1.58, Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel, Revision 1.

(m) ANSI N45.2.6-1978, Qualification of Inspection Examination and Testing Personnel for Nuclear Power Plants

(n) Regulatory Guide 1.116, Quality Assurance Requirements for Installation, Inspection, and Testing of Mechanical Equipment and Systems, Revision D-R

(o) ANSI N45.2.8-1975, Supplemental Quality Assurance Requirements for Installation, Inspection and Testing of Mechanical Equipment and Systems for the Construction Phase of Nuclear Power Plants

The inspector reviewed licensee administrative controls required by references (a)-(o) to verify that maintenance activities were conducted in accordance with regulatory requirements, industry guides and standards, and Technical Specifications. The following criteria were used during this review:

- Administrative controls have been established for initiation, review and approval, safety classification, hold point inspection, retest requirements, personnel identification, and record storage for corrective maintenance activities.

- Administrative controls have been established for QA review of completed maintenance work request (WR).

- Administrative controls have been established for review of completed WR to assess preventive maintenance adequacy.

- Administrative controls have been established for activities involving welding, open flame, and fire watches.

- Administrative controls have been established for equipment control, including permission to release systems for maintenance, verification that release of equipment will not violate Technical Specification (TS) requirements, system testing will be documented, equipment status will be clearly identified, assuring independent verification, and returning equipment to service.

- Administrative controls have been established for locking valves or circuit breakers as required.

- Administrative controls have been established for valve maintenance.

- Administrative controls have been established for equipment preventive maintenance (PT) including program responsibility, master PT scheduling, PT review, and establishing PT frequencies.

- Administrative controls have been established for controlling special processes control including qualified personnel and approved procedure usage.

- Administrative controls have been established for cleaning systems, maintaining system cleanliness, and system cleanliness classification.

- Administrative controls have been established for housekeeping activities including plant zone classifications and housekeeping during work activities.

The documents listed below were reviewed to verify that these criteria had been incorporated into licensee administrative procedures for maintenance activities:

APM 3.3, Maintenance, Revision 21

APM 3.2, Testing, Revision 21

APM 3.1, Operations, Revison 20

APM 4.7, Administrative Instructions for Work Requests, Revision 21

APM 2.5, Qualifications and Training of Personnel, Revision 21

FSAR, Chapter 13.0, Conduct of Operations

APM 3.5, Inspections, Revision 21

APM 3.11, Housekeeping, Revision 20

MMP1, Work Request Preparation, Revision 14

MMP 1.2, Control of Work Performed by Nuclear Production Personnel Prior to Provisional Turnover, Revision 4

Construction Procedure 819, Control of Nuclear Production Electrical Work Performed Under Construction's QA Program, Revision 1

MMP 1.2, Instrument and Electrical Section Procedure Development, Revision 2

MMP 1.3, Maintenance Housekeeping Responsibilities, Revision 0

MMP 2.0, Instrument Protection Program, Revision 1

MMP 2.1, Out of Tolerance Notice, Revision 2

MMP 3.0, Preventive Maintenance Program, Revision 9

MMP 3.1, Equipment Data Base Program, Revision 2

MMP 3.2, Station Lubrication Program, Revision 1

MMP 3.3, Mechanical Vibration Program, Revision 6

S.D. 3.3.1, Determination of Safety-Related or Control Designated Structures, Systems, and Components, Revision 1

S.D. 3.3.2, Control of the Maintenance Program, Revision 1

S.D. 3.3.3, Preventive Maintenance Program, Revision 3

S.D. 3.3.5, Preventive Maintenance Review Committee, Revision 7

S.D. 3.3.6, Station Lubrication Program, Revision 0

S.D. 3.3.7, Work Request Preparation, Revision 0

S.D. 3.6.1, Control of Welding and Heat Treatment, Revision 2

S.D. 3.11.1, Housekeeping and Cleanliness Levels in Safety-Related Areas, Revision 6

S.D. 3.11.2, K-Mac Services Housekeeping and Cleanliness Responsibilities, Revision 1

QC D-1, Housekeeping During the Operations Phase of Nuclear Stations, Revision 8

QC D-2, Cleanness Control of QA Condition Piping Systems at Nuclear Stations, Revision 9

CS-1, Special Storage Maintenance Inspection, Revision 16

PM/IG-022, EXH-Fuel Building Bridge Crane, Draft

PM/IG-042, CRDM - Control Rod Drive Mechanisms and Assemblies in Storage, Revision 1

PM/IG-049, VS - Station Air System, Draft

PM/IG-081, RY - Main Fire Pump/ Motor(s), Draft

PM/IG-085, CA - Auxiliary Feedwater Motor Driven Pumps, Revision 1

QC E-1, Electrical Equipment Installation and Maintenance Inspections, Revision 8

QC E-2, Instrumentation Installation and Maintenance Inspections, Revision 8

QC F-4, Mechanical Equipment Installation Inspection, Revision 1

QC F-5, Valve Disassembly and Assembly Inspection, Revision 2

CNS-1390.01-00-0164, Procedure for Storage, Installation, and Testing of Nuclear Safety-Related Electric Motors, dated December 14, 1983

The inspector conducted extensive interviews with maintenance planning, Periodic Test, and QA personnel. The inspector observed the preparation, review, job sequence, material application, work performance, HP and QA review, retest requirements, and final sign off of a typical work request. During all phases, various personnel were questioned as to how specific information was determined to be included on the work request. Specific information included reference documents that determine QA safety classifications, documents to be used to assure retest requirements are met, documents to be used to perform the actual work activity, how materials are requisitioned from the warehouse, how various codes for failure cause and effect are determined, and specific review given to the WR by QA. The inspector also reviewed how the preventive maintenance group interfaces with other groups during processing of the WR.

