UNCONTROLLED

COOPER NUCLEAR STATION

QUALITY ASSURANCE PROGRAM FOR OPERATION

POLICY DOCUMENT

[Appendix D to Cooper Nuclear Station
Updated Safety Analysis Report (USAR)]

Approved: /s/ K. L. Trevors — Mar 1, 1984
Division Manager of Quality Assurance — Date

RECORD AND CONTROL OF REVISIONS

Revision No.	Prepared By	Review Date	Approved & Issued Effective Date of Revision
1	FEW - 1/15/84	VLW - 1/20/84	K. L. Trevors 3/1/84
2	FEW - 3/15/85	VLW - 4/1/85	K. L. Trevors 4/29/85
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NEBRASKA PUBLIC POWER DISTRICT
COOPER NUCLEAR STATION
QUALITY ASSURANCE PROGRAM FOR OPERATION

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Note: The above ANSI Standards and corresponding Regulatory Guides will serve as the baseline for NPPD commitment to NRC publications WASH-1283 (5-24-74), WASH-1284 (10-26-73) and WASH-1309 (5-10-74). Reference to ANSI Standards or Regulatory Guides in the Quality Assurance Program or implementing procedures will apply to the revision or issue date as noted above.

Corporate Policy Statement

This document establishes and describes the policies and practices of the Quality Assurance Program applicable to the operation of the Cooper Nuclear Station and the support activities of all Divisions of the Nuclear Power Group. The District's policy with respect to nuclear safety and quality assurance is detailed in Section 1.2 of this document.

Each Division of the Nuclear Power Group is responsible for the development of policies and procedures which implement this Quality Assurance Program.

The Quality Assurance Division and established Safety Committees shall monitor the District's nuclear program and provide management with evaluations and assessments regarding the effectiveness of the implementation of the program. When evaluations and assessments identify a concern, management shall take expeditious action to correct any undesirable condition(s) including, where appropriate, action to preclude repetition of such condition(s).

District personnel shall have the organizational freedom to identify concerns and propose corrective and preventive action necessary to enhance the District's nuclear program.

The assurance of safe and reliable operation of Cooper Nuclear Station is everyone's duty. Quality shall be everyone's responsibility.

Don E. Schaufelberger
General Manager

Acknowledged:

Assistant General Manager - Nuclear

Division Manager - Quality Assurance 4/29/85

COOPER NUCLEAR STATION
QUALITY ASSURANCE PROGRAM FOR OPERATION
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1.0 PROGRAM DEFINITION

In accordance with the conditions of the Nuclear Regulatory Commission construction permit and operating license for the Cooper Nuclear Station, the management of Nebraska Public Power District recognizes its responsibility for assuring that the Cooper Nuclear Station is designed, constructed, and operated in such a manner as to provide for the safety of the public. The importance of Quality Assurance in contributing to this safety as well as contributing to station reliability is also recognized.

The initial phases of the overall Quality Assurance Program, implemented during design and construction, provided an independent check for the work performed on components, structures, and systems of the station to assure that the design, analysis, materials of construction, manufacture, installation, erection, and construction meet quality standards required to assure reliable and safe operation. The CNS Quality Assurance Program for Operation, as described herein, is implemented to provide an independent quality check on all phases of station operation.

1.1 Purpose

The purpose of this policy document is to provide a description of the Quality Assurance Program to be followed during Cooper Nuclear Station operational phase and to provide guidelines for implementation of the policies and procedures described herein. This CNS Quality Assurance Program for Operation was developed by Nebraska Public Power District in response to the requirements of 10CFR50, Appendix B. This policy document provides a general description of the Quality Assurance Program for Operation and requires that detailed Quality Assurance Procedures be set forth in writing and carried out by each of the responsible organizations or individuals within the District.

1.2 Policy

It is the policy of Nebraska Public Power District (NPPD) to use its best efforts to assure that the Cooper Nuclear Station is designed, constructed, maintained, and operated in a manner that will provide the highest practical degree of safety and reliability. Structures, components, and systems are designed, fabricated, and erected to quality standards appropriate to their importance in the safety function. The Quality Assurance Documents will identify those structures, systems, and components to be covered by the Quality Assurance Program in order to provide continuing compliance with these standards throughout the operating life of the station. Additionally, it is the policy of NPPD that activities affecting quality shall be documented by approved instructions, procedures, or drawings and such activities shall be implemented as documented. And further, such documentation shall contain adequate qualitative and/or quantitative acceptance criteria to provide a measure of accomplishment.

With regard to assurance of quality in all phases of station operation, it is the policy of Nebraska Public Power District (NPPD) to staff the plant with

properly-trained personnel in all responsible positions and job assignments. Sufficient numbers of licensed and senior licensed operating personnel will be available to assure proper operation of the station under all reasonably foreseeable circumstances of personnel turnover, vacations, disability, and the like.

All personnel responsible for operating or maintaining safety-related systems and equipment shall receive formal instruction in Quality Assurance, including basic principles, 10CFR50, Appendix B, the contents of this policy document, and Quality Assurance documents as applicable.

Trained technical, engineering, and Quality Assurance personnel shall be assigned surveillance and audit tasks to insure compliance with the requirements of the documents which control station operation, such as the NRC license, Safety Analysis Report, Technical Specifications, Operating Manual, QA Program for Operation, and other such controlling documents. Personnel assignments shall be made by the normal line organization management and will be verified by the QA Division. However, during the time personnel are performing QA Functions, they shall be responsible to the QA Division to effect the organizational independence required by the QA Program.

It is the policy of Nebraska Public Power District to maintain quality standards for the entire station which will insure the high degree of reliability and safety needed to meet the overall objectives of supplying dependable electric service to its customers.

In summary, NPPD is committed to the continuous development of a Quality Assurance Program which will meet the requirements of 10CFR50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants, and other applicable regulations as may be promulgated by the Nuclear Regulatory Commission. This commitment applies to all NPPD organizations to assure that a high standard of quality will be maintained during nuclear plant operations. Section 2 of this document presents a summary discussion of the QA Program as applicable to the 18 criteria of 10CFR50, Appendix B.

1.3 Objectives

In accordance with the policy statements above, the overall objective of the CNS Quality Assurance Program for Operation, as defined in QAI's and QAP's, is to set forth the Quality Assurance organizational structure and personnel responsibilities and to set forth guidelines for the preparation of written procedures and controls necessary for quality surveillance and auditing to verify the following:

a) Regulatory criteria, codes and standards, and design bases for safety-related systems (as defined in the CNS QA Program) are incorporated into the test, operating and maintenance procedures and instructions to meet all requirements for nuclear safety and station reliability;

b) Results of all preoperational and operational tests of safety-related systems and components conform to the requirements of the drawings, specifications, procedures, and instructions, and appropriate reports are prepared to document that all results of tests meet prescribed acceptance criteria;

c) Nuclear Fuel is purchased, designed, manufactured, inspected, packaged, shipped, received, installed, and operated in the reactor in accordance with approved procedures and instructions, and in compliance with regulatory requirements and license stipulations.

d) The Station is operated, maintained, tested, refueled, repaired, and modified, in accordance with approved procedures and instructions, and in compliance with regulatory requirements and license stipulations and consistent with quality standards equal to or better than those in effect during design and construction;

e) A system is set up and maintained to control, safeguard, and permit ready retrieval of quality-related documentation generated for materials and components during the design, fabrication, construction, and operations of CNS.

f) Appropriate and complete reports, records, and logs are initiated and maintained so as to provide a continuing record of quality-related activities associated with station safety and reliability throughout the life of the station.

g) The station personnel are subjected to periodic training, retraining, requalification, and examination such as to maintain and improve their job skills which are essential to safe and reliable operation of the station;

h) Station security and nuclear fuel accountability and safeguards are maintained in accordance with approved procedures and instructions.

i) Nonconformance reports shall be properly resolved and filed in the quality-related record files.

j) Inspection reports issued by NRC are properly resolved and documented.

k) Spent fuel shipment activities shall be accomplished in accordance with regulatory requirements (10CFR Part 71).

1.4 Scope

The QA Program for Operation applies to those nuclear station structures, systems, and components that prevent or mitigate the consequences of postulated accidents which could cause undue risk to the health and safety of the public, and to other selected systems as defined in implementing QA procedures. The requirements of this program apply to all activities which affect the safety-related functions of those structures, systems, and components, including designing, purchasing, fabricating, handling, shipping, storing, cleaning, erecting, installing, inspecting, testing, operating, maintaining, repairing, refueling, in-service inspection, and modifying.

This program specifically applies to, but is not necessarily limited to the nuclear fuel, the reactor coolant system and its auxiliaries and controls, the reactor protection and engineered safety systems, the reactor containment system, portions of the radioactive waste disposal system, and other systems and components required for safe shutdown of the plant. A tabulation of those

structures, systems, and components which are covered by the QA Program is given in Table 1.

The Quality Assurance activities governing those structures, systems, and components shall be generally organized and conducted within the framework of operating activities shown in Section 4.1.3.

The Quality Assurance Criteria in 10CFR50, Appendix B, are oriented primarily toward engineering, manufacturing, and construction activities. Therefore, it is necessary to define, by specific plans and procedures, the manner in which the NRC Quality Assurance Criteria are to be applied to the station operating activities. Such plans and procedures shall be prepared in accordance with the requirements specified in Sections 2.0 and 4.0 of this policy document.

The Specifications, principles, and procedures which controlled the original procurement, fabrication, and construction shall be carried over into the QA aspects of station operation to the greatest extent practicable. It is the intent of NPPD management to maintain, as a minimum, the quality level achieved in the original design and construction. To the extent that different conditions prevail at the time future work is performed, new procedures will be prepared as necessary and appropriate to accomplish the objectives of this QA Program and to assure that the activities are accomplished in accordance with current requirements if the original requirements were insufficient.

1.5 Definition of Terms

Key words and phrases which are used to characterize this QA Program are defined in a Quality Assurance Instruction (QAI-3) to establish a basis for uniform and consistent interpretation of the Quality Assurance requirements and to provide some insight into the intent of these requirements. Definitions of these terms are based upon documents and standards issued by the American National Standards Institute (ANSI), by the NRC Safety and Regulatory Guides, and by the several professional societies involved in standards work (ANS, ASME, IEEE, et al.); or shall be defined on the basis of contemporary usage in the nuclear power industry; or shall be defined specifically to convey the intent of this particular program.

To facilitate review and understanding of this policy document, the following basic terms are defined below along with appropriate QA Program requirements.

Quality Assurance

All those planned and systematic actions performed for the purpose of establishing a high level of confidence that:

a) Work performed on the project conforms with the requirements of the applicable codes, standards, license stipulations, safety analyses, design drawings, specifications, procedures, and instructions; and

b) A structure, system, and components will perform satisfactorily in service.

The Quality Assurance organization within the District is completely independent from all line organizations. The NPPD QA Program requires that all personnel performing specific Quality Assurance duties be responsible to the QA organization in order to insure the maintenance of such independence until completion.

Quality Control

Those activities which deal directly with the measurement, observation, or verification of physical characteristics of materials, components, or systems which provide a basis for controlling quality to within predetermined limits, or requirements, specifically including adequate quantitative and/or qualitative acceptance criteria by which an activity can be measured.

Quality Control activities are considered to be inspection activities and are an integral part of the management functions which govern the activities in any given organization. The QA Program requires that controlling documents related to quality-related activities receive QA review to insure incorporation of quality requirements, including periodic audits, and additionally, that individuals performing quality control activities are other than those actually performing the work.

Quality Assurance Plans

Quality Assurance Plans are those documents specifically designed to provide detailed quality requirements for a given functional area. The plans are generated by application of the 18 criteria of 10CFR50, Appendix B, to each functional area and then deriving the specific quality requirements for that area.

Quality Assurance Instructions

Quality Assurance Instructions shall provide guidelines for surveillance and audit activities of functional areas to be performed by the QA Staff. In addition, they shall define the responsibilities for implementation of the QA Program in accordance with policies and practices herein defined.

Quality Assurance Documents

Those documents inclusive of the QA Policy Document, QA Plans, QA Instructions, Procedures (and associated data sheets), logs, etc., which have been approved for use, and whose intended function is to provide direction, verification, or documentation for activities affecting qualiyt.

Quality Assurance Records

Those Quality Assurance documents which have been completed and furnish documentary evidence of the quality of items and/or activities affecting quality.

Major Design Change

A major design change is any permanent change to the facility that requires a Technical Specification change or that may present an unreviewed safety question (10CFR50.59).

Minor Design Change

A minor design change is any permanent change to the facility judged significant enough to warrant documentation and that does not require a change to Technical Specifications or present an unreviewed safety question (10CFR50.59).

Significant Conditions Adverse To Quality

Any conditions that could affect safety-related system ability to function within design requirements or alter performance characteristics.

Supplier Evaluation

Those activities which determine the effectiveness of implementation of the supplier's Quality Assurance Program. A variety of methods are to be used as described in QA Procedures. However, facility audit shall remain the primary method.

2.0 SUMMARY DESCRIPTION - 10CFR50 APPENDIX B CRITERIA

This section defines NPPD commitment to meet the requirements of the 18 criteria of 10CFR50, Appendix B, as it applies to safety-related structures, systems, and components associated with Cooper Nuclear Station. In addition, it includes NPPD interpretation of the 18 criteria as they apply to an operating nuclear power plant.

A comparative cross-reference tabulation of the 18 criteria of Title 10, Code of Federal Regulations, Part 50, Appendix B, against NPPD Quality Assurance program for operation, CNS procedures, and Nuclear Engineering Department procedures are outlined in Table 2 which demonstrates the manner and extent of NPPD compliance with NRC requirements.

Significant revisions to Quality Assurance documents shall be subject to the same appropriate review and approval process as the original document before being issued. A controlled distribution will be established for the transmittal of these revised Quality Assurance documents. These revisions shall not change the requirement for the NPPD Quality Assurance program for operation to meet the 18 criteria specified in 10CFR50, Appendix B.

Table 1 outlines the safety-related structures, systems, and components covered by the Quality Assurance program.

