

Quality Assurance Program
for
Shipping Packages

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INTRODUCTION

The Nuclear Science Center of the Texas A&M University System currently holds Reactor Operating License R-83. A Quality Assurance program has been established which governs all activities concerned with the packaging of radioactive materials under USNRC shipping requirements (10CFR71, Appendix E). These activities include designing, purchasing, fabricating, handling, shipping, storing, cleaning, assembling, inspecting, testing, operating, maintaining, repairing and modifying the packaging systems.

ORGANIZATION

The Director of the Nuclear Science Center is responsible for the development, implementation, and maintenance of the Quality Assurance Program. The Senior Health Physicist is responsible for ascertaining compliance with the QA program including the required training, procedure development and record-keeping. The QA program organization is presented in Figure 1.

QUALITY ASSURANCE PROGRAM

The QA program includes activities associated with the procurement, testing, use and maintenance of the shipping packages of 10CFR71 licensed materials. Training prior to engaging in any QA function is required. This training is detailed in written procedures. QA program revisions will be made in accordance with written procedures approved by the Director. The program will ensure that all defined Quality Control (QC) procedures, engineering procedures, and specific provisions of the package design approval are satisfied. The QA program will emphasize control of the characteristics of the package which are critical to safety.

DOCUMENT CONTROL

All documents related to a specific shipping package will be controlled through the use of written procedures approved by the Director. These procedures will also describe how document changes will be performed.

The Senior Health Physicist shall insure that all QA functions are conducted in accordance with the latest changes to these documents.

Quality Assurance Program Organization
for
The Nuclear Science Center
Texas A&M University

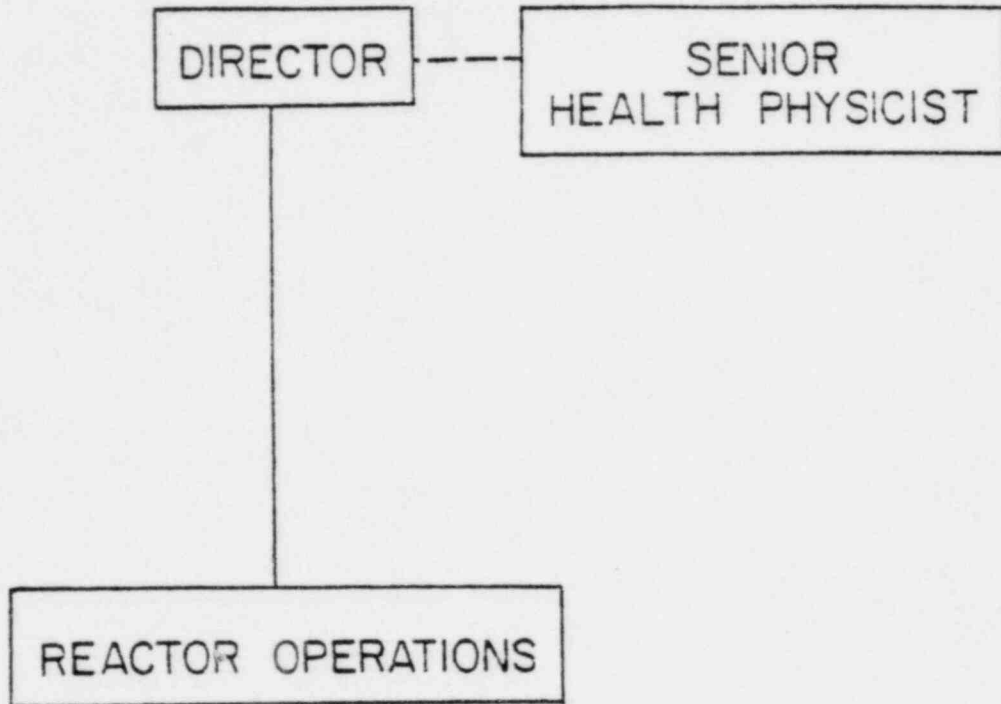


Figure 1

DESIGN CONTROL

The design or modification of packages used in the transport of radioactive materials requires a design review by a review panel. The review will assure that the design is correctly described in the approval of license applications and that the contents of safety analyses are accurate. Design reviews cover items such as stress, thermal, hydraulic, and accident analyses, compatibility of materials and acceptance criteria for inspections and tests.

Documentation for the design reviews is provided in the form of approval applications containing the signatures of at least two individuals who comprise the review panel.

To assure that the approved design is properly accomplished the review panel will inspect the package and indicate compliance by initialing the document.

The design approval may be in the form of an internal document, a request to the Reactor Safety Board, or an application to the NRC for a shipping container license or Certificate of Compliance.

PROCUREMENT DOCUMENT CONTROL

Normally the Nuclear Science Center will use shipping packages which have been licensed and manufactured by others for use by general licensees. In this case, certifications will be required from the package supplier that it is appropriately licensed for use with the authorized content.

CONTROL OF PURCHASED MATERIAL, EQUIPMENT AND SERVICES

In general, all materials, equipment and services are subject to inspection and approval of both the quality and quantity prior to acceptance. Responsibility for these functions rests with the Director of the NSC or his designee. Inspection is generally performed after receipt of the material, equipment or service at the Nuclear Science Center.

IDENTIFICATION OF MATERIALS, PARTS AND COMPONENTS

Identification is required for materials, parts or components where it is necessary to identify items through stages of delivery, utilization, repair and/or modification.

INSPECTION CONTROL

The inspection program includes examinations, measurements, and tests to assure that materials, equipment and services conform to the requirements of applicable documents. Packages which fail to meet the requirements will be modified or repaired and retested until compliance is attained.

CONTROL OF MEASUREMENT AND TEST EQUIPMENT

Measurement equipment will be calibrated as appropriate, and a record of this calibration will be retained. Each instrument used in testing will have an error which is small in comparison with the tolerances on the parameter being measured.

HANDLING, STORAGE AND SHIPPING

The handling, storage and moving of casks and all parts of casks will be controlled to assure safety and to prevent degradation, damage or loss.

INSPECTION, TEST AND OPERATING STATUS

The status of shipping containers will be indicated by a tag, label, a log entry or other documentation. The records will indicate when periodic surveillance tests have been performed.

NON-CONFORMING MATERIAL, PARTS OR COMPONENTS

Items found to be non-conforming in operation or in surveillance tests are recorded and removed from service until repaired. The repair, transfer to other use or disposal will be recorded. The repaired items will comply with the applicable specifications.

CORRECTIVE ACTION

Decisions concerning corrective action are made on a case by case basis, depending upon the nature, severity and frequency of the deficiency.

QUALITY ASSURANCE RECORDS

Activities within the scope of the QA program will be documented by the Senior Health Physicist.

AUDITS

An audit of the quality assurance program will be performed at least annually by the Reactor Safety Board.

The documented audit will cover all aspects of the quality assurance program and will include, as a minimum a report of any changes in the program made since the previous audit, a report of random or complete reviews of the records, and an evaluation of the effectiveness of the program.