The inspector reviewed a computer program that was generated for retrieval of WR information. Basically, every thing written on the WR is computer accessed. This provides a data base on who does what to various plant systems, what components need excessive maintenance, parts used in various systems, failure causes for plant components, and time and manpower requirements for corrective actions.

The inspector reviewed the preventive maintenance system. Preventive maintenance activities have been assigned to a specific group. This group is currently evaluating system requirements based on design criteria, manufacturer's recommendations, previous plant history, and/or nuclear plant history. System requirements are then proceduralized if required and placed into the periodic test (PT) program via standing work requests (SWR). Inclusion into the PT program is based on provisional system turnover from construction. In addition to the PT program, the licensee also has a periodic lubrication program that addresses major system components such as motors, pumps, values, and cranes.

The inspector reviewed a preventive maintenance master equipment list dated February 9, 1984. This list contained approximately 700 items that require preventive maintenance, ranging from lubrication only to performing a specific preventive maintenance instruction guide. Each item on this list is assigned an equipment worth factor ranging from 9 to 0. A 9 is described as required by regulatory agencies (i.e., T.S., FSAR, etc.).

The inspector conducted several plant tours and evaluated housekeeping conditions.

The inspector reviewed the following QA surveillances performed on maintenance activities: CN-83-4 conducted February 9 - March 3, 1983; CN-83-6 conducted March 7 - 17, 1983; CN-83-28 conducted September 21 - 29, 1983; and CN-83-40 conducted November 28 - December 9, 1983. Eleven deficiencies were identified by the licensee during these surveillances; seven have been closed. The corrective action for the remaining four items is in process.

Within this area, one violation was identified. During the preventive maintenance master equipment list review, the inspector identified that approximately 88 items had a category 9 equipment worth factor. These included auxiliary feedwater pumps, control rod drive assemblies, various electrical load centers, certain TS related items, diesel auxiliary power battery, fuel pool cooling pumps, containment spray pump motors, and main fire pump motors (these are not all inclusive). The inspector reviewed a cumulative list of Unit 1 limited, provisional, and final turnovers. The safety injection system (NI) was provisionally turned over August 27, 1982. The Safety Injection (SI) Pumps had maintenance performed on them to meet lubrication requirements on January 28, 1983, (Pump A, WR 38020) and February 8, 1983 (Pump B, WR 39270). The Lubrication Manual states that SI pump motors require semi-annual maintenance. The pumps require annual maintenance and the pump-motor coupling requires semi-annual maintenance. Additional lubrication had not been performed since these dates.

The inspector reviewed QA Surveillance CN-83-25 dated August 28, 1983, where a similar finding was identified relative to PD pump, centrifugal charging pump, and containment spray pump lubrication. The corrective action status on February 13, 1984, stated that lubrication should be accomplished within the next two weeks.

Reference (g), Section 5.2.7.1, requires that a preventive maintenance program including procedures as appropriate for safety-related structures, systems, and components shall be established and maintained which prescribes the frequency and type of maintenance to be performed. Failure to perform a preventive maintenance on the NI pumps (as well as all other safety-related systems, structures, and components on turnover not specifically addressed in the PT program) and failure to include all safety-related components in the PT program constitutes a violation (413/84-18-03).

8. Design Changes (35744)

References (a) 10 CFR 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants, Criterion III

(b) Regulatory Guide 1.64, Quality Assurance Requirements for the Design of Nuclear Power Plants, Revision 2

(c) ANSI N45.2.11-1974, Quality Assurance Requirements for the Design of Nuclear Power Plants

(d) Regulatory Guide 1.33, Quality Assurance Requirements (Operations) November, 1972

(e) ANSI N18.7-1976, Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants

(f) Regulatory Guide 1.120, Fire Protection Guidelines for Nuclear Power Plants, Revision 1

(g) Proposed Technical Specifications Section 6.2.3, Catawba Safety Review Group; Section 6.5, Review and Audit

The inspector reviewed the licensee design change program required by references (a) through (g) and verified that these activities are conducted in accordance with regulatory requirements, industry guides and standards, and proposed Technical Specifications. The following criteria were used during the review:

- Procedures have been established to control design changes which include assurance that a proposed change does not involve an unreviewed safety question or a change in technical specifications as required by 10 CFR 50.59.

- Procedures and responsibilities for design control have been established including responsibilities and methods for conducting safety evaluations.

- Administrative controls for design document control have been established for the following:

  . Controlling changes to approved design change documents

  . Controlling or recalling obsolete design change documents such as revised drawings and modification procedures

  . Release and distribution of approved design change documents

- Responsibilities have been assigned in writing to assure implementation of the release and distribution of approved design change documents.

- Administrative controls and responsibilities have been established commensurate with the time frame for implementation to assure that design changes will be incorporated into:

  . Plant procedures

  . Operator training programs

  . Plant drawings to reflect implemented design changes and modifications

- Design controls require that implementation will be in accordance with approved procedures.

- Design controls require assigning responsibility for identifying post-modification testing requirements and acceptance criteria in approved test procedures and for evaluation of test results.

- Procedures assign responsibility and delineate the method for reporting design changes to the NRC in accordance with 10 CFR 50.59.

- Controls require review and approval of temporary modifications in accordance with Section 6 of the Technical Specifications and 10 CFR 50.59.

The documents listed below were reviewed to verify that these criteria had been incorporated into the licensee design change program:

Duke Power Company Topical Report, QA Program, Duke-1-A, Amendment 6, Section 17.2.3, Design Control.