2.1 Organization

The General Manager (Figure I) represents the highest level of management for establishment of Quality Assurance policies, goals, and objectives. Specifically, those responsibilities associated with the nuclear facilities and General Office support activities have been delegated to the Assistant General Manager - Nuclear and the authority to define and implement the detailed requirements of the Quality Assurance Program. This authority includes the right to direct, enforce, and perform any action required to ensure all activities conducted at Cooper Nuclear Station are in compliance with 10CFR50, Appendix B. In addition, the personnel assigned to the Quality Assurance Division shall have complete independence to perform audits, inspections, verifications and shall be independent of those groups performing, designing, purchasing, fabrication, shipping, storing, cleaning, erecting, installing, inspection, testing, operation, maintenance, repairing, refueling, in-service inspection, and modifying. Figure 1 of the Quality Assurance document outlines the QA Division functional organization. Quality Assurance personnel shall have sufficient authority and organizational freedom to:

1) identify quality problems;

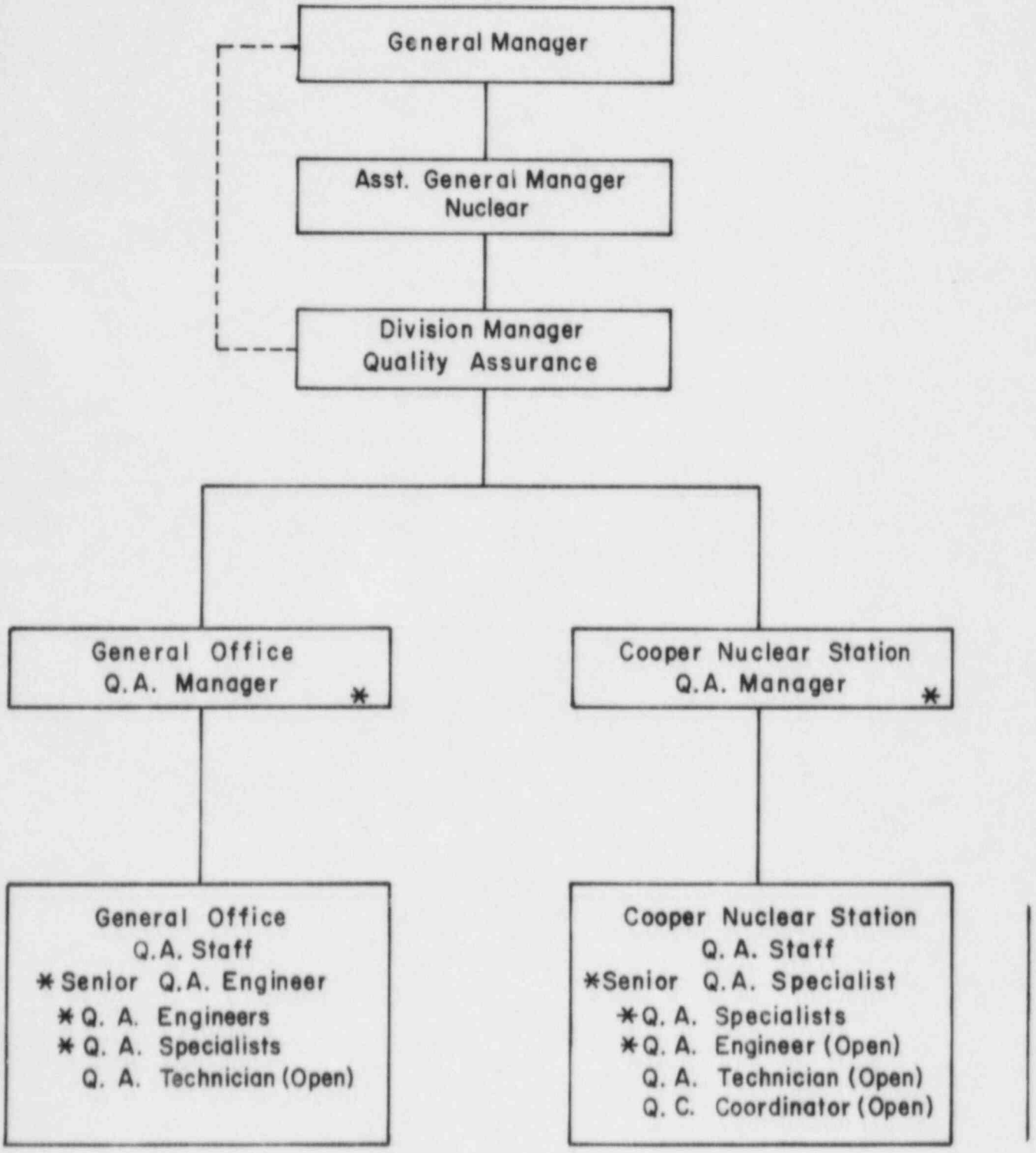
2) initiate, recommend, or provide solutions for conditions adverse to quality;

3) verify implementation of solutions.

2.2 Quality Assurance Program

The program shall be implemented in accordance with written, approved Quality Assurance Plans and the guidelines developed by the Quality Assurance Division. The District's QA Program will comply with the Quality Assurance

FIGURE I



* Responsible for Q.A. second level surveillances and third level Q.A. audits.

------ Direct Communications

guidelines contained in the Orange Book 10-26-73. Design control, procurement control, quality control, and quality assurance activities associated with plant modifications will similarly conform to the guidances provided within the Gray Book - Wash, 1283- Rev.-1 and the Green Book - Wash. 1309- 5-10-75. Procedures will be prepared for each important activity of station operation which will clearly define the work to be performed on a step-by-step basis and will identify, where appropriate, the results to be achieved. Mandatory QC or QA inspections or tests will be performed on an independent basis to verify that procedures are being followed (correct results obtained) and will be incorporated into the work procedures directly or by attachment. QA Audit activities, also based on the procedures, will accomplish the function of verifying that the Quality Control Program is in effect and that QC activities are being carried out as prescribed.

Table 1 lists the essential structures, systems, and components associated with Cooper Nuclear Station to be covered by this program. The Nuclear Operations Division and Nuclear Services Division, with the assistance of the QA Division, will continue to identify essential structures, systems, and components. The Quality Assurance program will provide control over all activities affecting quality of an essential item listed in Table 1 to a degree consistent with their safety-related importance. These activities will be governed by approved plans and instructions and these documents shall be followed under controlled conditions. The Quality Assurance documentation will be reviewed periodically to assure that the requirements of the program are being met and new requirements are being incorporated.

In addition to the identified essential structures, systems, and components, applicable portions of this program shall be applied to selected nonessential structures, systems, and components important to station reliability and performance. Specific application will be identified in dedicated Quality Assurance Plans.

Special process controls, test equipment, tools, skills (training, if required) shall be used during the conduct of inspection, verification and checking activities to assure a high standard of quality and reliability has been obtained on safety-related items covered by the Quality Assurance program. Test equipment and special tools will be calibrated against a specified secondary standard.

Nuclear experienced designated individuals (which may include personnel from Nuclear Operations, Nuclear Services, and/or outside qualified individuals) may be requested to assist in performing audits and inspections of certain CNS quality-related activities at the direction of the Division Manager of Quality Assurance. During these assignments, these individuals will have sufficient organization freedom to identify and recommend corrections for quality deficiencies noted.

Services of qualified consultants in addition to QA staff personnel are utilized as needed to provide QA indoctrination and on-the-job training as well as assist in other department functions. In addition, QA staff members will attend a minimum of one training seminar per year by a qualified agency and/or school. Ongoing QA training for personnel with nuclear plant responsibilities is provided by formal sessions conducted by the QA staff. Training activities will be audited periodically by the QA staff to verify its scope and performance.

2.3 Design Control

CNS Engineering procedures outline the method for identifying, controlling, and implementing design changes within the Cooper Nuclear Station. The procedures provide the mechanism for correctly translating the design changes and regulatory requirements into specifications, drawings, procedures, and instructions. They also establish the method of reviews, interface requirements (with original design organization, if required), approvals, and the organizations delegated the authority to implement the design change. In the area of Design Control Criterion III, NPPD's position of this criteria is oriented towards major and minor design changes and not the initial design and construction phases.

Design control measures shall include the review for suitability of application of items that are essential to the safety-related function of the system involved. This review will normally occur during the normal design change review or during review of the procurement document by Quality Assurance and the Engineering and/or Maintenance Departments. A necessary part of this review concerns the safety classification of items to be procured. In those instances where the normal methods of Section 2.7 cannot be applied and it is necessary to purchase "commercial-grade" off-the-shelf items for use in essential applications, verification will be performed to insure that the part utilized is functionally acceptable for the essential application. This verification may include acceptance testing upon receipt, analysis, or other definitive method.

All design changes initiated for Cooper Nuclear Station will be forwarded to the QA Division for review and independent evaluations. When major design changes to Cooper Nuclear Station essential systems, structures, and components are required within the plant, such design changes are subject to additional review and audit by the Safety Review and Audit Board (SRAB) as required by the Technical Specifications. These reviews shall verify the compatibility of the design change with applicable codes, standards, and regulatory requirements. Items to consider include reactor physics, stress, thermal hydraulic and accident analyses, compatibility of materials, accessibility for in-service inspection, maintenance, repairs, and delineation of acceptance criteria for inspection and tests. All major design changes will also be forwarded to Nuclear Services for interfacing and coordination among participating design organizations.

Final acceptance of the design change will require an independent verification or check of the design adequacy such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program.

2.4 Procurement Document Control

Cooper Nuclear Station Administrative Procedures, Nuclear Engineering Procedures, Quality Assurance Plans and Instructions are required to define the applicable requirements, design basis methods, and procedures for procurement of spare parts, materials, and equipment for essential nuclear systems. These instructions and procedures shall also include provisions for assuring that the necessary quality requirements are incorporated directly into the purchase order and contracts for essential spare parts, material, and equipment. These instructions and procedures shall also include provision for assuring that the necessary records are supplied to the purchaser by the supplier.

The basic principles and practices included in these procedures are expected to be applicable, in general, to any purchasing activity necessary for operation of the station; however, in the event that procurement is necessary for major modification or repair activities, some additions may be necessary to provide adequate control.

Procedures covering procurement provide for independent Quality Assurance review of the essential purchasing documents; review and approval of bidders and suppliers; and QA audit of contractor and supplier activities.

Change Orders issued on any purchase order will be subjected to the same review and approval as the original order.

In addition, all procurement documents issued on safety-related suppliers require that the contractor, vendors, or subcontractors have a Quality Assurance program in accordance with 10CFR50, Appendix B. The Quality Assurance program submitted by a contractor or subcontractor will be evaluated by NPPD QA to ascertain that they meet the criteria established in 10CFR50, Appendix B, or an equivalent program which assures the necessary level of quality (as determined by NPPD QA). Any variations from 10CFR50 Appendix B will be indicated in the purchase documents.

To the maximum practicable, the as-built drawings and specifications for Cooper Nuclear Station will be utilized in procurement of spare parts, material, and replacement parts.

Where necessary, because of design modifications, or where it is necessary or desirable to upgrade quality in replacement parts or material, necessary modifications will be made to drawings and specifications to incorporate requirements for currently appropriate quality level. These modifications or upgrading of replacement parts will be accomplished in accordance with approved instructions, procedures, and drawings. These documents will be subject to SORC review before being implemented.

2.5 Instructions, Procedures, and Drawings

Quality Assurance activities and other activities which have nuclear safety significance will be prescribed by documented instructions, drawings, and procedures as appropriate and shall be accomplished in accordance with these instructions, procedures and drawings. These instructions will be sufficiently detailed and explicit so that any supervisor, inspector, or auditor can, by observation, determine whether or not activities are being satisfactorily accomplished and documented. These documents shall include the qualitative and quantitative acceptance criteria necessary to assure satisfactory completion of the test procedure. Those acceptance criteria should, where appropriate, require post installation testing prior to returning the component or system to service. Repair maintenance activities on Essential Systems are performed in accordance with Maintenance/Work Request. The required documentation for special processes are forwarded routinely to the CNS QA staff for review along with special test procedures and special maintenance procedures.

2.6 Document Control

Administrative control procedures shall be established by the Columbus General Office (G.O.) and Cooper Nuclear Station (CNS) to control the

identification, indexing, filing, retention, retrieval, and distribution of quality-related records and documents. Control procedures shall be reviewed and approved by authorized personnel and are distributed to and used at the site of the activity. These procedures shall also ensure that change to quality-related records and documents receive the same level of review and approval as the original document.

Those quality-related records and documents generated and maintained as part of normal station operation will be the responsibility of CNS station management. This responsibility shall also include those quality-related construction records left at CNS by exiting contractors.

The G.O. Records Manager shall be responsible for those quality-related records and documents generated and maintained at the Columbus G.O. This responsibility will include quality-related construction records turned over to the District in accordance with various contractual requirements.

The G.O. Records Manager and CNS station management will jointly establish a master list of quality-related documents stored at CNS and the G.O. This list will be routinely updated by Columbus and CNS document control personnel. The overall objectives of NPPD document control are to:

a) Identify those records and documents which are used to control, maintain, modify, or document quality-related activities both at the G.O. and at CNS.

b) Establish an index of quality-related records located at the Columbus G.O. and at CNS so that personnel involved in a safety-related activity can determine which documents are applicable to the activity and whether the documents at hand are of the latest revision.

c) Establish a filing system.

d) Establish periods of retention.

e) Establish measures to control distribution and revisions.

The G.O. Records Manager, CNS station management, and the Quality Assurance Division will jointly establish lines of specific responsibility, interfaces, and document control procedures. The requirements established in ANSI N45.2.9-1979 shall be used in establishing these control procedures and record storage requirements.

2.7 Control of Purchased Material, Equipment, and Services

NPPD receiving inspection instructions provide for determining that all purchased materials, equipment, and services purchased directly or through a contractor, vendor, or subcontractor meet the requirements specified on the original procurement specifications, such as code, standards, specifications, special acceptance testing, material identification, etc. The completed receipt inspection report will become part of the purchase order package. Procurement documents shall be available at the receiving area to identify the receiving inspections required.

NPPD procedures covering procurement provide for supplier evaluation to determine the supplier's quality program effectiveness and their compliance to

the applicable 10CFR50 criteria as part of the supplier selection process. These procedures shall describe the methods and techniques used to evaluate the supplier's quality assurance program.

The QA Division shall re-evaluate the supplier's quality program at intervals consistent with the importance, complexity, and quantity of the item or services to effectively maintain control of quality. Procurement documentation will specify mandatory hold points for witnessing or inspection of purchased materials, equipment, or services, if required by NPPD.

Upon receipt at the station, material, parts, and equipment purchased and identified as "Essential" or "Essential-Commercial Grade" will be placed in a segregated storage area until all inspections are complete and all required certifications and documentation is received.

Items in segregated areas will not be issued, by the Warehouse, without the written permission of the Division Manager of Nuclear Operations or designee and only then after proper arrangements have been made to assure that necessary steps will be taken to bring all aspects of the particular item into conformance with normal requirements prior to the system containing components in "Hold" status being returned to service.

Suppliers of essential equipment shall be required to provide certified documentary evidence that the material supplied conforms to the purchase document requirements such as material test report, code required test and inspection, documentation, etc. A complete set of documentation required by the procurement document for all essential materials, equipment, and services will be filed at Cooper Nuclear Station.

2.8 Identification and Control of Parts, Materials, and Components

To the maximum extent practicable, activities carried out during operation of the Cooper Nuclear Station will comply with the requirements for identification and control of materials, parts, and components as set forth in the as-built drawings and specifications for the station. Where special measures are required to assure proper identification of materials, parts, and components, such requirements will be incorporated directly into the procurement documents for such parts and assemblies. Such identifications which may include heat numbers, serial numbers, or other means of identification of the item will be incorporated into the procurement documents to provide means of traceability. Material received at the station (which has not been properly identified) will be segregated and tagged to indicate a "Hold" status. Except as indicated in Section 2.7 above, such parts will not be issued or used prior to final acceptance. CNS and NPPD QA procedures will incorporate requirements necessary to assure that the identification measures are properly carried out at the station, that unacceptable items will not be used in essential systems, and that the components to be used in essential systems receive independent verification of component identity prior to installation.

2.9 Control of Special Processes

General maintenance procedures will provide for performance of any special processes by qualified personnel using qualified and approved procedures. Control procedures provide for QA review, inspection and documentation of activities, and for proper integration of QA/QC inspection as necessary. In most

cases, the procedures will only be prepared in specific detail when it becomes necessary to apply a specific process in the maintenance, repair, or modification of some portion of the Essential equipment for the station. These procedures shall also require that special processes, such as welding and heat treating, are controlled and completed by qualified personnel in accordance with qualified procedures, codes, and standards.

Maintenance modification control methods and Station Operating procedures are reviewed by CNS QA personnel and such review includes verification that necessary Codes, Standards, Quality requirements, and acceptance criteria are incorporated to control special processes within the limits necessary for satisfactory accomplishment of design objectives.

2.10 Inspection

Inspection of activities affecting quality (Quality Control) has been assigned in this policy document to the organization basically responsible for the performance of the activity. However, personnel assigned to inspection activities will be persons other than those directly involved in the actual performance of the work in accordance with ANSI N45.2. Quality Assurance audits and surveillance of activities such as maintenance, repair, and modifications will include direct inspection; whereas operating functions will be monitored indirectly by observation and examination of individual operating personnel and documentation at intervals consistent with importance of the activity. Direct QA or QC inspection will also be made of activities involved in refueling, radiochemistry, and environmental monitoring. In many of these activities there will be specific hold points designated for which independent inspections are to be performed prior to proceeding to the next step of the work. All inspection and hold points will be incorporated directly into the work procedures. Special inspections, such as those involved in nondestructive examinations and in-service inspections, will be contracted to approved suppliers. Where appropriate, inspections following work activities shall include tests of the component or system.

Checklists shall be used during inspection activities to verify that instructions, procedures, and drawings have been adhered to. The results of these inspections will be placed in the CNS permanent plant record file. If direct inspection is impossible, indirect control methods will be specified in the instructions to provide a method of monitoring process methods and equipment.