Nuclear Production Department Administrative Policy Manual for Nuclear Stations dated August 1, 1983
Section 3.4, Modifications
Section 4.4, Administrative Instructions for Modifications
Appendix E, Design Process Guidelines

S.D. 4.4.4, Processing Nuclear Station Modifications, Revision 0

Design Engineering Department Manual dated December 27, 1983
Section VI.E.2, Subject: Nuclear Station Modification, revised January 30, 1984

PR-160, Nuclear Station Modification, Revision 4

PR-201, Variation Notices, Revision 18

PR-202, Design Nonconformance, Revision 5

PR-290, Nuclear Regulatory Commission Reporting Requirements, Revision 9

PR-100, Application of Quality Assurance Program, Revision 6.

The inspector interviewed licensee management to determine the status of the design change program. Licensee management confirmed that as of January 1984 all design changes are being processed as Nuclear Station Modifications (NSM) in lieu of Nuclear Problem Reports. Station Directive 4.4.4, Processing Nuclear Station Modifications, delineates areas of responsibility and basic requirements concerning NSMs at Catawba Nuclear Station. This document addresses NSMs where station personnel are designing and implementing the change in addition to NSMs prepared within the Design Engineering Department.

The inspector reviewed licensee administrative and design control procedures and conducted interviews with licensee management to verify that the design change program requires evaluation of unreviewed safety questions or proposed Technical Specification changes in accordance with the proposed Technical Specification Section 6.2.3 and the requirements of 10 CFR 50.59.

Within this area, two violations were identified and are discussed in the following paragraphs.

a. Failure to Establish Measures to Require Evaluation of Design Nonconformance

The inspector reviewed the implementation of the design change program within Design Engineering Department relative to a Nuclear Station Modification Request initiated to correct a deviation of the Auxiliary Feedwater System from performance specification identified during functional testing of this system.

Design Engineering Department Procedure PR-160 is the controlling document for the preparation of Nuclear Station Modification (NSM). This document delineates the method for processing, controlling, approving, and clearing NSMs within Design Engineering. Paragraph 1.1.2, Origination of NSM within Design Engineering, states that NSMs initiated to correct a deficiency should be accompanied by a Design Nonconformance Report (Form 202.1) which is generated to document a design nonconformance. The controlling procedure for Design Nonconformance is PR-202 which delineates the method by which a design nonconformance is identified, reported, evaluated, and resolved. The inspector reviewed a Request for Modification, prepared and approved by Design Engineering on January 18, 1984, to correct this design nonconformance. The reason for the proposed modification written on the request form was as follows:

> "During preoperational testing of the CA pumps with suction from the hotwell under vacuum, loss of suction was repeatedly experienced due to air or vapor voids in the suction line."

The request for modification form, further, had under item 5, Regulatory Commitment, the statement that the above problem was discovered during the CA System Functional Test required by Chapter 14 of the FSAR and this test abstract in the FSAR will be revised by Nuclear Production Department (NPD) to delete the requirement concerning adequate suction supply from the hotwell under vacuum.

The inspector interviewed licensee design engineering personnel to determine if a design nonconformance (DNC) report was prepared. The inspector further requested information concerning the preparation of the following documents, which procedure PR-160 states should be initiated along with the DNC by the responsible individual, and is therefore left up to the option of this responsible individual to do.

(1) Reportability Evaluation Request (Form Q-1D), initiated and used for an evaluation of a potentially reportable problem.

(2) Significant Corrective Action Evaluation (Form R-6A), initiated and used to document a 10 CFR 50 Appendix B Criterion XVI evaluation and resulting corrective action.

Licensee management stated that a design nonconformance (DNC) report was not prepared because the physical changes required by the Request for Modification and the system that would be modified is non-QA Condition 1. Consequent to not having prepared a design nonconformance report, neither above items (1) nor (2) were prepared. Despite the fact that the physical changes would be made to part of a non-QA Condition 1 system, the NSM was initiated to correct a design deficiency in a QA Condition 1 system and preparation of a DNC was required. However, the controlling procedures are written as recommendations instead of requirements.

This failure to provide control over activities affecting the quality of identified structures, systems, and components to an extent consistent with their importance to safety constitutes a violation (413/84-18-04).

b. Failure to Establish Measures to Recall Obsolete Drawings.

The inspector reviewed the implementation of design control relative to Variation Notices. Design Engineering Department procedure PR-201 is the controlling document for Variation Notices and delineates the process by which field variations from Design Engineering and supplier design documents are evaluated and resolved. The inspector reviewed Variation Notice Serial Number 41747 prepared to add vent and drain valves, and to relocate one vent valve on Unit No. 2 Auxiliary Feedwater System Flow Diagrams Drawing Nos. CN2592-1.0 and CN2592-1.1. The inspector determined from the review of Variation Notice 41747 that this document was approved November 14, 1983, and subsequently voided. A review of control copies of flow diagrams referenced on the variation notice revealed that the drawings had been revised in accordance with the changes delineated on Variation Notice No. 41747, despite the fact that the variation notice was no longer in effect. PR-201, paragraph 3.6, requires the transmittal of information concerning voided variation notices to the designated individual in Design Engineering who was originally assigned responsibility.

Procedural measures do not provide for the recall of design documents made obsolete by voided variation notices. Activities affecting quality must be accomplished in accordance with approved procedures. This failure to establish procedures to control this activity constitutes a violation (413/84-18-05).