2.11 Test Control

Each type of test program carried out by the station operating group will be defined by written procedures and instructions. These test programs include the preoperational tests, start-up test instructions, operational testing and surveillance testing of structures, systems, and components to demonstrate their capability to perform satisfactorily as a part of an integrated system. Acceptance tests will be developed for structures, systems, and components to demonstrate their capability to perform satisfactorily following repairs or modification prior to returning to service. Test procedures will identify the inspector, test performance, and data recorder. Each type of acceptance test has individual test procedures which include Quality Control provisions, acceptance criteria, and check points for observation or checking of important aspects, such as prerequisite conditions for tests or results. In addition, test procedure prerequisites will specify the test instrumentation requirements, environmental

conditions, and licensed or certified personnel. All special test procedures, special maintenance procedures, and station operating procedures are routinely reviewed by SORC, of which QA is a member.

Quality Assurance audit activities will be carried out by the station Quality Assurance staff members to assure that tests are being performed in accordance with the requirements of the procedures and that results are evaluated and compared to the limits prescribed for acceptance criteria. In addition, test procedures shall specify test requirements and quantitative and qualitative acceptance criteria where appropriate.

2.12 Control of Measuring and Test Equipment

Procedures shall define the requirements of inspection, maintenance, repair and calibration of all tools, gauges, instruments, and other measuring and testing devices which are used in connection with activities which affect quality of safety-related equipment.

Each instrument necessary for the essential function of essential systems has been identified (Tech Specs) and placed on a regularly-scheduled program of inspection, test, and recalibration. All test and measuring equipment utilized in calibration of the above process equipment will be tagged with a calibration sticker which shows the date of last calibration and initials of the technician who performed the calibration. Calibration logs will be maintained to further document in detail the performance and history of calibration activities on essential equipment and systems. These logs and histories will be reviewed, as required, to evaluate the calibration performance and frequency, and measures will be taken to make such changes in calibration frequency and procedure as may be necessary.

A Quality Assurance Plan will prescribe the QA functions to be carried out relative to the calibration program. Quality Control and Quality Assurance practices require independent checks on the calibration activities and will be verified by Quality Assurance Surveillances performed by the QA staff members to assure that procedures are being properly carried out, that adequate records of calibration and testing of measuring equipment are being generated, maintained, and that regularly scheduled adjustments are made to maintain necessary accuracy. For equipment used to calibrate process equipment, procedures will define action to be taken should regularly-scheduled calibration checks reveal an out of specification condition exists. When inspection, measuring, and test equipment are found to be out of calibration, an evaluation shall be made, and documented, of the validity of previous inspection or test results and of the acceptability of items previously inspected or tested. Should the evaluation determine that previous inspection or test results obtained with the affected instrument is unacceptable, an NCR will be issued. Reference and transfer standards, traceable to the National Bureau of Standards for the calibration of applicable instrument at the CNS, will be maintained at CNS.

Scheduled and unannounced audits or surveillances by the Quality Assurance staff, the Safety Review and Audit Board, or NPPD management will include review of the calibration program.

2.13 Handling, Storage, and Shipping

The procedures for procurement and control of Essential spare parts, materials, replacement parts, and equipment will include the necessary requirements to control handling, cleaning, shipping, receiving, and storage of Essential parts and material. The Quality Assurance Plans and Instructions include provisions for inspection and audit activities to assure that these procedures are followed and that essential parts and materials maintained at the station are received, inspected, stored, and controlled in such a manner as to prevent degradation. Warehouse personnel shall have the responsibility for carrying out all the requirements specified by the approved station procedures to assure that specific quality requirements are met.

2.14 Inspection, Test, and Operating Status

A system of tagging (colored) was instituted during the construction of the Cooper Nuclear Station for the purpose of indicating the status of operation and custody of each item of equipment or system. The practice of custody tagging and safety tagging is an established aspect of safe and orderly operation at NPPD. The NPPD status tagging procedure, already in use throughout the system, has been adapted for use in the Cooper Nuclear Station. Where practical, particular emphasis shall be placed on tagging to prevent unauthorized operation or adjustment which could endanger the safety of personnel, damage equipment, or invalidate the results of tests already performed. In addition, these tags shall indicate abnormal equipment test and inspection status and reference special instructions for equipment located throughout the Cooper Nuclear Station.

Tagging procedures, where necessary, will require that equipment be tagged and that the associated power supplies, starters, switches and controls on the main control panel be tagged as well to warn against operation. In some cases, power supplies will be disconnected and tagged to prevent inadvertent operation. Tagging will be controlled by the shift supervisor by requiring that serially-numbered tags, obtained from the control room, be used for all tagging purposes. Records will be maintained in the control room to enable operators and shift supervisors to determine the status of the equipment tagged.

A jumper log will be maintained to provide a method for recording the installation and removal of jumpers, fuses, or wire terminal disconnections. This record will include the location, reason, name of person authorizing action, and name of person performing the installation.

Requirements for tagging are included in the applicable procedures, and status tagging will be one of the aspects of the work that will be verified by QAP-200 audit and surveillance.

2.15 Nonconforming Materials, Parts, or Components

Procedures for control of the warehouse and for control of maintenance activities provide for identification and tagging of materials, parts, or components which do not conform to requirements (See Section 2.8).

The NCR form identified in Administrative Procedure 0.5 shall be used by all persons performing operation, maintenance, and quality control functions to record and report:

(a) Deviations from approved procedures;

(b) Nonconforming materials, parts, or components received from outside suppliers on essential purchase orders;

(c) Nonconforming materials, parts, or components within the plant;

(d) Nonconforming materials brought on site without following established receiving and inspection procedures;

(e) Orders or recommendations to stop work;

(f) Reportable occurrences;

(g) Any other deficiency which violates the intent of the Quality Assurance Program and which could have a significant adverse effect on quality;

(h) Deviations which could be reportable under 10CFR21.

A separate report shall be prepared for each nonconformance. The intent of this separate report requirement is to simplify follow-up, corrective action, and record keeping. In addition, a status log of all assigned NCR's shall be maintained by the CNS QA staff.

Nonconforming items will be controlled in such a way as to prevent their inadvertent use or installation. Such parts will be reinspected and reviewed for adequacy prior to returning them to the manufacturer, scrapping them, or arranging for them to be reworked to conform. Disposition of a nonconforming item will be determined by the responsible supervisor in conjunction with the QA Staff. Written reports of decisions to repair or rework Essential items will be reviewed and approved in accordance with maintenance and/or design control procedures.

Any decision to reduce requirements, to permit use of nonconforming parts, materials, or components in Essential systems, will be treated as a design modification and will be subject to the same review and approval process as the original.

Approved Procedures will be utilized for repair and rework of Essential parts and equipment. All such rework will be thoroughly documented, including Quality Control and Quality Assurance Surveillance activities, to assure conformance with the requirements of the specifications, procedures, and other controlling documents.

Any item of Essential equipment which is classified as scrap will be identified and segregated in such a manner to prevent inadvertent use or installation in an essential system.

The G.O. QA Department will compile an essential nonconformance report quarterly to enable the Assistant General Manager - Nuclear to establish adverse trends and implement the appropriate corrective action.

2.16 Corrective Action

NRC Regulations which require formal reporting to the NRC of failures, malfunctions, deficiencies, unusual operating experiences, and deviations which may have a significant effect on quality or safety will be reviewed and evaluated

by the Station Operations Review Committee and, where appropriate, by the Safety Review and Audit Board. It will be the responsibility of the Nuclear Group personnel to identify and promptly correct all such deficiencies or malfunctions either by improved maintenance, repairs, replacements, or modification. In any case the objective and the corrective action will not only be to correct the existing defect or deficiency, but also to include measures to determine cause and prevent repetition of similar failures elsewhere in the station. Quality Assurance Procedures will provide for verification that corrective action is performed in accordance with approved written procedures and that the details of the corrective action are properly documented for the permanent station records.

A monthly status report of open NCR's and LER's shall be prepared by the CNS QA Staff and routed to the following:

Assistant General Manager - Nuclear

SRAB Administrator

Division Manager - Nuclear Operations

Division Manager - Nuclear Services

Division Manager - Quality Assurance

CNS and G.O. Quality Assurance Managers

CNS Regulatory Compliance Specialist

CNS Department Managers

2.17 Quality Assurance Records

All activities having a significant effect on quality and safety will be thoroughly documented, and all such documentation will be incorporated into the duplicate record storage system. Procedures will require appropriate physical storage and personnel to maintain these files. Record identification, storage, retrieval, access, control, retention, and safeguarding of all such station records will be with approved procedures. Records to be maintained will consist of all records accumulated during engineering and construction plus the records generated during station operation and maintenance as defined in the CNS Technical Specifications. These records shall also include qualification of personnel and status of equipment and procedures. Inspection and test records shall identify the inspector, data taker, method of observation, results, acceptance, and all nonconformance reports used to document nonconformances.

Certain required records, such as radiographic film which is not duplicated, will be stored in a permanent storage facility that meets the requirements of a single storage facility. CNS and/or Columbus General Office personnel will be allowed to maintain active working files at their work stations. The time frame for submitting these records to record storage facilities will be determined by their respective administrative procedures.

Administrative control of the files and/or records shall include methods for changing records. Such changes to as-built drawings, operating logs, and the like, must provide clear identification of the change and must be

initialed and dated by the person making the change and by persons authorized to approve such changes.

The program will include Audits of CNS and Columbus record storage facilities to assure that the procedures and controls are properly implemented. The G.O. Records Manager and CNS station management will prepare detailed procedures for incorporating material into the files and for making decisions on removal and disposal of outdated or superseded material from the files.

The provisions of ANSI N45.2.9-1979, "Requirement for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants" shall be used for management, retention, and storage of CNS quality-related records.

2.18 Audits

Quality Assurance Plans for each principal segment of the station operating activities have been or will be prepared. These QA Plans will identify the nature and extent of Quality Assurance Audit activities which are to be carried out by or under the direction of higher echelons of management. Primary audit responsibilities are assigned to the General Office and CNS Quality Assurance Managers. Audits under the direction of these Quality Assurance Managers (working with the Safety Review and Audit Board as referenced in Section 3.4) will be conducted according to the QA Plans to verify compliance with the Quality Assurance Program. Audits shall be performed in accordance with written instructions or checklists and conducted by trained personnel not responsible for areas being audited. In addition, other members of the NPPD Executive Management staff may audit or request audits of specific activities of particular concern to them. However, all such internal audits will necessarily be coordinated in such a way as to avoid unnecessary interference with the operating activities at the station. The provisions of ANSI N45.2.12, "Requirements for Auditing of Quality Assurance Programs for Nuclear Plants", shall be applied to vendor audit programs. It is expected that some unannounced audits will be conducted, particularly with regard to those operating activities such as emergency procedures and operator qualifications. Upon completion of the audit, a formal report will be prepared by the auditor and transmitted to the organization audited which will include an evaluation statement regarding the program's effectiveness. All nonconformances identified as a result of these audits will be documented and appropriate follow-up action will be taken to assure that corrective action has been implemented. Follow-up action, including reaudits of any identified nonconformance area and verification of corrective action, shall be fully documented and transmitted in the same manner as the original audit.

Audit summary reports shall be transmitted to the following:

a) General Manager

b) Assistant General Manager - Nuclear

c) SRAB Administrator

d) Division Manager - Nuclear Services

e) Division Manager - Nuclear Operations

f) Division Manager - Quality Assurance

g) CNS and G.O. Quality Assurance Managers (file copy)

h) Manager Directly Responsible for the Activity

i) CNS Regulatory Compliance Specialist

Section 4.0 of ANSI 18.7-1972 "Administrative Controls for Nuclear Power Plants" will be used as a guideline for scheduling and conducting audits. Further provisions for establishing audit frequency and the audit schedule are described in the Quality Assurance Instructions (QAI-12). The guidelines are flexible to allow frequency adjustment based on audit results and station operating conditions.

TABLE 1

SAFETY-RELATED (ESSENTIAL) SYSTEMS
COVERED BY THE QUALITY ASSURANCE PROGRAM

I. Nuclear Steam Supply System

a. Reactor Primary Vessel
b. Reactor Primary Vessel Supports
c. Control Rods and Drive System equipment necessary for Scram Operation
d. Control Rod Drive Housing
e. Fuel Assemblies
f. Core Shroud
g. Steam Dryer
h. Steam Separator

II. Reactor Coolant Systems

a. ADS - Automatic Depressurization System
b. HPCI - High Pressure Coolant Injection System
c. LPCI - Low Pressure Coolant Injection System
d. CS - Core Spray System
e. RCIC - Reactor Core Isolation Cooling

III. Reactor Protection and Engineered Safeguard Systems

a. Reactor Protection System
b. Rod Sequence Control System
c. Standby Liquid Control
d. Standby Gas Treatment
e. Diesel Generators
f. Electrical Aux Power
    1. Critical 4160 V Equipment
    2. Critical 480 V Equipment
g. Neutron Monitoring Systems
    1. APRM
    2. IRM
    3. LPRM
    4. RBM
    5. SRM
    6. TIP
h. DC Power Supply
i. Nuclear System Leak Detection
j. Containment Isolation System
k. Nuclear Boiler and Related Instrumentation
l. Primary Containment
m. Rod Position Indicator

TABLE 1 (Cont'd)

IV. Nuclear Fuel Systems

a. Refueling Interlocks for Fuel Handling and Vessel Servicing Equipment
b. Fuel Pool Liner and Gates
c. Fuel Pool Cooling and Cleanup

V. Radioactive Waste Disposal Systems

a. Process Radiation Monitoring System
    1. Off-Gas Vent Pipe Radiation Monitoring
    2. Off-Gas Monitoring
    3. Aug Off-Gas Monitoring
    4. Main Steam Line Monitoring
    5. Reactor Building Vent Monitoring (GE)
    6. Drywell and Suppression System Leak Rate
    7. Liquid Process Radiation Monitoring

VI. Other Essential Support Systems

a. Reactor Equipment Cooling
b. Service Water
c. Emergency Bypass Function on Control Room Heating, Vent, and AC
d. Reactor Recirculating (Pressure Retaining Parts Only)
e. Class I, II, and III Code Items
f. Reactor Feed Pumps (Pressure Retaining Parts Only)
g. Reactor Building H&V

VII. Structures (Seismics)

a. Reactor Building
b. Control Building
c. Elevated Release Point
d. Intake Structure
e. Diesel Generator Building
f. Radwaste Building (Below Grade)

NOTE: Even though a system is classified as ESSENTIAL, each individual component within that system may or may not be Essential.