9. Surveillance Testing and Calibration Control (35745)

References:
(a) 10 CFR 50, Appendix B, Quality Assurance Criterion for Nuclear Power Plants and Fuel Reprocessing Plants

(b) Regulatory Guide 1.33, Quality Assurance Program Requirements (Operations), Revision 2

(c) ANSI N18.7-1976, Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants

(d) Technical Specifications

The inspector reviewed licensee administrative controls required by references (a)-(d) to verify that surveillance activities were conducted in accordance with regulatory requirements, industry guides and standards, and Technical Specifications (TS). The following criteria were used during this review:

- Administrative controls have been established for surveillances, calibrations, and inservice inspections required by TS which includes frequency, personnel responsibility, and surveillance status.

- Administrative controls have been established for maintaining surveillance scheduling current.

- Administrative controls have been established to assure that surveillance, calibrations, and inservice inspections are performed in accordance with approved procedures.

- Administrative controls have been established for data review and evaluation.

- Administrative controls have been established for responsible personnel to assure that required surveillance schedules are adhered to.

- Administrative controls have been established for equipment calibration not specifically required by TS which includes frequency, personnel responsibility, and calibration status.

- Administrative controls have been established for maintaining calibration scheduling current.

- Administrative controls have been established to assure that calibrations are performed in accordance with approved procedures.

The documents listed below were reviewed to verify that these criteria had been incorporated into licensee administrative procedures to control surveillance and calibration activities:

APM 3.2, Testing, Revision 21
APM 3.1, Operations, Revision 21
APM 3.3, Maintenance, Revision 21
APM 4.2, Administrative Instructions for Permanent Station Procedures, Revision 21
APM 4.3, Administrative Instructions for Temporary Station Procedures, Revision 21
SD 3.2.2, Development and Conduct of the Periodic Testing Program, Revision 4.

The inspector conducted numerous interviews with various plant personnel to determine their knowledge of procedures and if adequate personnel were available to meet TS related surveillances and calibrations. Three systems were described and are as follows: the first, a computer system PT Scheduling Data Base and PT Scheduling Index, was utilized for scheduling surveillances. This system provides the following types of information; test, test title, responsible group, test frequency, last date test performed, next date test is to be performed, latest date test can be done without exceeding required interval, old test dates, and surveillance requirements. This list keeps track of all TS related surveillance with a monthly or greater frequency.

A second system has delegated to each plant section implementation responsibility for performing a monthly surveillance procedure. This tracks and assures that all TS surveillances are performed on a less than monthly frequency.

The third system requires specific groups to generate an indirect TS calibration list. This list will include process instrumentation needed to verify TS conditions but the instrument has no safety-related function.

The PT program is broad in scope in that it will track and include periodic testing, calibration, or inspection commitments identified in the FSAR; periodic testing, calibration, or inspection requirements described by TS; and other periodic testing requirements which may be identified during the licensing process.

Within this area, 14 inspector followup items were identified and are discussed in the following paragraphs:

a. TS Periodic Testing at Less than Monthly Frequencies

The Periodic Test Scheduling Index and Periodic Test Scheduling Data Base delineates those TS PTs to be done at greater than monthly frequncies. Individual station groups are responsible for implementing monthly surveillance procedures for TS surveillances required to be performed more frequently than monthly. Until the monthly surveillance procedures are written and fully implemented, this is identified as an Inspector Followup Item (413/84-18-06).

b. Frequency Clarification for PT Scheduling Index

S.D. 3.2.2, Section 6 (page 4), defines the Periodic Test Scheduling Index (PTS) to include all PTs which have a surveillance frequency of once per month or greater. On page 5, this same index is stated to include those PTs that have a frequency of once per month or less. Until the PT's Index performance frequency is clarified, this is identified as an Inspector Followup Item (413/84-18-07).

c. Clarify Retest Requirements for QA Condition 1 and 3 Items

S.D. 3.2.2, Attachment 8, contains a plant systems listing. The systems on this list do not require retesting if maintenance is performed on them. This listing is only to be used prior to licensing. Two systems on this list have safety-related functions as defined in Catawba's Nuclear Safety-Related Structures, Systems, and Components List. The specific systems are 6.9 KV Normal Auxiliary Power System (EPB) and the Main Steam System (SM). Until the licensee verifies adequate retesting requirements if maintenance was performed on the safety-related parts of these systems, this is identified as an Inspector Followup Item (413/84-18-08).

d. Indirect TS Calibration Program Development

The licensee is in the process of identifying installed instrumentation that requires calibration at some periodic frequency. This instrumentation has no safety-related function but is used to verify TS surveillance acceptance criteria. An example is pump suction and discharge meters used to verify pump performance. Until the licensee identifies this instrumentation and includes them into the calibration program, this is identified as an Inspector Followup Item (413/84-18-10).

e. Inservice Inspection Program Development

The licensee is in the process of developing an ISI program to meet 10 CFR 50 Appendix J requirements. Until this program is fully developed to meet TS requirements, this is identified as an Inspector Followup Item (413/84-18-11).

f. Performance TS Procedure Development

The performance group is in the process of developing procedures to meet TS surveillance requirements. Until these procedures are fully developed to meet TS surveillance requirements, this is identified as an Inspector Followup Item (413/84-18-12).

g. Operations TS Procedure Development

The operations group is in the process of developing procedures to meet TS surveillance requirements. Until these procedures are fully developed to meet TS surveillance requirements, this is identified as an Inspector Followup Item (413/84-18-13).

h. Chemistry TS Procedure Development

The chemistry group is in the process of developing procedures to meet TS surveillance requirements. Until these procedures are fully developed to meet TS surveillance requirements, this is identified as an Inspector Followup Item (413/84-18-14).

i. IAE TS Procedure Development

The IAE group is in the process of developing procedures to meet TS surveillance requirements. Until these procedures are fully developed to meet TS surveillance requirements, this is identified as an Inspector Followup Item (413/84-18-15).