TABLE 2

10CFR50 Appendix B - Cross-Reference Tabulation

10CFR50 Appendix B Criterion	CNS QA Program	CNS Procedures	NEDP Procedures
I. ORGANIZATION (ANSI N45.2 Section 3)			
The applicant shall be responsible for the establishment and execution of the quality assurance program. The applicant may delegate to others, such as contractors, agents, or consultants, the work of establishing and executing the quality assurance program, or any part thereof, but shall retain responsibility therefor. The authority and duties of persons and organizations performing activities affecting the safety-related functions of structures, systems, and components shall be clearly established and delineated in writing. These activities include both the performing functions of attaining quality objectives and the quality assurance functions. The quality assurance functions are those of (a) assuring that an appropriate quality assurance program is established and effectively executed and (b) verifying, such as by checking, auditing, and inspection, that activities affecting the safety-related functions have been correctly performed. The persons and organizations performing quality assurance functions shall have sufficient authority and organizational freedom to identify quality problems; to initiate, recommend, or provide solutions; and to verify implementation of solutions. Such persons and organizations performing quality assurance functions shall report to a management level such that the required authority and organizational freedom, including sufficient independence from cost and schedule when opposed to safety considerations, are provided. Because of the many variables involved, such as the number of personnel, the type of activity being performed, and the location or locations where activities are performed, the organizational structure for executing the quality assurance program may take various forms provided that the persons and organizations assigned the quality assurance functions have this required authority and organizational freedom. Irrespective of the organizational structure, the individual(s) assigned the	QAI-01 QAI-02 QAI-03 QAI-04 QAI-05 QAI-06 QAI-07 QAI-08 QAI-09 QAI-10 QAI-11 QAI-12 QAI-13 QAI-14 QAI-15 QAI-16 QAP-100 QAP-200 QAP-300 QAP-400 QAP-500 QAP-600 QAP-700 QAP-800 QAP-900 QAP-1000 QAP-1100 QAP-1200 QAP-1300 QAP-1400 QAP-1500 QAP-1600 QAP-1700 QAP-1800 QAP-1900 QAP-2000 QAP-2100 QAP-2200	A.P. 0.2 A.P. 0.4 A.P. 0.17 A.P. 0.6 A.P. 0.7 A.P. 0.8 A.P. 0.9 A.P. 1.1 A.P. 6.0.1 A.P. 0.5 A.P. 1.4 A.P. 1.5 A.P. 1.7 A.P. 1.8 A.P. 3.5 A.P. 3.4 A.P. 1.6 A.P. 1.10 A.P. 7.0.8 A.P. 7.0.7 A.P. 0.3 A.P. 3.7 A.P. 3.8 A.P. 0.14 A.P. 1.9 A.P. 0.11 A.P. 0.5 A.P. 0.10 A.P. 2.05	

TABLE 2 (Cont'd)

10CFR50 Appendix B - Cross-Reference Tabulation

10CFR50 Appendix B Criterion	CNS QA Program	CNS Procedures	NEDP Procedures
I. ORGANIZATION (CONT'D)			
responsibility for assuring effective execution of any portion of the quality assurance program at any location where activities subject to this Appendix are being performed shall have direct access to such levels of management as may be necessary to perform this function.			
II. QUALITY ASSURANCE PROGRAM (ANSI N45.2 Section 2)			
The applicant shall establish at the earliest practicable time, consistent with the schedule for accomplishing the activities, a quality assurance program which complies with the requirements of this appendix. This program shall be documented by written policies, procedures, or instructions and shall be carried out throughout plant life in accordance with those policies, procedures, or instructions. The applicant shall identify the structures, systems, and components to be covered by the quality assurance program and the major organizations participating in the program, together with the designated functions of these organizations. The quality assurance program shall provide control over activities affecting the quality of the identified structures, systems, and components to an extent consistent with their importance to safety. Activities affecting quality shall be accomplished under suitably-controlled conditions. Controlled conditions include the use of appropriate equipment; suitable environmental conditions for accomplishing the activity, such as adequate cleanness; and assurance that all prerequisites for the given activity has been satisfied. The program shall take into account the need for special controls, processes, test equipment, tools, and skills to attain the required quality and the need for verification of quality by inspection and test. The program shall provide for indoctrination and training of personnel performing activities affecting quality as	USAR, App. D QAI-01 QAI-02 QAI-03 QAI-04 QAI-05 QAI-06 QAI-07 QAI-08 QAI-09 QAI-10 QAI-11 QAI-12 QAI-13 QAI-14 QAI-15 QAI-16 QAI-17 QAP-100 QAP-200 QAP-300 QAP-400 QAP-500 QAP-600 QAP-700 QAP-800 QAP-900 QAP-1000 QAP-1100 QAP-1200 QAP-1300	A.P. 0.2 A.P. 0.4 A.P. 0.17 A.P. 0.6 A.P. 0.7 A.P. 0.8 A.P. 0.9 A.P. 1.1 A.P. 6.0.1 A.P. 0.5 A.P. 1.4 A.P. 1.5 A.P. 1.7 A.P. 1.8 A.P. 3.5 A.P. 3.4 A.P. 1.6 A.P. 1.10 A.P. 7.0.8 A.P. 7.0.7 A.P. 0.3 A.P. 3.7 A.P. 3.8 A.P. 0.14 A.P. 0.19 A.P. 0.11 A.P. 0.5 A.P. 2.0.5	NEDP-01 NEDP-04 NEDP-07 NEDP-08 NEDP-10 NEDP-12 NEDP-13 NEDP-15 NEDP-16 NEDP-22

TABLE 2 (Cont'd)

10CFR50 Appendix B - Cross-Reference Tabulation

10CFR50 Appendix B Criterion	CNS QA Program	CNS Procedures	NEDP Procedures
II. QUALITY ASSURANCE PROGRAM (CONT'D)			
necessary to assure that suitable proficiency is achieved and maintained. The applicant shall regularly review the status and adequacy of the quality assurance program. Management of other organizations participating in the quality assurance program shall regularly review the status and adequacy of that part of the quality assurance program which they are executing.	QAP-1400 QAP-1500 QAP-1600 QAP-1700 QAP-1800 QAP-1900 QAP-2000 QAP-2100 QAP-2200		
III. DESIGN CONTROL (ANSI N45.2 Section 4)			
Measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in 50.2 and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions. These measures shall include provisions to assure that appropriate quality standards are specified and included in design documents and that deviations from such standards are controlled. Measures shall be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of the structures, systems, and components.	QAI-03 QAI-04 QAI-05 QAI-07 QAI-09 QAI-11 QAI-13 QAP-800 QAP-1000 QAP-1700 QAP-1800 QAP-2200	A.P. 3.4 A.P. 0.3 A.P. 3.7	NEDP-10
Measures shall be established for the identification and control of design interfaces and for coordination among participating design organizations. These measures shall include the establishment of procedures among participating design organizations for the review, approval, release distribution, and revision of documents involving design interfaces.			
The design control measures shall provide for verifying or checking the adequacy of design such as by the performance of design reviews by the use of alternate or simplified calculational methods, or by the performance			

TABLE 2 (Cont'd)

10CFR50 Appendix B - Cross-Reference Tabulation

10CFR50 Appendix B Criterion	CNS QA Program	CNS Procedures	NEDP Procedures
III. DESIGN CONTROL (CONT'D)			
of a suitable testing program. The verifying or checking process shall be performed by individuals or groups other than those who performed the original design, but who may be from the same organization. Where a test program is used to verify the adequacy of a specific design feature in lieu of other verifying or checking processes, it shall include suitable qualification testing of a prototype unit under the most adverse design conditions. Design control measures shall be applied to items such as the following: reactor physics, stress, thermal, hydraulic, and accident analyses; compatibility of materials; accessibility for in-service inspection, maintenance, and repair; and delineation of acceptance criteria for inspections and tests. Design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design and be approved by the organization that performed the original design unless the applicant designates another responsible organization.			
IV. PROCUREMENT DOCUMENT CONTROL (ANSI N45.2 Section 5)			
Measures shall be established to assure that applicable regulatory requirements which are necessary to assure adequate quality are suitably included or referenced in the documents for procurement of material, equipment, and services, whether purchased by the applicant or by its contractors or subcontractors. To the extent necessary, procurement documents shall require contractors or subcontractors to provide a quality assurance program consistent with the pertinent provisions of this appendix.	QAI-09 QAI-13 QAI-16 QAP-400 QAP-800 QAP-900 QAP-1400 QAP-1600 QAP-1700 QAP-1800	A.P. 1.4 A.P. 1.5 A.P. 1.7 A.P. 1.8 A.P. 3.4	NEDP-10 NEDP-15

TABLE 2 (Cont'd)

10CFR50 Appendix B - Cross-Reference Tabulation

10CFR50 Appendix B Criterion	CNS QA Program	CNS Procedures	NEDP Procedures
V. INSTRUCTIONS, PROCEDURES, AND DRAWINGS (ANSI N45.2 Section 6)			
Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, or a type appropriate to the circumstances, and shall be accomplished in accordance with these instructions, procedures, or drawings. Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.	All QAI's All QAP's	All Admin. Procedures	All NEDP's
VI. DOCUMENT CONTROL (ANSI N45.2 Section 7)			
Measures shall be established to control the issuance of documents, such as instructions, procedures, and drawings, including changes thereto which prescribe all activities affecting quality. These measures shall assure that documents, including changes, are reviewed for adequacy and approved for release by authorized personnel and are distributed to and used at the location where the prescribed activity is performed. Changes to documents shall be reviewed and approved by the same original review and approval unless the applicant designates another responsible organization.	QAI-01 QAI-02 QAI-07 QAI-13 All QAP's	A.P. 0.4 A.P. 3.5 A.P. 1.10 A.P. 0.3 A.P. 3.7 A.P. 3.8 A.P. 1.9 A.P. 0.10	NEDP-01 NEDP-08 NEDP-12
VII. CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES (ANSI N45.2 Section 8)			
Measures shall be established to assure that purchased material, equipment, and services, whether purchased directly or through contractors and subcontractors, conform to the procurement documents. These measures shall include provisions, as appropriate, for source evaluation and selection, objective evidence of quality furnished by the contractor or subcontractor, inspection at the contractor or subcontractor source, and examination of products upon delivery.	QAI-09 QAI-13 QAI-16 QAP-400 QAP-900 QAP-1400 QAP-1500 QAP-1700 QAP-1800	A.P. 1.4 A.P. 1.5 A.P. 1.7 A.P. 1.8	NEDP-13 NEDP-15

TABLE 2 (Cont'd)

10CFR50 Appendix B - Cross-Reference Tabulation

10CFR50 Appendix B Criterion	CNS QA Program	CNS Procedures	NEDP Procedures
VII. CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES (CONT'D) Documentary evidence that material and equipment conform to the procurement requirements shall be available at the nuclear power plant site prior to installation or use of such material and equipment. This documentary evidence shall be retained at the nuclear power plant site and shall be sufficient to identify the specific requirements, such as codes, standards, or specifications, met by the purchased material and equipment. The effectiveness of the control of quality by contractors and subcontractors shall be assessed by the applicant or designee at intervals consistent with the importance, complexity, and quantity of the product or services.			
VIII. IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, AND COMPONENTS (ANSI N45.2 Section 9) Measures shall be established for the identification and control of materials, parts, and components, including partially fabricated assemblies. These measures shall assure that identification of the item is maintained by heat number, part number, serial number, or other appropriate means, either on the item or on records traceable to the item as required throughout fabrication, erection, installation, and use of the item. These identification and control measures shall be designed to prevent the use of incorrect or defective material, parts, and components.	QAP-200 QAP-300 QAP-400 QAP-600 QAP-700 QAP-900 QAP-1000 QAP-1100 QAP-1200 QAP-1300 QAP-1400 QAP-1500 QAP-1600 QAP-1700 QAP-1800 QAP-1900	A.P. 0.6 A.P. 0.7 A.P. 0.8 A.P. 0.9 A.P. 1.4 A.P. 1.5 A.P. 1.7 A.P. 1.8 A.P. 1.6 A.P. 1.10 A.P. 7.0.7	

TABLE 2 (Cont'd)

10CFR50 Appendix B - Cross-Reference Tabulation

10CFR50 Appendix B Criterion	CNS QA Program	CNS Procedures	NEDP Procedures
IX. CONTROL OF SPECIAL PROCESSES (ANSI N45.2 Section 10)			
Measures shall be established to assure that special processes, including welding, heat treating, and nondestructive testing, are controlled and accomplished by qualified personnel using qualified procedures in accordance with applicable codes, standards, specifications, criteria, and other special requirements.	QAI-04 QAI-05 QAI-06 QAI-13 QAI-16 QAP-700 QAP-800 QAP-1100 QAP-1500 QAP-1600 QAP-1700 QAP-1800 QAP-2600	A.P. 0.6 A.P. 0.7 A.P. 0.8 A.P. 0.9 A.P. 7.0.7	
X. INSPECTION (ANSI N45.2 Section 11)			
A program for inspection of activities affecting quality shall be established and executed by or for the organization performing the activity to verify conformance with the documented instructions, procedures, and drawings for accomplishing the activity. Such inspection shall be performed by individuals other than those who performed the activity being inspected. Examinations, measurements, or tests of material or products processed shall be performed for each work operation where necessary to assure quality. If inspection of processed material or products is impossible or disadvantageous, indirect control by monitoring processing methods, equipment, and personnel shall be provided. Both inspection and process monitoring shall be provided when control is inadequate without both. If mandatory inspection hold points, which require witnessing or inspecting by the applicant's designated representative and beyond which work shall not	QAI-11 QAP-200 QAP-300 QAP-400 QAP-500 QAP-600 QAP-700 QAP-800 QAP-900 QAP-1000 QAP-1100 QAP-1200 QAP-1400 QAP-1500 QAP-1600 QAP-1700 QAP-1800 QAP-2000 QAP-2100	A.P. 0.6 A.P. 0.7 A.P. 0.8 A.P. 0.9 A.P. 6.0.1 A.P. 1.4 A.P. 1.5 A.P. 1.7 A.P. 1.8 A.P. 3.4 A.P. 7.0.8 A.P. 7.0.7 A.P. 3.7 A.P. 1.9	

TABLE 2 (Cont'd)

10CFR50 Appendix B - Cross-Reference Tabulation

10CFR50 Appendix B Criterion	CNS QA Program	CNS Procedures	NEDP Procedures
X. INSPECTION (CONT'D)			
proceed without the consent of its designated representative are required, the specific hold points shall be indicated in appropriate documents.			
XI. TEST CONTROL (ANSI N45.2 Section 12)			
A test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents. The test program shall include, as appropriate, proof tests prior to installation, preoperational tests, and operational tests during nuclear power plant operation of structures, systems, and components. Test procedures shall include provisions for assuring that all prerequisites for the given test have been met, that adequate test instrumentation is available and used, and that the test is performed under suitable environmental conditions. Test results shall be documented and evaluated to assure that test requirements have been satisfied.	QAI-04 QAI-05 QAI-07 QAI-09 QAI-12 QAP-200 QAP-400 QAP-500 QAP-600 QAP-700 QAP-800 QAP-900 QAP-1000 QAP-1100 QAP-1200 QAP-1400 QAP-1500 QAP-1600 QAP-1700 QAP-1900 QAP-2100 QAP-2200 QAP-2600	A.P. 6.0.1 A.P. 3.5 A.P. 3.4 A.P. 7.0.8 A.P. 7.0.7	NEDP-10

TABLE 2 (Cont'd)

10CFR50 Appendix B - Cross-Reference Tabulation

10CFR50 Appendix B Criterion	CNS QA Program	CNS Procedures	NEDP Procedures
XII. CONTROL OF MEASURING AND TEST EQUIPMENT (ANSI N45.2 Section 13)			
Measures shall be established to assure that tools, gages, instruments, and other measuring and testing devices used in activities affecting quality are properly controlled, calibrated, and adjusted at specified periods to maintain accuracy within necessary limits.	QAI-04 QAI-05 QAI-07 QAP-200 QAP-300 QAP-400 QAP-600 QAP-700 QAP-900 QAP-1000 QAP-1100 QAP-1200 QAP-1400 QAP-1500 QAP-1600 QAP-1700 QAP-1800 QAP-1900 QAP-2600	A.P. 7.0.2 A.P. 6.0.1	
XIII. HANDLING, STORAGE, AND SHIPPING (ANSI N45.2 Section 14)			
Measures shall be established to control the handling, storage, shipping, cleaning and preservation of material and equipment in accordance with work and inspection instructions to prevent damage or deterioration. When necessary for particular products, special protective environments, such as inert gas atmosphere, specific moisture content levels, and temperature levels, shall be specified and provided.	QAI-16 QAP-300 QAP-1300 QAP-1400 QAP-1500 QAP-1600 QAP-1700 QAP-1800 QAP-2600	A.P. 0.6 A.P. 0.7 A.P. 0.8 A.P. 0.9 A.P. 1.4 A.P. 1.5 A.P. 1.7 A.P. 1.8	

TABLE 2 (Cont'd)