j. Transmission TS Procedure Development

The transmission group is in the process of developing procedures to meet TS surveillance requirements. Until these procedures are fully developed to meet TS surveillance requirements, this is identified as an Inspector Followup Item (413/84-18-16).

k. Health Physics TS Procedure Development

The health physics group is in the process of developing procedures to meet TS surveillance requirements. Until these procedures are fully developed to meet TS surveillance requirements, this is identified as an Inspector Followup Item (413/84-18-17).

l. Maintenance TS Procedure Development

The maintenance group is in process of developing procedures to meet TS surveillance requirements. Until these procedures are fully developed to meet TS surveillance requirements, this is identified as an Inspector Followup Item (413/84-18-18).

m. Security TS Procedure Development

The security group is in process of developing procedures to meet TS surveillance requirements. Until these procedures are fully developed to meet TS surveillance requirements, this is identified as an Inspector Followup Item (413/84-18-19).

n. Reactor Engineering Procedure Development

The reactor engineering group is in the process of developing procedures to meet TS surveillance requirements. Until these procedures are fully developed to meet TS surveillance requirements, this is identified as an Inspector Followup Item (413/84-18-20).

10. QA Program, Procurement Control (35746)

References: (a) 10 CFR 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants

(b) Regulatory Guide 1.33, Quality Assurance Program Requirements (Operations)

(c) ANSI N45.2-1971, Quality Assurance Program Requirements for Nuclear Power Plants

(d) Regulatory Guide 1.123, Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants

(e) ANSI N45.2.13-1976, Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants

(f) ANSI N18.7-1976, Quality Assurance for the Operational Phase of Nuclear Power Plants

(g) Duke Topical Report, Section 17.2, Amendment 6, Operation Quality Assurance

(h) Technical Specifications Section 6

The inspector reviewed the licensee procurement program required by references (a)-(f) and his commitments in references (g) and (h) to determine if the procurement program was being conducted in accordance with regulatory requirements, industry guides and standards, and commitments made in the application. The following criteria were used during this review:

- Administrative controls have been established to assign departmental responsibilities for procurement activities.

- Administrative controls have been established to identify safety-related equipment, supplies, consumables, and services to be procured under the QA program.

- Controls have been established to provide measures and assign responsibilities for the preparation, review, approval, and changes to procurement documents.

- Procedures have been established for qualifying and maintaining a current list of approved vendors, suppliers, and contractors.

- Procedures have been established to assure that vendors, contractors, and suppliers conform to procurement and quality assurance document requirements, industry standards and codes, and that nonconformances are properly reported and corrected.

- Controls have been established to provide for audits and surveillances of vendors and suppliers facilities and for witnessing acceptance tests.

The documents listed below were reviewed to verify that the above criteria had been incorporated into the licensee's QA program to control procurement of safety-related items and services:

Duke Power Company Policy Statement dated October 13, 1982

Administrative Policy Manual, Section 2.4, Control of Material, Parts, and Components, Revision 21.

Administrative Policy Manual Section 4.5, Administrative Instructions for Purchase Specifications, Revision 21

PR-301, Specifications, Revision 21
PR-302, Procurement, Revision 27
PR-303, Procurement of Services, Revision 13
PR-360, Transfer of Items, Revision 6
PR-930, Supplier QA Records, Revision 7
QA-601, Vendor Evaluation, Revision 5
QA-602, Vendor Surveillance Procedure, Revision 0
List of Nuclear Safety-Related Structures, Systems, and Components, Revision 1
SD-1.5.1, Administration of the Manual, Revision 5
SD-2.4.1, Purchase of Materials, Labor, and Services, Revision 10
SD-2.4.3, Control of Material, Parts, and Components, Original Revision
SD-2.9.2, Control of Purchased Services, Revision 2
SD-3.3.1, Determination of Safety-Related or Control Designated Structures, Systems, and Components, Revision 1
SD-4.5.1, Development of Purchase Specifications, Original Revision
SD-2.7.1, Procurement of Vendors, Revision 1
QA-410, Processing of QA Records for Purchased Items, Revision 9
QA-411, Filing of QA Records for Purchased Items, Revision 8

The inspector interviewed personnel and examined procurement documents to determine if the licensee and vendors had implemented the above procedural requirements during the initiation, review, approval, and processing of procurement documents. The documents listed below were examined:

CNSS-0001-1, Authorized Vendor List of OFF-them Shelf Commercial Grade Equipment, Revision 2

Approved Vendors List dated February 3, 1984
Current Status of Vendors dated October 13, 1983
Letter dated November 3, 1983, to Supervisor, Vendors, regarding scheduling of vendor inspections

Document Package on Hub, Incorporated, which contained the following:

Audit report dated October 10, 1983
ASME Certificate NA-QSC-332 (expiration date April 28, 1984)
Vendor Evaluation Reports (Forms QA-601B) dated May 5, 1979, November 16, 1981, and April 19, 1982
Nonconforming Item Report dated January 27, 1983
Hub, Incorporated, letter to subvendor dated December 11, 1979 (Removal of vendor from Hub's Approved List)
Vendor Surveillance Reports dated September 28, October 18, and December 2, 1983 (Licensee inspections prior to release of products)
QA Vendor Release Nos. 002323 and 002256 dated October 20, 1983, and February 7, 1984

Document Package on Guyon Alloys which contained the following:

Material Certs for P.O. A-61108-NC
Manufacturers Test Report for Heat Code E9011
Vendor Surveillance Reports dated October 13, 1983
Guyon Evaluation of subvendor dated October 12, 1982
Nonconformance Report 17294 dated October 12, 1983, and disposition by the licensee design department
Licensee inspection of items procured by P.O. 5-22739-12 and 13, dated July 22, 1983
Preshipment Surveillance Report (QA Release) dated January 12, 1984

Purchase Orders J-03645-13, H-05122-13, A-33955, and KO-9600-77
Purchase Requisitions 7330840496, 840433, and 840038
Purchase Order Status Log for P.O. J-51935-13
Letter from B&W to Duke dated February 21, 1984, concerning audit scheduled for March 5-9, 1984
QA Department Survey of Isotope Products dated January 17, 1984
Letter from ASME to H. Vogt Machine Company dated December 12, 1983, concerning extension of ASME Stamp
Letter from H. Vogt Machine Company to Duke dated January 3, 1984, concerning ASME recertification.