10CFR50 Appendix B - Cross-Reference Tabulation

10CFR50 Appendix B Criterion	CNS QA Program	CNS Procedures	NEDP Procedures
XIV. INSPECTION, TEST, AND OPERATING STATUS (ANSI N45.2 Section 15)			
Measures shall be established to indicate, by the use of markings such as stamps, tags, labels, routing cards, or other suitable means, the status of inspections and tests performed upon individual items of the nuclear power plant. These measures shall provide for the identification of items which have satisfactorily passed required inspections and tests where necessary to preclude inadvertent bypassing of such inspections and tests. Measures shall also be established for indicating the operating status of structures, systems, and components of the nuclear power plant, such as by tagging valves and switches, to prevent inadvertent operation.	QAI-07 QAI-09 QAP-200 QAP-300 QAP-400 QAP-500 QAP-600 QAP-700 QAP-900 QAP-1000 QAP-1100 QAP-1200 QAP-1400 QAP-1600 QAP-1700 QAP-1800	A.P. 1.6 A.P. 7.0.2 A.P. 7.0.3 A.P. 7.0.4 A.P. 4.0.1 A.P. 7.0.5 A.P. 7.0.6 A.P. 1.6	
XV. NONCONFORMING MATERIALS, PARTS, OR COMPONENTS (ANSI N45.2 Section 16)			
Measures shall be established to control materials, parts, or components which do not conform to requirements in order to prevent their inadvertent use or installation. These measures shall include, as appropriate, procedures for identification, documentation, segregation, disposition, and notification to affected organizations. Nonconforming items shall be reviewed and accepted, rejected, repaired or reworked in accordance with documented procedures.	QAI-10 QAI-13 QAI-14 QAP-100 QAP-200 QAP-700 QAP-900 QAP-1000 QAP-1100 QAP-1200 QAP-1300 QAP-1400 QAP-1500 QAP-1600 QAP-1700 QAP-1800	A.P. 1.6 A.P. 7.0.8 A.P. 7.0.7 A.P. 3.7 A.P. 0.5 A.P. 1.4 A.P. 1.5 A.P. 1.7 A.P. 1.8 A.P. 1.6 A.P. 0.3	NEDP-04

TABLE 2 (Cont'd)

10CFR50 Appendix B - Cross-Reference Tabulation

10CFR50 Appendix B Criterion	CNS QA Program	CNS Procedures	NEDP Procedures
XVI. CORRECTIVE ACTION (ANSI N45.2 Section 17)			
Measures shall be established to assure that conditions adverse to quality such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and the corrective action taken to preclude repetition. The identification of the significant condition adverse to quality, the cause of the condition, and the corrective action taken shall be documented and reported to appropriate levels of management.	QAI-04 QAI-05 QAI-10 QAI-13 QAI-14 QAI-15 QAI-16 All QAP's	A.P. 0.6 A.P. 0.7 A.P. 0.8 A.P. 0.9 A.P. 7.0.1 A.P. 6.0.1 A.P. 0.5 A.P. 1.4 A.P. 1.5 A.P. 1.7 A.P. 1.8 A.P. 1.6 A.P. 0.3 A.P. 0.5 A.P. 0.10 A.P. 2.0.5	NEDP-04
XVII. QUALITY ASSURANCE RECORDS (ANSI N45.2 Section 18)			
Sufficient records shall be maintained to furnish evidence of activities affecting quality. The records shall include at least the following: Operating logs and the results of reviews, inspection, tests, audits, monitoring of work performance, and materials analyses. The records shall also include closely-related data such as qualifications of personnel, procedures, and equipment. Inspection and test records shall, as a minimum, identify the inspector or data recorder, the type of observation, the results, the acceptability, and the action taken in connection with any deficiencies noted. Records shall be identifiable and retrievable. Consistent with applicable regulatory requirements, the applicant shall establish requirements concerning record retention, such as duration, location, and assigned responsibility.	QAI-06 QAI-07 QAI-15 QAI-16 QAI-17 All QAP's	A.P. 0.4 A.P. 0.17 A.P. 0.6 A.P. 0.7 A.P. 0.8 A.P. 0.9 A.P. 7.0.1 A.P. 7.0.2 A.P. 7.0.3 A.P. 7.0.4 A.P. 4.0.1 A.P. 7.0.5 A.P. 7.0.6 A.P. 1.1 A.P. 6.0.1 A.P. 0.5 A.P. 1.4 A.P. 1.5 A.P. 1.7 A.P. 1.8 A.P. 3.5 A.P. 3.4 A.P. 1.10 A.P. 7.0.8	

TABLE 2 (Cont'd)

10CFR50 Appendix B - Cross-Reference Tabulation

10CFR50 Appendix B Criterion	CNS QA Program	CNS Procedures	NEDP Procedures
XVII. QUALITY ASSURANCE RECORDS (CONT'D)			
		A.P. 7.0.7 A.P. 0.3 A.P. 3.7 A.P. 3.8 A.P. 1.9	
XVIII. AUDITS (ANSI N45.2 Section 19)			
A comprehensive system of planned and periodic audits shall be carried out to verify compliance with all aspects of the quality assurance program and to determine the effectiveness of the program. The audits shall be performed in accordance with the written procedures or check lists by appropriately trained personnel not having direct responsibilities in the areas being audited. Audit results shall be documented and reviewed by management having responsibility in the area audited. Follow-up action, including reaudit of deficient areas, shall be taken where indicated.	QAI-04 QAI-05 QAI-06 QAI-12 QAI-13 QAI-16 QAI-17 All QAP's	A.P. 0.11	

3.0 ORGANIZATION AND RESPONSIBILITIES

Nebraska Public Power District is solely responsible for the operation of the Cooper Nuclear Station and will fulfill the objectives set forth in the Quality Assurance Program for Operation through its own organization and by contact with qualified contractors and consultants.

3.1 General

The overall Quality Assurance Program for Operation shall be conducted in accordance with the three divisions of responsibility which provides for Quality Control, independent Quality Assurance Surveillance, and Quality Assurance Audits.

Table 3 defines the three levels of QA as they are to be carried out for station operation and also shows the comparison with similar principles which shall apply to nuclear fuel procurement and any future major engineering and construction activities for the Cooper Nuclear Station.

The Cooper Nuclear Station organization is presented in Figure 2, showing the relationship of the Cooper Nuclear Station organization to other support functions. This chart also shows the relationship of the Quality Assurance functions to other functions in the department and identifies the three levels of Quality Assurance activities. It is intended that clearly separate lines of responsibility be maintained between those responsible for operating the nuclear station and those responsible for auditing to verify that all quality and licensing requirements are consistently being met.

QA responsibilities within each QA level will vary depending upon the type of activity involved (See Section 4.1.3). Additional details on individual QA responsibilities are given in the paragraphs which follow, together with additional explanation of the interrelationships between the various supervisors and managers involved.

3.2 General Office Management

3.2.1 Assistant General Manager - Nuclear

The Assistant General Manager - Nuclear is the responsible executive officer for all CNS Quality Assurance-related activities. This responsibility includes the quality assurance requirements governing those structures, systems, and components that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public. Pertinent activities include designing, purchasing, fabrication, handling, shipping, storing, cleaning, erecting, installing, inspecting, testing, operating, maintaining, repairing, refueling, in-service inspection and modifications that are associated with Cooper Nuclear Station. The responsibility delegated to the Division Manager of Quality Assurance is the authority to define and implement the detailed requirements of the Quality Assurance program to assure that the activities identified above meet all applicable controlling documentation. This authority includes the right to direct, enforce, and perform any actions required to insure the high standards of implementing a good quality assurance program.

The responsibility and authority over the Safety Review and Audit Board has been delegated to the Assistant General Manager - Nuclear. However, the

Technical Staff Manager is designated the the Board chairman and Division Manager of Quality Assurance is assigned the Vice-Chairman for the Board. Also, the Assistant General Manager - Nuclear reserves the authority to conduct, or order the auditing or monitoring of any operations activity, at any time, to ascertain the effectiveness of the overall QA program and to determine that all aspects of the QA program are being complied with.

3.2.2 Division Manager, Quality Assurance

The Division Manager of Quality Assurance, a member of the executive staff, reporting to the Assistant General Manager - Nuclear, shall have the responsibility and authority for administrating and maintaining a Quality Assurance Program for Operation which is in accordance with 10CFR50, Appendix B. Inherent in this responsibility is the authority to accept or reject any or all work, materials, or equipment associated with Cooper Nuclear Station and Columbus G.O. The Division Manager of Quality Assurance shall direct the preparation of plans, instructions, and procedures for defining the Quality Assurance functions associated with Cooper Nuclear Station to insure that such activities are conducted in accordance with the Operating License and appended technical specifications. He shall also approve all plans, instructions, and procedures for defining and auditing the safety-related activities within the Cooper Nuclear Station and General Office. The actual audit functions to be performed are defined more completely by the body of Quality Assurance Instructions and Plans required by Section 4.0 of this policy document. He shall also have direct responsibility for qualifying suppliers of nuclear safety-related equipment, materials, and spare parts and for auditing the QA/QC activities of such suppliers.

The Division Manager of Quality Assurance and staff shall have the necessary organizational freedom and access within Columbus G.O. and Cooper Nuclear Station to institute the necessary quality assurance requirements, identify problems, and pursue prompt corrective action. Figure 1 outlines the QA Division functional organization.

The Division Manager of Quality Assurance shall personally monitor the Quality Assurance activities to the extent necessary for assuring himself that the District is complying with the program. He shall review the effectiveness of the Quality Assurance program with the Assistant General Manager - Nuclear on a regular basis. In addition, the Division Manager of QA has a direct line of communication with the General Manager. He shall serve as a member of the Safety Review and Audit Board and provide additional QA personnel to participate in SRAB activities when requested.

NPPD Quality Assurance Staff, under the direction of the Division Manager of Quality Assurance, shall have the responsibility and authority for implementation and ongoing development of the Quality Assurance Program for Operations which will meet the requirements of applicable federal regulations, codes, quality standards and other safety and environmental conditions that are required to assure safe and reliable nuclear power plant operations. In addition, it shall be the responsibility of the Quality Assurance Managers to monitor the interface between the Nuclear Operations and Nuclear Services Divisions to insure that plant modification and repairs receive the proper design reviews and approvals.

As shown in Table 3, he shall have responsibility for accomplishment of third level QA audits and shall obtain assistance and special expertise when necessary to complete such audits effectively.

3.2.3 Quality Assurance Manager - G.O.

The General Office Quality Assurance Manager, reporting administratively to the Division Manager of Quality Assurance, shall have the responsibility and authority for implementing and maintaining the Quality Assurance Program within the G.O. which will meet the requirements of applicable federal regulations, codes, quality standards, and other safety and environmental conditions that are required to assure safe and reliable nuclear power plant operations.

The General Office Quality Assurance Manager shall have the responsibility and authority for the controlling, administrating, distributing, and coordinating changes and additions to the Quality Assurance Program for Operation, subject to the requirements of Section 4.0 of the Policy Document regarding authority to initiate, review, comment and issue the various plans and instructions. The General Office Quality Assurance Staff shall support the CNS QA Staff in quality matters such as internal audits and outage coverage upon request, as directed by the General Office Quality Assurance Manager. The General Office QA Manager and Staff shall have the responsibility for providing guidance to the Nuclear Services Division in all matters affecting quality. They shall also establish and implement the program for qualifying suppliers for safety-related equipment, materials and spare parts and for auditing the QA/QC activities of such suppliers. They shall also be responsible to perform scheduled audits within the General Office and verify that corrective action has been implemented. In addition, the administrative functions associated with the General Office QA Staff are under the direction of the General Office QA Manager.

Additional specific duties shall be defined in the Quality Assurance Instructions and Plans issued in accordance with Section 4.0 of this Policy Document. The General Office Quality Assurance Manager also serves as a SRAB member.

The General Office Quality Assurance Manager is responsible for tracking open items identified during General Office audits and interface with NRC I&E inspections at the General Office. In addition, he shall also provide training and instruction prgrams to enable General Office personnel to effectively execute the District Quality Assurance Program.

3.2.4 Quality Assurance Manager - CNS

The CNS Quality Assurance Manager, reporting administratively to the Division Manager of Quality Assurance, shall have the responsibility and authority for implementing and maintaining the Quality Assurance Program for CNS Operation which will meet the requirements of applicable federal regulations, codes, quality standards, and other safety and environmental conditions that are required to assure safe and reliable nuclear power plant operations.

He shall also be responsible and have the authority to perform, direct, or coordinate QA surveillance and audit activities within Cooper Nuclear Station to determine if conformance with NPPD Quality Assurance Manual and applicable federal regulations as defined in the NPPD QA Manual are being maintained. The

CNS QA Manager shall advise and assist the Division Manager of Nuclear Operations in all matters which affect the quality of the station. Similarly, he shall advise and assist all station personnel in matters regarding quality assurance and quality control. The CNS QA Manager shall designate members of the CNS QA Staff upon request to provide training and instruction programs to enable CNS personnel to effectively execute the District QA Program. CNS QA Manager is also responsible for tracking open audit items identified at CNS to the station and interface with NRC during I&E inspections at CNS. In addition, he shall also be responsible to verify that solutions to safety-related problems have been implemented and to perform scheduled audits of those activities listed in Section 4.1.3 on an announced basis. Additional specific duties shall be defined in the Quality Assurance Instructions and Plans issued in accordance with Section 4.0 of this Policy Document. The CNS QA Manager or designee shall also serve as a non-voting member of the Station Operating Review Committee (SORC). In addition, the administrative functions associated with the CNS QA Staff are under the direction of the CNS QA Manager.

The CNS QA Manager and staff will observe operations, maintenance, in-service inspection, special processes, repair or modifications, and other safety-related activities covered by the Quality Assurance program, and to recommend that work stop when such activity, in their opinion, does not comply with approved controlling document as defined in Section 3.2.2. The Division Manager of Nuclear Operation or designee is responsible to act on that recommendation and actually stop work unless he has determined such stoppage would result in a violation of the technical specification or other approved documents governing station operation or whether there are overriding considerations of safety involved.

3.2.5 Quality Assurance Staff

General Office Quality Assurance Staff

The General Office Quality Assurance Staff shall be responsible to assist and advise the General Office Quality Assurance Manager in all matters which could affect the Quality Assurance activities within the General Office. This includes advising and assisting General Office personnel in all matters regarding Quality Assurance, verify that solutions to safety-related problems have been implemented, and perform audits of work activities within the General Office on an announced or unannounced basis.

A senior staff worker has been delegated the responsibility for the ongoing development and implementation of the qualified supplier program. This includes the review of procurement specifications and associated drawings to determine if special requirements such as codes, standards, materials, tools, and inspections, etc., are included with safety-related systems or equipment requisitions generated by Nuclear Services. He shall also coordinate any activities that involved on-site and off-site Quality Assurance Programs and shall provide assistance to the CNS Quality Assurance Manager when required. In addition, a designated Quality Assurance Staff member shall act for the General Office Quality Assurance Manager during his absence.

Additional specific duties shall be as defined in the Quality Assurance Plans and Instructions issued in accordance with Section 4.0 of this policy document.

CNS Quality Assurance Staff

The CNS Quality Assurance Staff shall be responsible to assist and advise the CNS Quality Assurance Manager in all matters which could affect the quality of the station. These duties include procedure preparation, performing QA activities within the station, advise and assist all station personnel in all matters regarding Quality Assurance and Quality Control, verify that solutions to safety-related problems have been implemented, perform random audits of work activities within CNS on an announced or unannounced basis. During the CNS Quality Assurance Manager's absence a designated CNS Quality Assurance Staff member shall serve as a nonvoting member of the Station Operations Review Committee and act for the CNS QA Manager. Additional specific duties shall be as defined in the Quality Assurance Plans and Instructions issued in accordance with Section 4.0 of this policy document.

Disagreements or differences of opinion on Quality Assurance matters are expected to be documented and resolved jointly by either the CNS or General Office Quality Assurance Staff and appropriate CNS or General Office supervisory personnel. Where such resolution is not achieved within a reasonable period of time, unresolved differences shall be promptly reported to the appropriate Quality Assurance Manager for resolution jointly with the Division Manager of Quality Assurance and Division Manager of Nuclear Operation or Division Manager of Nuclear Services.

General Office Quality Assurance Secretary

The General Office Quality Assurance Secretary shall be responsible for administering the controlled document distribution and retrieval and records of distribution retrieval. In addition, the Secretary shall be responsible for the preparation of administrative procedures which control and maintain NPPD Columbus G.O. QA files. Additional specific duties shall be as defined in the Quality Assurance Instructions and Quality Assurance Plans issued in accordance with Section 4.0 of this policy document.

3.2.6 Division Manager - Nuclear Services

The Division Manager of Nuclear Services shall provide technical assistance for plant modification activities at Cooper Nuclear Station. Those Quality Assurance activities associated with such modifications will be conducted in accordance with the CNS Quality Assurance Program for operations. These activities will also be audited periodically by NPPD Quality Assurance personnel and identified nonconformances will be reported to appropriate levels of management for resolution. The Quality Assurance staff will perform the necessary follow-up action to assure that corrective action is implemented in a timely manner.