Within this area, four inspector followup items were identified and are discussed in the following paragraphs:

a. Removal of Vendor from Approved Vendors List

The licensee Corporate Directive Manual, Section 6, Vendor Procedures, specifies the evaluation, selection, surveillances, and approval of vendors. Procedure QA-601, Vendor Evaluation, Revision 5, establishes the methods for placing and retaining vendors on the QA Approved Vendors List; however, the procedure does not specify the elements to be considered to remove a vendor from the QA Approved Vendors List nor does the procedure specify how and by what authorization the vendor is

actually removed from the approved list. Until the procedure is revised to specify the elements evaluated for removal and means to remove the vendor from the Approved Vendors List, this is identified as an Inspector Followup Item (413/84-18-25).

b. Lack of Shelf-Life Program

A review of licensee procedures did not reveal a program for identification or control of items with limited shelf-life. Paragraph 3.1.24 of CNS Directive 2.4.1 requires the requisitioner to indicate any limitations to be placed on the storage life of requisitioned items. The inspector discussed the lack of a self-life program with licensee personnel and was informed that a draft procedure had been developed to identify and control items with limited shelf-life. The shelf-life data would be computerized to provide easy access to information. The inspector was notified that the licensee had looked at 95% of the items in the storeroom and warehouses and has assigned a shelf-life to these materials. Also, the procedure will require that items coming into the warehouses be evaluated for shelf-life.

The inspector discussed with the licensee the merits of adding a statement to the purchase order requiring the vendors to supply shelf-life data. Although CNSD 2.4.1 requires the requisitioner to indicate shelf-life limitations, it appears that the vendor would be more knowledgable of materials used in his product and could supply shelf-life data along with other documentation required by the purchase order. Until the licensee has an approved procedure to control items with limited shelf-life, this is identified as an Inspector Followup Item (313/84-18-21).

c. Lack of Control of Shaft Keys

The inspector could not find and the licensee could not identify a mechanism (program) that controlled shaft keys. This lack of controls could result in the misapplication of low strength keys where high strength keys are required and vice versa. One example concerning Limitorque Valve Motors was discussed in IE Information Notice 81-08. Keys designed for a particular application (torque and impact requirements) should be controlled during procurement, storage, issue, and installation activities. Until the licensee assesses the control of keys, this is identified as an Inspector Followup Item (413/84-18-23).

d. Lack of a Program to Control the Use of Aerosols

Nuclear Station Directive 2.4.4(TS), Control of Surface Applied Material, Revision 1, imposes restrictions on the use of materials which may be detrimental to stainless steel or nickel alloys. This procedure does not restrict or control the use of commercial aerosols

such as mosquito spray, bug spray, hair spray, spray waxes, cleaners, lubricants, rust removers, and other commercial grade aerosols. These types of consumables may contain elements which are detrimental to reactor plant equipment and systems if inadvertenly used in areas where stainless steel, nickel alloys, plastics, and other materials are stored or being maintained. Pending licensee action to control all unqualified materials, this is an Inspector Followup Item (313/84-18-22).

11. Receipt, Storage, and Handling of Equipment and Materials (35747)

References:

(a) 10 CFR 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants

(b) 10 CFR 50, Part 21, Reporting of Defects and Noncompliance

(c) Regulatory Guide 1.38, Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Nuclear Power Plants

(d) ANSI N45.2.2-1972, Packaging, Shipping, Receiving, Storage, and Handling of Items for Nuclear Power Plants

(e) Regulatory Guide 1.33, Quality Assurance Program Requirements (Operations)

(f) ANSI N18.7, Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants

(g) Duke Power Company Topical Report, Quality Assurance Program, DUKE-1-A, Amendment 6, Section 17.2.

The inspector reviewed the licensee program and procedures required by references (a)-(f) and commitments made in reference (g) to verify that controls have been established and were being implemented for receipt inspections, initiation of nonconforming reports, disposition of nonconformances, handling, storage, and issue of safety-related equipment. The following criteria were used during this review:

- Administrative controls have been established for conducting and documenting receipt inspections and reporting nonconformances.

- Administrative controls have been established for disposition of items, marking, storing, and protection of items during storage.

- Administrative controls have been established for limited shelf-life items and for performing audits and surveys of storeroom activities.

The following licensee documents were examined to verify that the licensee had prepared and was implementing procedures to control receipt inspections, handling, storage, maintenance, and protection of reactor plant items:

Administrative Policy Section 2.4, Control of Material, Parts, and Components, Revision 21

Administrative Policy OP/O/A/6550/15, Receipt, Inspection and Storage of New Fuel

QCG-1, Receipt, Inspection, and Control of QA CONDITION 1, Materials, Parts, and Components, Revision 19

QCG-3, Inspection of Items in Storage, Revision 1

QCK-1, Control of Nonconforming Items, Revision 15

MHP-1.5, Confirmation of Purchase Orders, Revision 1

MHP-1.7, Control of Material Transfers, Revision 1

MHP-2.1, Inspection and Control of Stores Stock, Revision 3

MHP-2.3, On Site Certification of Items, Revision 0

MHP-3.1, Storage Methods and Areas, Revision 2

MHP-5.1, Issuing and Returning Material, Original Revision

MHP-6.1, Repaired, Salvaged Items, Revision 1

MHP-7.1, Warehouse Temperature and Humidity Measurements, Revision 1

CNSD-3.9.1 (TS), Special Nuclear Material Control and Accountability, Revision 2

CNSD-2.4.3 (M), Control of Materials, Parts, and Components, Revision Original

CNSD-2.4.1 (M), Purchasing of Material, Labor, and Services, Revision 10

The inspector observed the receipt inspection of items procured from Fisher Controls under Purchase Order J-50235-73. Procurement documentation applicable to this P.O. was also examined. These documents included the purchase order, QA release, change order 1, manufacturer's certification, packing slip, and receiving reports CN 8783, 8793, 8794, and 8796.

The inspector selected three items stored in the QA Storeroom and verified by tracing the procurement documentation that these items were located in the specified location, had been receipt inspected, and that QA documentation was in the files. The items inspected were as follows:

PO H11940, Item 20, Seals, ID No. 244100814N, P/N 7237298 received per receiving report CN 003796.

PO J-20095, Item 3, Valve Actuator, ID No. 21710688N, located in shelf 030U0/05, received per receipt inspection report CN 6762.

PO E-13067, Immersion Heaters, ID No. 23260005N received per receipt inspection report CN 6085.

The inspector examined procurement documentation associated with six recently processed purchase orders. These POs covered mechanical, electrical, electronic, and chemical items. This examination verified that procurement documentation had been prepared as required by licensee procedures, quality release forms had been prepared, vendors were approved, certificates of compliance had been submitted, receiving inspections had been performed, and parts were identified and stored as specified in the referenced procedures. The following purchase order packages were examined:

PO K-04044, Push Rod and Connector Rods from Trans America Delaval

PO K-04041-74, Bolts and Nuts from Delaval

PO J-55573-70, Fuses from Dixie Electronic

PO K-04406-70, Diodes, relays and switches from Dixie Electronic

PO JD-2960-74, BORAX from BORAX Chemical Company

PO JO 2901-74, Boric Acid from BORAX Chemical Company

The inspector interviewed storeroom personnel and performed a walk-through inspection of the QA Storeroom. Discussions with storeroom personnel and observation of work activities revealed that storeroom personnel appeared knowledgeable of their position responsibilities and were performing receiving inspection activities as required by procedures. As discussed in this report, specific handling and storage procedures to prevent damage to particular items (long slender shafts, sensitive, and fragile items) were minimal; therefore, storeroom personnel used their best judgement.

During the walk-through inspection, several items of concern (confirming the above) were identified and discussed with the licensee. These items included the storage of many different parts in the same shelves, location of cabinets for hazardous and flammable products (cabinets were empty), improper arrangement and temporary storage of items on the "HOLD AREA" shelf, and lack of a Level "A" storage area.

Within this area, two violations and one inspector followup item were identified and are discussed in the following paragraphs:

a. Failure to Provide Adequate Handling and Storage Procedures and Instructions

Administrative Policy, Section 2.4, Control of Materials, Parts and Components, Revision 21, specifies that items shall be packaged and stored in such a manner that quality is not degraded and to protect the items from damage. Paragraphs 2.4.7 , 2.4.8, and 2.4.9 further define storage, handling, and packaging requirements in a generalized manner, but do not specifically address handling and storage of intricate, sensitive, and fragile items. Station Directive 2.4.3(M) and the Materials Handling Manual were written purposely to clearly define the control of materials, parts, and components and require that parts be properly handled, stored, and maintained. Discussions with personnel and the review of licensee policies and procedures revealed that these documents cover generic storage and handling procedures but do not address particular unique individual items. Other licensee procedures go into great detail to explain the processing of records, preparation of specifications, preparation of purchase orders, inventory control, location of items, and issuing of items; but do not adequately address the actual physical handling, packaging, and storage methods to be used (to prevent damage) based on the size, delicacy, or configuration of the parts (i.e., long slender shafts, printed circuit boards, and precision machined surfaces). The decisions on how to package, where to store, how to handle (lift, transport), how to separate, and physically stack items are generally left to storeroom personnel instead of being developed by technically qualified personnel based on vendor recommendations

Section 14 of ANSI N45.2 and Sections 6 and 7 of ANSI N45.2.2-1972 specify that items shall be stored and handled in such a manner to minimize the possibility of physical damage or lowering of quality and that detailed instructions shall be prepared for all items requiring special packaging, handling, and storage.

Criterion XIII of 10 CFR 50, Appendix B, requires that measures shall be established to control the handling, storage, and shipping of materials and equipment in accordance with instructions to prevent damage or deterioration.

Contrary to the above, procedures or instructions were not provided to storeroom personnel to ensure that particular parts are handled, packaged (wrapped), and stored in such a manner to prevent distortion and physical damage. Examples of inadequate packaging and storage practices resulting from the lack of adequate procedures and instructions were identified by the inspector and were discussed with the

licensee. These examples concerned packaging and stacking 11 printed circuit boards (procured under P.O. J-52372) in such a manner to allow distortion and physical damage. These delicate circuit boards were placed in thin plastic bags and stacked on top of each other, on top of other parts and against other parts without measures to prevent distortion and other physical damage. Two other shelves had many different parts stored together, not separated except for plastic bags, and were not arranged to provide easy access to individual parts and to prevent physical damage.