For those aspects of Fuel Management QA covered by the QA Program, the Nuclear Fuel Manager, under the direction of the Division Manager of Nuclear Services, shall be responsible to furnish technical assistance as required to the Division Manager - Nuclear Operation and the QA Staff. Such reviews shall not replace or supersede the formal audits.

3.2.7 Division Manager - Nuclear Operation

The Division Manager of Nuclear Operation, under the direction of the Assistant General Manager - Nuclear, shall be responsible and have the authority for assuring that Quality Control activities as defined by the Division Manager of Quality Assurance or designee are complied with. Some of these responsibilities are delegated to CNS management personnel and consist basically of Quality Control and Inspection functions as defined in Table 3. The actual functions to be performed shall be defined more completely by the body of Quality Control and Quality Assurance Plans and Instructions as listed in Section 4.0 of this policy document.

The Division Manager of Nuclear Operation shall regularly review station activities for the purpose of keeping abreast of significant quality activities.

3.3 Cooper Nuclear Station Personnel

The operational duties and responsibilities of the Cooper Nuclear Station personnel are fully described in Reference 7.6. In addition, the Cooper Nuclear Station personnel are assigned Quality Control and inspection functions as indicated in Section 3.2.3. Station personnel, under the direction of the Division Manager - Nuclear Operation, are charged with the responsibility for assuring that the station is tested, operated, and maintained in accordance with approved plans and procedures, and such responsibilities include Quality Control functions.

3.3.1 CNS Department Managers

CNS departmental managers report to the Division Manager - Nuclear Operations as described in the CNS USAR.

3.4 Safety Review and Audit Board

The board must: verify that operation of the plant is consistent with company policy and rules, approved operating procedures, and operating license provisions; review important proposed plant changes, tests, and procedures; verify that licensee events are promptly investigated and corrected in a manner which reduces the probability of recurrence of such events; and detect trends which may not be apparent to a day-to-day observer.

Audits of selected aspects of plant operation shall be performed under the cognizance of SRAB with a frequency commensurate with their safety significance. Audits performed by the Quality Assurance staff which meet these requirements shall be considered to meet the SRAB audit requirements if the audits are reviewed by SRAB. These audits shall encompass verification of compliance with internal rules, procedures (for example, normal, off- normal, emergency, operating, maintenance, surveillance, test and radiation-control procedures, and the emergency and security plans), regulations involving nuclear safety and operating license provisions; training, qualification, and performance of operating staff; and corrective actions following reportable occurrences or unusual events. In addition, SRAB authorizes an audit of the effectiveness of the QA program by the use of an independent agency. A representative portion of procedures and records of activities performed during the audit period shall be the basis for the audit. In addition, observations of performance of operating

and maintenance activities shall be conducted. Written reports of such audits shall be reviewed at a scheduled meeting of the Board and by appropriate members of management including those having responsibility in the area audited. Follow-up action, including reaudit of deficient areas, shall be taken when indicated. Figure 2 identifies the Safety Review and Audit Board Chairman. Additional SRAB duties and responsibilities are identified in the CNS Technical Specification, Section 6.2.

3.5 Station Operations Review Committee

The Station Operations Review Committee (SORC) has been established to advise the Division Manager - Nuclear Operation in all matters regarding operational safety. SORC responsibilities include to review and evaluate, from an operational safety viewpoint, the following:

Review all proposed normal, abnormal, maintenance, and emergency operating procedures specified in 6.3.1, 6.3.2, 6.3.3, and 6.3.4 of Technical Specifications and proposed changes thereto: and any other proposed procedures or changes thereto determined by any member to effect nuclear safety.

Review all proposed tests and experiments and their results, which involve nuclear hazards not previously reviewed for conformance with Technical Specifications. Submit tests which may constitute an unreviewed safety question to the NPPD Safety Review and Audit Board for review.

Review proposed changes to Technical Specifications.

Review proposed changes or modifications to station systems or equipment as discussed in the SAR or which involves an unreviewed safety question as defined in 10CFR50.59(c). Submit changes to equipment or systems having safety significance to the NPPD Safety Review and Audit Board for review.

Review station operation to detect potential nuclear safety hazards.

Investigate all violations of Technical Specifications, including reporting evaluation and recommendations to prevent recurrence, to the Assistant General Manager - Nuclear and to the Chairman of the NPPD Safety Review and Audit Board.

Perform special reviews and investigations and render reports thereon as requested by the Chairman of the Safety Review and Audit Board.

Review all events which are required by Technical Specifications to be reported to the NRC in writing within 24 hours.

Review drills on emergency procedures (including plant evacuation) and adequacy of communication with off-site groups.

Periodically review procedures required by Sections 6.3.1, 6.3.2, 6.3.3, and 6.3.4 of Technical Specifications.

Additional SORC responsibilities and authority are defined in Section 6.2 of the Technical Specifications.

The SORC will be made up of persons from the CNS management and technical staff members. The SORC meetings will effectively keep these personnel informed of current station operating conditions and operational safety considerations.

Minutes of all SORC meetings will be recorded and copies of minutes will be forwarded to the Assistant General Manager - Nuclear, Technical Staff Manager (SRAB Chairman), and the SRAB Administrator for distribution.

The Station Operations Review Committee recommends changes in the facility design or changes to the facility license based upon operating experience and station performance evaluations. Station Operations Review Committee Chairman is identified on Figure 2. Additional SORC duties and responsibilities are defined in Section 6.2 of CNS Technical Specifications.

3.6 Outside Suppliers, Contractors, Subcontractors, and Consultants

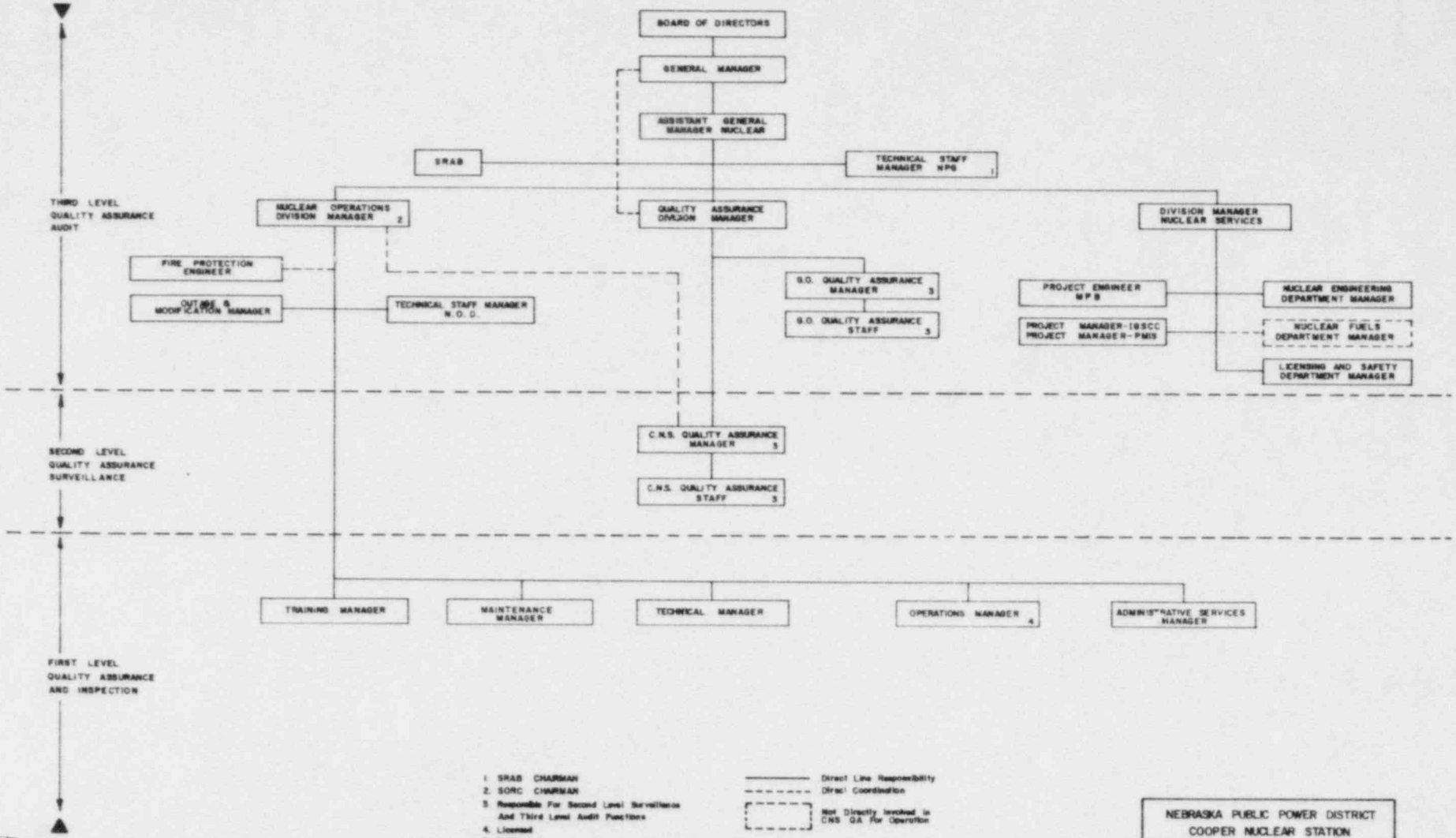
During the life of Cooper Nuclear Station, it will be necessary to obtain assistance from outside suppliers and contractors for some of the work within the station, such as decontamination, major maintenance or repair, in-service inspection, waste disposal, design of modifications, fabrication or replacement equipment, and other specialty work.

At all times, outside suppliers, contractors, and consultants will work under the direction of the NPPD organization having primary responsibility for the particular work being performed.

In those instances in which outside suppliers or contractors merely furnish personnel to augment the normal station staff for particular activities, such outside contractor personnel shall be required to become qualified, and perform their work in accordance with the CNS Quality Assurance documents and other appropriate CNS procedures and instructions.

In those instances in which outside suppliers, contractors, and subcontractors are assigned primary responsibility for a particular activity, such outside contractor shall be required to demonstrate that it has a Quality Assurance and Quality Control Program and organization appropriate to the work to be performed. Selection of outside suppliers or contractors shall require the active participation of the Quality Assurance Department in evaluating and approving their Quality Assurance Program and reviewing the procurement documents prior to awarding the contract.

In every instance in which outside contractors have responsibility for work on safety-related nuclear systems, they shall be contractually required to work to procedures previously approved by the NPPD organization having primary responsibility for the particular work being performed. In addition, they shall be contractually required to prepare, prior to performing the work, QA/QC Procedures specific to the work to be performed for the Cooper Nuclear Station. Recognized standards or existing proprietary procedures may be used, but they must be specifically invoked in writing and clearly identified as to their applicability to the CNS work.



NEBRASKA PUBLIC POWER DISTRICT
COOPER NUCLEAR STATION

FUNCTIONAL ORGANIZATION CHART
THREE LEVEL QUALITY ASSURANCE FOR OPERATION
FIGURE 2

If any portion of work on safety-related nuclear systems is to be subcontracted, the prime contractor shall require that such subcontractors institute and maintain a Quality Assurance Program comparable and equivalent to that of the prime contractor.

Additionally the NPPD QA organization shall have direct access to and communication with the contractor's personnel at all levels, both at their home office and in the field.

Prior to outside suppliers or contractor performing work at the Cooper Nuclear Station, the suppliers or contractor and selected representatives from the NPPD Nuclear Operation and Nuclear Services Divisions shall jointly develop and enforce written agreements and procedures which clearly define the limits of the work; interface coordination between contractor personnel and station staff; status and custody tagging procedures; contractor personnel dosimetry; and any other aspects which bear on station or personnel security and safety. Such agreements shall be reviewed by the Quality Assurance Department to insure compliance with applicable Quality Assurance Program.

As necessary to execute this QA Program, the District may obtain the services of a qualified consultant. When non-NPPD support is obtained, total responsibility for effectiveness of support organizations activities will remain with NPPD.

Table 3

THREE LEVEL QUALITY ASSURANCE PROGRAM
EXPLANATION OF FIRST, SECOND, AND THIRD LEVEL QA RESPONSIBILITIES

a) FIRST LEVEL-Quality Control & Inspection.

An individual other than the one doing the work (not to include immediate supervisor) will have primary responsibility for Quality Control. Personnel at this level are charged with the responsibility for direct inspection, witnessing, and sign-off, attesting that work has been performed in accordance with the quality requirements of the controlling documents.

b) SECOND LEVEL-Quality Assurance Surveillance/Audit.

The CNS Quality Assurance Manager and Staff are responsible for second level surveillance/audit as appropriate for work involved. The CNS Quality Assurance Manager is responsible for assuring that controlling documents for operation include appropriate quality requirements. QA Staff is responsible for maintaining surveillance and audits of the work at CNS to assure that Quality Control and inspection programs are being carried out and that quality requirements are in fact being met.

c) THIRD LEVEL-Quality Assurance Audit

Persons performing these audits are generally not involved in the day-to-day Inspection or Quality Control, functions. Audits and/or surveillances will normally be performed by or underthe direction of the appropriate QA Manager. In addition, SRAB shall be responsible for reviewing the results of audits and follow-up audits as described in Technical Specification Section 6.2 and Appendix B which are performed by the Quality Assurance staff. The Quality Assurance staff is also responsible for the evaluation of audit results and for verifying that identified corrective action requirements have been implemented.

4.0 QUALITY ASSURANCE DOCUMENTS

In conformance with 10CFR50 Appendix B, Criterion II, written policies, plans, and instructions shall be prepared to define the Quality Assurance Program to be carried out over the operating life of the station.

4.1 NPPD Internal Documents

The Quality Assurance Program documents must necessarily be based on work procedures which are prepared by engineering and operating groups. It is necessary to establish clear lines of distinction between the WORK procedures and the QA procedures. 10CFR50, Appendix B, identifies certain WORK procedures and documents which are required in order to have an effective QA Program. However, it is not intended that QA responsibilities include preparation of basic work procedures; it is not intended that basic work procedures be incorporated into the QA Program documents.

The WORK procedures are kept separate from the QA procedures in engineering, manufacturing, and construction, and it is intended that they be kept separate for operations activities. However, mandatory QA/QC checkpoints shall be incorporated directly into, or by attachment to the work procedures to facilitate coordination between the work and its quality control.

Work procedures shall be reviewed by Quality Assurance for proper implementation of this Quality Assurance Program for Operation and for compliance with the criteria of 10CFR50, Appendix B.

Quality Assurance Plans and Instructions and Quality Control Inspection requirements shall be developed in accordance with guidelines given in the following paragraphs.

The format and content of each type of QA document shall be as specified by the Division Manager of Quality Assurance and shall be documented by issuance of a Quality Assurance Instruction (QAI-1) as further described below.

After QA documents are approved and issued, significant changes shall be reviewed and approved via the same channels as for the original document. Each such change, when approved and issued, shall be accompanied by a Transmittal Notice.

Particular circumstances may occur while some work is in progress, which necessitates a change to an approved procedure. When such circumstances arise, the changes must be authorized per procedure. The written record shall clearly show the nature and extent of the change and the reason for requiring such change.

Except in unusual circumstances, changes shall be reviewed and approved in writing via the same channels as the original procedure, prior to adoption of the change. If changes are made or deviations occur in an unusual circumstance, such changes shall still be reviewed and approved as above. If the QA Division does not accept such change or deviation, then, as soon as possible after the unusual circumstance has passed, the work shall be corrected to conform to the approved procedures.

4.1.1 Quality Control Inspection

The Quality Control Inspection function must be performed by an individual other than those which are actually performing the work being controlled or inspected. The Cooper Nuclear Station management, as part of their normal management function, are responsible for preparation of the Quality Control requirements of this inspection program; however, the CNS QA Manager is responsible to review and accept control methods prior to implementation.

The CNS Quality Assurance Manager, working with the CNS station management, shall verify that Quality Control Check Points have been incorporated directly into, or by attachments to, the work procedures which shall constitute the stations QC functions and shall periodically inspect work performance to assure that the procedures containing Quality Control activities are being followed. The QC checkpoints shall identify the specific work which is to be subjected to inspection or verification and shall provide in detail the elements of work to be inspected which include:

1. identity of the inspector or data recorder
2. type of inspection or observation
3. results (data to be recorded)
4. acceptance (qualitative or quantitative) criteria
5. method of disposition of nonconformance
6. reporting requirements

In addition, clear instructions shall be given regarding the timing, frequency or scheduling, and notification requirements for such inspections so as to obtain maximum effectiveness and to minimize delays in completion of the work.

It must be recognized that certain work, particularly in nonroutine maintenance or repair, cannot be anticipated. Therefore, procedures and Quality Control Inspection requirements cannot be prepared until a particular problem has been detected and evaluated.

Routine maintenance and repair of essential systems and components generally requires performance of a complete or partial Surveillance Procedure prior to placing the system back in service. This type of QC (actual performance or functional testing) following completion of work is considered a unique advantage on an operating facility. Such surveillance testing may be performed by the individuals who performed the maintenance activity, with acceptance of testing by the shift supervisor acting as the QC agent.

4.1.2 Quality Assurance Instructions (QAI)

In order to comply with 10CFR50, Appendix B, and this policy document, the General Office or CNS Quality Assurance Managers or designees shall prepare additional Quality Assurance Instructions (QAI) which shall be approved by the Division Manager of Quality Assurance.

Each Quality Assurance Instruction (QAI) shall clearly identify the purpose, conditions, problem, or uncertainty which generated the need for clarification. The authority, policy, regulation, specification, code or standard applicable to the particular problem shall be cited in the Instruction. Appropriate detailed explanation or instructions shall be developed to clarify matters such as, but not limited to:

QAI-1	Guidelines for Preparation and Issuance of Quality Assurance
QAI-2	Controlled Distribution of Quality Assurance Documents
QAI-3	Definition of Terms
QAI-4	General Guidelines for Quality Assurance Surveillance
QAI-5	General Guidelines for Quality Assurance Audits
QAI-6	Personnel Qualifications and Training for QA Assignments
QAI-7	Quality Assurance Records - Retention, Storage, and Disposition
QAI-8	Applicability of NRC Quality Assurance Criteria
QAI-9	Guidelines for Establishing Quality Classifications of Components and Materials
QAI-10	Nonconformance Reports - Issuance, Control, and Corrective Action
QAI-11	Delegation of Specific Responsibilities
QAI-12	Guidelines for Audit Frequency and Scheduling
QAI-13	Guidelines for QA Review of Procedures and Documents
QAI-14	Disposition of Nonconforming Materials, Parts, and Components
QAI-15	Incident Evaluation
QAI-16	Supplier Approval
QAI-17	Guidelines for Indoctrination and Training of QA Personnel
QAI-18	Stop Work

These approved Quality Assurance Instructions (QAI) shall become a part of the CNS Quality Assurance Program for Operation.

4.1.3 Quality Assurance Plans (QAP)

Concurrent with the preparation of work procedures, and during operations or maintenance activities, the General Office or CNS Quality Assurance Managers shall develop additional Quality Assurance Plans as needed. These QA Plans will outline specific Quality Assurance activities and shall become a part

of the CNS Quality Assurance Program for Operation. Distribution of these Plans will be to those individuals who are responsible for that particular activity. As a general guideline in defining the scope of the QA Program, there shall be a QA Plan for each functional area shown below:

QAP-001	Restart Test Program
QAP-002	Start-up and Full Power Testing
QAP-100	Administrative Controls
QAP-200	Station Operation
QAP-300	Receiving Fuel, Refueling, and Fuel Storage
QAP-400	Instrument and Equipment Calibration and Control
QAP-500	Industrial Security
QAP-600	Surveillance Testing
QAP-700	Repair Maintenance
QAP-800	Fire Protection
QAP-900	Chemistry, Health Physics and Environmental Monitoring
QAP-1000	Nuclear Performance Evaluation - Core Management
QAP-1100	Preventative Maintenance
QAP-1200	Radioactive Waste Treatment and Disposal
QAP-1300	Nuclear Materials Safeguards and Accountability
QAP-1400	Procurement and Control of Essential Spare Parts, Equipment, Materials and Service
QAP-1500	In-Service Inspection
QAP-1600	Control of Contractors Working in the Station
QAP-1700	Design Changes
QAP-1800	Nuclear Fuel Procurement
QAP-1900	Emergency Plan
QAP-2000	Reporting and Responding Activities (Commitment Tracking)
QAP-2100	Document Control
QAP-2200	SRAB and SORC Activities
QAP-2300	CNS Spent Fuel Shipping Campaign

QAP-2400 Non-Safety Related Reliability System

QAP-2500 ATWS System (not published)

QAP-2600 Special Processes and Dedicated Procedures (not published)

QAP-2700 Training

A guide for the format and content of Quality Assurance Plans shall be specified in a QA Instruction (QAI-1) to provide uniformity and to assure that each plan is complete and adequate for the purpose intended.

The QAP's shall be prepared by the Quality Assurance Managers or designees and shall be reviewed and approved by the Division Manager of Quality Assurance. In addition, when significant changes have been made to these documents, the QAP will be routed to the following for review and comment:

- Division Manager - Nuclear Operations

- Division Manager - Nuclear Services (if affected)

The QA Plans shall define the specific work in the nuclear station which is to be subjected to Quality Assurance review, surveillance, and audit, and the manner in which such review, surveillance, and audit is to be carried out.

Checklists shall be prepared after reviewing the work procedures describing the QA Surveillance or QA Audit guidelines.

a) Quality Assurance Surveillance

The Quality Assurance Surveillance function is intended to provide an independent check, on a continuing basis, that work is being performed in accordance with the requirements of the controlling documents. The Quality Assurance Surveillance activities should not duplicate, one for one, the activities performed for Quality Control Inspection purposes. However, some duplication will occur, incidental to the performance of independent observations made to satisfy both Quality Assurance Surveillance and Quality Control Requirements.

The objectives of Quality Assurance Surveillance are to verify that the Quality Control Inspection Program is in effect and is functioning as intended; that personnel performing Quality functions are properly qualified; that adequate information is being recorded to provide a complete and accurate quality history; and that deficiencies are identified, corrected, and recorded; and corrective action taken to prevent recurrence of those types of deficiencies.

This philosophy shall be taken into account in developing the checklists for Quality Assurance Surveillance activities to be carried out under each Quality Assurance Plan. QA Surveillance shall be as prescribed in appropriate QA Plans and Instructions.

The QA checklists shall identify the area of work to be subjected to surveillance and shall provide necessary instructions. The timing, frequency, or schedule for the surveillance shall be coordinated with the schedule of the work

being evaluated so that the QA Surveillance will have maximum effectiveness with minimum impact on the progress of the work.

b) Quality Assurance Audits

As required by 10CFR50, Appendix B, a comprehensive system of planned and periodic audits shall be carried out to verify compliance with all aspects of the Quality Assurance Program and to determine the effectiveness of the program. The audits shall be performed in accordance with written procedures or checklists by appropriately trained personnel not having direct responsibilities for the work being audited. The General Office and CNS Quality Assurance Managers shall have the responsibility and authority for planning and executing Quality Assurance Audits identified by approved QA Plans. However, the Safety Review and Audit Board, or any manager or executive in the chain of organization above the Division Manager - Nuclear Operations, or above the Quality Assurance Managers may initiate and carry out special Quality Assurance Audits within the guidelines provided by this Quality Assurance Program. Audit results shall be reported in writing to the Division Manager of Quality Assurance and the results shall be reviewed with the Management responsible for the area of activity audited. Follow-up action, including re-audit of any identified deficient areas and verification of corrective actions, shall be taken and documented as directed by the appropriate Quality Assurance Manager.

QAI-5, QAI-12, and QAI-16 include descriptions and timing of types of audits to be performed; guidelines for performing audits; procedures for initiating an audit; guidelines for preparing audit reports.

Each QA Plan will be implemented through the use of the appropriate checklist. On the basis that some Quality Assurance Audits are to be conducted or directed by management, it is essential to maintain a high degree of flexibility in the manner of conducting an audit. It is intended that the QA Plans provide audit guidelines to assure that areas to be audited are sufficiently defined in advance and that audit personnel are adequately prepared to make a meaningful audit with a minimum of interference with the progress of the work. Also, flexibility is required to permit the auditor to adapt his procedures to the conditions existing at the time the audit is made.

5.0 METHOD OF IMPLEMENTATION

The detailed methods of implementation of this Three Level Quality Assurance Program for Operation shall be as provided for in the body of Quality Assurance Instructions and Plans prepared in accordance with Section 4.0.

The CNS Quality Assurance Manager or designee shall review and comment on the CNS procedures to ascertain that necessary quality requirements are included. Procedure changes will be incorporated as necessary to correct identified control deficiencies or needs. Differences of opinion on QA comments shall be resolved as indicated in Section 3.2.4.

After review of the various station procedures and manuals, the CNS or General Office Quality Assurance Manager shall review the appropriate QA Instructions and Plans for the purpose of assuring that the overall QA Program objectives continue to be accomplished in each segment of the work to which this QA Program applies.

Quality Assurance activities shall be coordinated with the Safety Review and Audit Board (SRAB) and with the Station Operations Review Committee (SORC). QA activities shall be conducted in a manner and on a schedule which will assure that the organization, supervision, communications, and technical and administrative practices clearly evidence smooth, orderly, controlled, and safe execution of all station-operating functions.

Written reports of all QA activities, including descriptions of deficiencies and resolution thereof, shall be incorporated into the official QA file. Corrective action on deficiencies must include resolution of the specific deficiency and verification that corrective action has been implemented to prevent occurrence of similar deficiencies in the future. A report of QA Audits performed (internal and external) shall be submitted to the Assistant General Manager - Nuclear by the Division Manager of Quality Assurance yearly.

The Quality Assurance Staff shall maintain an up-to-date summary of the CNS Quality Assurance Policies, Instructions, and Plans, showing how this QA Program for Operation implements the NRC guidelines contained in 10CFR50, Appendix B.

6.0 RECORDS RETENTION AND DISPOSITION

Instructions have been prepared by the Quality Assurance Staff (QAI-7) which provide guidelines for CNS and G.O. record retention and disposition in accordance with this policy document and applicable regulatory criteria. As a minimum, these procedures cover the following:

a) Records content and location;

b) Principal location from which records are to be controlled;

c) Complete records inventory and master index;

d) Conditions of storage, access, and security;

e) System of records identification, retrieval, and control;

f) System of records transfer and disposal.

The station records system which accumulates evidence of Quality Assurance activities shall be thorough and complete, but shall not result in proliferation of unnecessary paperwork. The station records system shall permit efficient retrieval of specific information on request.

The records for the station shall be designated and referred to as the CNS Records file. Records contained in these files shall be in accordance with regulatory criteria and Section 6.4 of CNS Technical Specifications. As a minimum, the CNS Record File will contain:

1) An inventory of records as further described below;

2) The Official Files accumulated during engineering and construction;

3) Operating logs;

4) Results of reviews by management, regulatory agencies, and other authorities;

5) Inspection records;

6) Test records and results;

7) Audit reports;

8) Monitoring and evaluation of work performance;

9) Results of material analysis (surveillance specimens, reactor water chemistry, environmental specimens, etc.);

10) Qualification of personnel, procedures, and tools or equipment;

11) Procurement records.

7.0 REFERENCES

The following documents were used in the preparation of the Quality Assurance Program for Operation of the Cooper Nuclear Station. It is intended that these documents be used on a continuing basis in the performance of Quality Assurance activities for station operation since they offer measurement criteria against which the QA Program can be evaluated.

7.1 Quality Assurance Criteria for Nuclear Power Plants 10CFR50, Appendix B (USNRC).

7.2 Standard of Administrative Controls for Nuclear Power Plants, American National Standard ANSI 18.7 - 1972.

7.3 Updated Safety Analysis Report, Cooper Nuclear Station, Nebraska Public Power District (NRC Docket 50-298).

7.4 Environmental Report--Operating License Stage, Cooper Nuclear Station, Nebraska Public Power District (NRC Docket 50-298).

7.5 Quality Assurance Program for Engineering, Design, and Construction, Cooper Nuclear Station.

7.6 Cooper Nuclear Station Procedures Manual.

7.7 Safety Rules, Nebraska Public Power District.

7.8 Safety Guides for Water-Cooled Nuclear Power Plants (USNRC), as appropriate.

7.9 Quality Assurance Requirements for Nuclear Power Plants ANSI N45.2 - 1971.

7.10 Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants ANSI N45.2.9 - 1979.

7.11 Quality Assurance Terms and Definitions ANSI N45.2.10 - 1973.

7.12 Quality Assurance Requirements for the Design of Nuclear Power Plants ANSI N45.2.11 - 1973.

7.13 Requirements for Auditing of Quality Assurance Programs for Nuclear Power Plants ANSI N45.2.12 - Draft 3, Revision 4, February, 1974.

7.14 Supplementary Quality Assurance Requirements for Control of Procurement of Equipment, Materials, and Services for Nuclear Power Plants ANSI N45.2.13 - Draft 2, Revision 4, April, 1974.

8.0 IMPLEMENTATION, WASH-1283, -1284 AND -1309

The CNS QA Program for Plant Operations will utilize the guidance provided by NRC publications WASH-1283 (5-24-74), WASH-1284 (10-26-73) and WASH-1309 (5-10-74) ("rainbow" series) except as noted in the "Specific Exceptions" of this section.

The existing operational QA Program does not address all of the detailed requirements set forth in the "rainbow books". A detailed review has been made to determine where the CNS QA Program differs from the ANSI Standards cited in the "rainbow books."

With respect to the applicability of the "rainbow books" and the associated standards, it is impracticable to apply all of the requirements set forth by these documents to a plant for which important, and (in some respects) irreversible commitments, were made 8 to 10 years ago. It is also impracticable to apply requirements to an operating plant which were intended solely for the design and construction phase. NPPD does not now envision any major modifications or additions to Cooper Nuclear Station. In the event that any such construction were undertaken, the District would commit to compliance with the applicable portions of the WASH Series ANSI Standards. It is NPPD's intent to apply quality standards to maintenance, repair, and modification activities which will provide results which are equal to or better than the original construction.

The following sections summarize the scope and applicability of ANSI Standards and describe specific exceptions that will be taken in applying the guidance of these documents to the CNS QA Program.

8.1 ANSI N45.2 Quality Assurance Program Requirements for Nuclear Power Plants

(a) Scope and Applicability

The guidance provided by this standard and the associated Regulatory Guides 1.28 and 1.33 shall be applied to the Operational QA Program to those activities affecting the safety-related aspects of the operational phase of CNS.

Where codes or standards are referenced, or are incorporated into the standard by reference, which are in conflict with original design commitments as set forth in the SAR, the SAR commitments shall govern. Later revisions of applicable codes and standards may be specifically invoked by the design requirements where deemed appropriate, consistent with the overall commitment to maintain the plant in an "equal to or better than" original condition.

(b) Specific Exceptions

Quality Assurance Program (Section 2)

The QA Program describes the measures utilized to comply with the requirements of 10CFR50, Appendix B. The CNS QA Program conforms to this ANSI Standard also, except as noted below.

Inspection (Section 11)

First Level inspection has been assigned to plant personnel. Contrary to the requirement of this standard that such persons shall not report directly

to the same immediate supervisor, our program requires only that inspection activities to verify quality of work shall be performed by appropriately qualified persons other than those who performed the activity being inspected. To be considered qualified, persons performing inspection or verification activities shall meet the following requirements:

1) The inspector or verifier did not perform or directly supervise the work.

2) The quality of work will be demonstrated by a functional test if a pressure boundary has been breached.

3) The verifier's qualifications are reviewed and found acceptable by the QA organization prior to initiating the verification.

4) Individuals performing verification functions associated with normal operations of the plant will be qualified to ANSI N18.1-1971.

5) Individuals whose qualifications are not required to meet those in ANSI N18.1-1971 and who perform verification activities shall be qualified to ANSI N45.2.6 except that the QA experience cited for Levels I, II and III shall be interpreted to mean actual experience in carrying out the types of inspection, examination, and testing activity being performed.