Failure to provide adequate handling and storage procedures and instructions constitutes a Violation (413/84-18-02).

b. Failure to Control Repaired/Salvaged Items

10 CFR 50, Appendix B, Criterion V requires that activities affecting quality be accomplished in accordance with applicable procedures or instructions. The QA program reference (b) states that the licensee will conform to Regulatory Guide 1.38, Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Water-Cooled Nuclear Power Plants, which endorses ANSI N45.2.2-1972, Packaging, Shipping, Receiving, Storage, and Handling of Items for Nuclear Power Plants.

The licensee's Material Handling Procedure 6.2, Repaired/Salvaged Items, Revision 1, provides a system for maintaining traceability and accountability of items removed from service. Paragrpah 4.2 specifies that the responsible supervisor will place a yellow non-serviceable tag on each defective item and that each item will be stored in the appropriate holding area for repair.

Several items for repair were in the QA storeroom without the yellow non-serviceable tag and were not stored in an appropriate area to ensure against inadvertent use. Items identified were a Brooks Full View Rotometer and three associated valves all under Work Request 7034 (OPS). Other documents included a memorandum which requested that the Brooks Rotometer be returned to stock by NPR CP-2026, WR 8189 NSM. Two other valves, not safety-related, were also in the same area without yellow non-serviceable tags and were identified only by WR 0187 NSM.

The lack of an appropriate area for storage of items prior to repair and disposition, plus the failure to provide adequate identification as required by ANSI N45-2.2, Paragraph 6.4, was discussed with the licensee and consitutes a Violation (413/84-18-01).

c. Determination of Level "A" Storage Area

Administrative Policy, Section 2.4, Control of Materials, Parts, and Components, Revision 21, specifies that items exceptionally sensitive to environmental conditions shall be stored in a Level "A" area.

Material Handling Procedure 7.1, Warehouse Temperature and Humidity Measurements, Revision 1, states that a hygrometer is used to record temperature and humidity and specifies the frequency for checking, removing, and retention of charts. During inspection of the QA Storeroom and discussions with personnel it was revealed that the site had not received any items requiring Level "A" storage area as specified in AP 2.4; therfore, MHP 7.1 was not being implemented. Until the licensee determines where Level "A" items will be stored and controlled, this is identified as an Inspector Followup Item (413/84-18-24).

12. Test and Measurement Equipment (35750)

References: (a) 10 CFR 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Processing Plants

(b) Regulatory Guide 1.33, Quality Assurance Requirements (Operations), Revision 2

(c) ANSI N18.7-1976, Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants

The inspector reviewed licensee administrative controls required by references (a)-(c) to verify that test and measurement equipment (M&TE) activities were conducted in accordance with regulatory requirements, industry guides and standards, and Technical Specifications (TS). The following criteria were used during this review:

- Administrative controls have been established for M&TE that include calibration frequency, equipment inventory list, calibration standards to be used, and calibration procedures for each piece of equipment.

- Administrative controls have been established to assure that each piece of M&TE is calibrated before the date required.

- Administrative controls have been established which prohibit use of M&TE if it has not been calibrated or is past the calibration due date.

- Administrative controls have been established which require assessment of M&TE if found out-of-calibration.

- Administrative controls have been established to assure that new M&TE is added to inventory lists and calibrated prior to use.

The documents listed below were reviewed to verify that these criteria had been incorporated into licensee administrative procedures controlling measurement and test equipment activities.

Duke Power Company QA Topical Report, "Quality Assurance Program," Duke-1 (Amendment 6)

APM 2.3, Control of Measuring and Test Equipment, Revision 21

APM 5.1, Standards Laboratory, Revision 21

APM 5.2, Qualification and Testing Facility, Revision 21

SD 2.3.1, Control of Test and Measuring Equipment, Revision 4

CP/O/B/8800/01, Reagent Verification and Instrument Check and Calibration, Change 2

QC B-1, Control of Measuring Equipment and Calibration and Test Standards, Revision 5

Standards Laboratory Operations Manual, Revision 0

The inspector conducted extensive interviews with site and corporate M&TE personnel and verified that M&TE personnel were conducting activities in accordance with established administrative controls. The inspector also toured the corporate M&TE facility and verified traceability of M&TE to the National Bureau of Standards.

The inspector reviewed the results of the following QA surveillances relative to M&TE activities: CN-83-7 conducted March 18-28, 1983; CN-83-16 conducted June 28 - July 8, 1983; and CN-83-36 conducted November 4-14, 1983. Corrective actions for six identified deficiencies currently being addressed.

Within this area, one inspector followup item was identified. The performance group is in the process of establishing a calibration program for selected M&TE. Procedural controls required for calibration have not been totally implemented. Until the performance group establishes procedural controls for M&TE calibration, this is identified as an Inspector Followup Item (413/84-18-09).

13. Licensee Actions on Previously Identified Inspection Findings

a. (Open) Inspector Followup Item (413/83-52-04, 414/83-39-04): Water Piping in Document Control Vault. The inspector reviewed corrective actions on this item with cognizant licensing personnel. The inspector reemphasized that all aspects of ANSI N45.2.9, Section 5.2.6, relating to vault construction would have to be addressed by licensee personnel to close this item.

b. (Closed) Inspector Followup Item (413/83-52-05, 414/83-39-05): Uncontrolled Access to Document Control Vault. The inspector reviewed vault access and verified that adequate controls have been established to prevent uncontrolled access to the document control vault.

c. (Closed) Inspector Followup Item (413/83-52-06, 414/83-39-06): Loose Record Storage in Document Control Vault. The inspector toured the document control vault and verified that records are being properly stored. Loose records were not identified.