6) All nondestructive examinations will be performed by personnel qualified and certified in accordance with SNT-TC-1A.

8.2 ANSI N45.2.1 Cleaning of Fluid Systems and Associated Components During the Construction Phase of Nuclear Power Plants

(a) Scope and General Applicability

The guidance provided by this standard and the associated Regulatory Guide 1.37 shall be applied to safety-related maintenance, repair, and modification activities occurring during the operational phase of Cooper Nuclear Station except as noted below.

(b) Specific Exceptions
General Requirements (Section 2)

Cleaning requirements for almost all maintenance, repair, and modification work will be considered as a part of the overall job requirements. In this respect, detailed cleaning procedures will not generally be prepared as separate documents. Necessary requirements, consistent with the scope of the work, will be included as a part of the overall work instructions. System cleanness is controlled at CNS by the following methods:

1) Parts and components are checked for cleanness during receipt inspection and stored in a manner that will ensure adequate levels of cleanness are being maintained.

2) Work instruction will be reviewed by Quality Control to assure that adequate cleaning and access controls are incorporated into work instruction and associated safety-related activities.

3) Parts and components are inspected for cleanness prior to installation in accordance with CNS maintenance procedures.

4) The work area is maintained at a cleanliness level appropriate to the maintenance or modification activity being performed.

5) Quality Control inspections before, during, and after safety-related maintenance or modification activities address system cleanness.

6) Random QA audit and surveillance of safety-related maintenance or modification activities requires verification of part, component, and system cleanness.

Criteria for Cleaning (Section 3)

For cleanness classifications where the scope of plant modification work is such as to make application of the guidance provided by this standard practicable, the cleanness classifications and requirements thereof shall be evaluated and applied, as appropriate, as a part of the overall work requirements.

For most modification or maintenance work, however, involving only small portions or individual components of larger systems, it is not considered practicable to conduct cleanness tests with ASTM E11-70 Series. Appropriate cleanness will be maintained during the work and preoperational flushing will be conducted, consistent with the scope of the work performed and the original design requirements. Flushing is an additional precaution to insure system cleanness. Controlling the parts and components and the work area has provided CNS with reasonable levels of assurance that system cleanness will be maintained. In addition to the above, the Water Chemistry Department routinely samples and tests for system cleanliness, corrosion, crud buildup, etc.

8.3 ANSI N45.2.2 Packaging, Shipping, Receiving, Storage, and Handling of Items for Nuclear Power Plants (During the Construction Phase)

(a) Scope and Applicability

The guidance provided by this standard and the associated Regulatory Guide 1.38 shall be applied to packaging, shipping, receiving, storage, and handling activities associated with safety-related items except as noted below.

(b) Specific Exception

Our program is structured to identify safety-related equipment and provide for designation of packaging, shipping, receiving, storage, and handling requirements for purchased parts and materials. The classifications of this standard cannot be applied directly to individual spare parts or subassemblies of the parent equipment. Due to difference in volume, complexity, inspectability, etc., the packaging, shipping, handling, and storage requirements of spare parts and subassemblies will necessarily be different from the requirements which may be imposed on the entire component or piece of parent equipment.

The majority of items purchased for an operating plant consist of components, subassemblies, and individual spare parts which could be used in a multitude of different applications. Such items are purchased to the highest

requirement of intended use. The volume and characteristics of purchases during the operational phase differ significantly from those purchases made during the design and construction phase, and storage facilities are considerably different. Items that require special measures of storage protection will be identified as a part of the purchasing documents. Items that must be stored outdoors (equivalent of Level D) or items that must be stored in covered but unheated conditions (equivalent of Level C) will be evaluated on an individual case basis. However, it is not considered practicable to preclassify individual parts by levels as required by Section 2.7 of this standard. Shipping and packaging requirements for such items will likewise be handled in the purchase order documents, as appropriate.

(c) Implementation

The NPPD procurement procedures for safety-related items includes a checklist to verify that the ANSI N45.2.2 requirements for packing, shipping, receiving, storage, and handling are included in the procurement document. QA audits and surveillance are performed to verify that the requirements of N45.2.2 are met except as noted in (b) above.

8.4 ANSI N45.2.3 Housekeeping During the Construction Phase of Nuclear Power Plants

(a) Scope and General Applicability

The guidance provided by this standard and the associated Regulatory Guide 1.39 for control of housekeeping requirements shall be applied to work conditions and other applicable activities which could affect quality of important operational aspects of CNS except as noted below.

(b) Specific Exceptions
General Requirements (Section 2)

The plant has been divided in zones for fire protection and security purposes. The zone designated for cleanness in the ANSI Standard are primarily intended for control or work during construction of the plant. Therefore, the CNS facilities will not be classified by the zones designated in the Standard general housekeeping rules. Limitations on eating, drinking, and smoking are already provided in existing CNS procedures. Where special cleanness controls, tool, and material accountability are required for particular types of work, temporary clean areas will be designated and defined in the procedures for accomplishing the work.

Requirements (Section 3)

Fire protection and prevention equipment will be provided in accordance with NPPD evaluation of the CNS fire protection system as determined by the NRC.

(c) Implementation

Existing maintenance procedures will be reviewed to determine the need for particular cleanness, housekeeping, and control provisions. Where indicated, procedures will be revised to incorporate such provisions, using the guidance of ANSI N45.2.3.

8.5 ANSI N45.2.4 Installation, Inspection, and Testing Requirements for Instrumentation and Electric Equipment During the Construction Phase of Nuclear Power Generating Stations

(a) Scope and Applicability

The guidance provided by this standard and the associated Regulatory Guide 1.30 shall be applied to installation, inspection, and testing of electrical equipment and systems associated with on-site safety- related modification work occurring during the operational phase of CNS except as noted below.

Where specific design requirements included in this standard or referenced codes and standards are in conflict with original design requirements set forth in the SAR and other appropriate design documents, the original design requirements shall govern.

(b) Specific Exceptions

Definitions (Section 1.4)

The definition of Class I and Class IE electrical equipment set forth by this standard does not conform to the equipment categories of CNS. Essential electrical items upon which the Operational QA Program is based are included in the SAR Amendment 39. The scope and applicability of this standard shall necessarily be limited to these defined areas.

Procedures and Instructions (Section 2.3)

Appropriate requirements for installation, inspection, and tests will be set forth by job specifications and work instructions developed as a part of the modification work package. It is not intended that separate procedures be established which specifically address the various areas of this standard. However, in the development of the work package, consideration will be given to the areas outlined in Section 2.3, as appropriate.

Installation, Verification, and Test (Section 4.0, 5.0, and 6.0)

The requirements of the installation and the associated inspections, verifications, and tests are included in the work instructions as appropriate, consistent with the scope of the work and the importance of quality. In the development of the work instructions, consideration will be given to the guidance provided by Sections 4.0, 5.0 and 6.0 of this standard, and appropriate requirements will be incorporated into the instructions. It is not intended that separate procedures be established which specifically address all of the areas referenced.

Applicable Codes, Standards, and Guides (Section 9.0 and Appendix B)

Application of the guidance provided by the additional codes and standards listed in Appendix B will be considered to the extent that such codes and standards provide useful and practical guidance for the work being performed. Commitment to the guidance of N45.2.4 shall not include commitment to the guidance of referenced standards. (See Regulatory Guide 1.30, Safety Guide 30.)

8.6 ANSI N45.2.5 Supplementary Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants

(a) Scope and Applicability

The guidance provided by this standard and the associated Regulatory Guide 1.94 shall be applied to activities involving safety- related concrete and structural steel work occurring during the operational phase of Cooper Nuclear Station except as noted below.

(b) Specific Exceptions

Procedures and Instructions (Section 2.2)

Appropriate requirements for installation, inspection, and tests will be set forth by job specifications and work instructions developed as a part of the modification work package. It is not intended that separate procedures be established which specifically address the various areas of this standard. However, in the development of the work package, consideration will be given to the areas outlined in Section 2.2, as appropriate.

Personnel Qualifications (Section 2.4)

The Operational QA Program includes provisions for ensuring that qualified personnel are assigned to monitor work activities. (Please refer to Section 8.7 of this document.)

Calibration and Control (Section 2.5.2)

The requirements of control and calibration of measuring and test equipment set forth by this standard shall be applied to all measuring and test equipment used by NPPD or their agents, test laboratories, and contractors. Such requirements, however, will not be imposed on commercial batch plant facilities. Instrumentation at commercial batch plant facilities will be evaluated by CNS plant management to determine that sufficient accuracy can be obtained and will be verified by an independent QA audit.

Qualification Tests (Section 3.2.1)

For small quantities of concrete involved in modification work, all concrete must be purchased from commercial concrete batch plants. For small quantities of concrete, it is unreasonable to expect commercial facilities to shut down normal operations to provide certified aggregate, cement, admixtures, fly ash, water, etc. In this respect, the qualification tests required by Table A for aggregate; cement; admixtures; fly ash, and pozzolans; water and ice will not be required. Appropriate evaluations will be made to determine that good quality and generally-acceptable materials are used. CNS plant management evaluation, coupled with slump tests, air entrainment tests, and concrete cylinder strengths, will provide adequate control and qualification of the concrete. The results of evaluation will be verified by an independent QA audit.

Design mixes consistent with, or equivalent to, original requirements will be specified and the results of the cylinder tests will be evaluated by CNS plant management based on the acceptance criteria associated with the original design mix requirements and will be verified by an independent QA audit.

Protection of Materials (Section 4.2)

The inspection requirements of Section 4.2 will not generally be performed as the small quantities of concrete involved in modification work will no doubt be mixed using materials already in the batch plant bins. Control of storage of materials would not be practicable.

Measuring, Mixing, and Transporting (Section 4.3)

If available, appropriate certifications shall be obtained from the concrete supplier which verify the adequacy of truck mixers per the requirements of ACI-304, ASTM C-94. Where certifications are not available, two concrete test cylinders representing the first and last one-third of truck mixer contents shall be taken for evaluation of the mixer truck, over and above the normal concrete cylinders taken to evaluate the inplace concrete. The concrete batch plant facility shall be inspected by CNS plant management and the CNS QA staff to assure that reasonable controls are being exercised with reference to the inspection guidelines set forth by Section 4.3(1) and (2).

Preplacement Preparation (Section 4.4)

Inspection of fills and earthwork will meet the general requirements set forth. The extent to which individual inspection requirements are met will depend upon the nature and scope of the work to be performed.

In-Process Tests on Concrete and Reinforcing Steel (Section 4.8)

Except for normal batch qualification tests (slump, air content, temperature, and compressive strength) and initial reinforcing steel certifications, the in-process tests required by Table B are generally applicable to the periodic control which must be exercised with reference to long-term construction type programs. The in-process test requirements of Table B are not considered applicable to short-term modification work as would be required by QA at CNS.

(c) Implementation

Where the need arises, measures will be implemented to meet this standard with the exceptions noted above.

8.7 ANSI N45.2.6 Qualification of Inspection, Examination and Testing Personnel for the Construction Phase of Nuclear Power Plants

(a) Scope and Applicability

The guidance provided by this standard and the associated Regulatory Guide 1.58 shall be applied to inspection, examination, and testing activities associated with safety-related operations, including maintenance, repair, and modification except as noted below.

(b) Specific Exceptions

It has always been the belief of CNS and NPPD that, in order to be effective, quality control must be built into the operation of the plant. With

this in mind, CNS incorporated quality control inspection and test functions directly into the station operating procedures. Inspection points are then witnessed and signed-off by members of the operating staff not directly involved in the activity being inspected. Assignment of QC inspectors is a function of station management. Inspectors will meet the requirements listed in paragraph 8.1 (of this amendment) under the part titled "Inspection."

CNS does not have the in-house capability to perform nondestructive examinations in accordance with SNT-TC-1A. These services are currently contracted to an approved vendor. Any required nondestructive examinations will be performed by personnel who are qualified and certified per SNT-TC-1A.

8.8 ANSI N45.2.8 Supplementary Quality Assurance Requirements for Installation, Inspection, and Testing of Mechanical Equipment and Systems for the Construction Phase of Nuclear Power Plants

(a) Scope and Applicability

The guidance provided by this standard shall be applied to installation, inspection, and testing of mechanical equipment and systems associated with on-site safety-related modification work occurring during the operational phase of CNS.

Where specific design requirements included in this standard or referenced codes and standards are in conflict with original design requirements set forth in the SAR and other appropriate design documents, the original design requirements shall govern.

8.9 ANSI N45.2.9 Requirements for Collection, Storage and Maintenance of Quality Assurance Records for Nuclear Power Plants

(a) Scope and Applicability

The guidance provided by this standard and the associated Regulatory Guide 1.88 shall be applied to quality assurance records associated with the operational phase of CNS with the following exceptions:

For those design, manufacturing, construction, and operating records generated prior to implementation of this standard, it is not our intent to backfit the detailed requirements of this standard to those records. All such records, however, have been initially designated for lifetime storage, until specific review dictates otherwise, and will be stored in the record storage facility. Appropriate record indexes and filing system shall be established to permit reasonable identification and retrieval. The records will be stored and preserved per the requirements of Section 5.0 of this standard.

8.10 ANSI N45.2.10 Quality Assurance Terms and Definitions

(a) Scope and Applicability

The quality assurance terms and definitions contained in this standard shall be used as guidance and applied as appropriate to the Operational QA Program for CNS.

The use of this standard and the associated Regulatory Guide 1.74 is in effect. There may be instances where existing procedures contain definitions that may not be in strict accordance with those provided by this standard. As existing procedures are revised, however, such definitions shall be evaluated to determine if all definitions meet those provided by this standard.

8.11 ANSI N45.2.11 Quality Assurance Requirements for Design of Nuclear Power Plants

(a) Scope and Applicability

The guidance provided by this standard and the associated Regulatory Guide 1.64 shall be applied to design activities involving safety-related modification work and the revision or development of plant design documents occurring during the operational phase of CNS.

Where codes, standards, or design requirements are referenced, or are incorporated into the standard by reference, which are in conflict with original design commitments as set forth in the SAR, the SAR commitments shall govern. Later revisions of applicable codes and standards may be specifically invoked by the design requirements where deemed appropriate, consistent with the overall commitment to maintain the plant in an "equal to or better than" original condition.

8.12 ANSI N45.2.12 Requirements for Auditing of Quality Assurance Programs for Nuclear Plants

(a) Scope and Applicability

Except as expressly modified below, the guidance provided by this standard shall be applied to the audit program identified by the Operational QA Program for CNS.

The QA Program will be audited at least once every year and complies with the guidance provided in Regulatory Guide 1.33.

(b) Specific Exceptions
Follow-up (4.5.1)

The audited organization is required by existing procedures to respond in writing to deficiencies noted in the audit report. A minimum response time is not specified because corrective action varies depending on the nature and extent of the deficiency. However, corrective action is subject to follow-up audits and reports to higher management within eight (8) weeks of issuance of the original audit report.

8.13 ANSI N45.2.13 - Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants

(a) Scope and Applicability

The guidance provided by this standard shall be applied to the procurement of safety-related parts, components, materials, and services during the operational phase of CNS.

(b) Specific Exceptions

It must be recognized, however, that equipment and components purchased during the design and construction phase were not purchased on the basis of present-day standards, especially with reference to vendor qualification and vendor quality assurance programs. In this respect, replacement parts and spare parts for existing equipment are often limited to sole-source suppliers. Such replacement parts or spare parts are purchased to appropriate quality standards to maintain an "equal to or better than" condition but it is not considered practicable to backfit the requirements of the standards to all such vendors.

8.14 ANSI N18.1 - 1971 Selection and Training of Nuclear Power Plant Personnel

(a) Scope and Applicability

The guidance provided by this standard shall be applied to the selection and training of personnel at CNS.

8.15 ANSI N18.7 - 1972 Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants

(a) Scope and Applicability

The operational QA Program for CNS conforms to the guidance provided by this standard and the associated Regulatory Guide 1.33 excepted as noted below.

(b) Specific Exceptions

Where ANSI N18.7 - 1972 parallels the requirements of ANSI N45.2 through ANSI N45.2.13, exceptions taken shall be applicable to this standard as well.