



Nuclear Reactor Laboratory

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RSC 1001

Document Control Desk
Director, Spent Fuel Project Office
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852-2746

Subject: University of Wisconsin Nuclear Reactor
Docket Number 50-156, Operating License No. R-74
10 CFR § 71.101 Quality Assurance Requirements

In accordance with 10 CFR 71.101(b), The University of Wisconsin Nuclear Reactor, has developed a quality assurance program satisfying the applicable, specific, provisions of 10 CFR §§ 71.101 through 71.137 for the purposes of shipping spent nuclear fuel.

The development of this program is a critical step in supporting the National Nuclear Security Administration's Global Threat Reduction Initiative (GTRI) HEU reactor conversion subprogram.

The University is requesting approval of the enclosed quality assurance program in accordance with 10 CFR 71.101(c).

Your assistance in expediting this approval will be greatly appreciated.

Sincerely,

Robert J. Agasie
Reactor Director

A020
Q004

UWNR QUALITY ASSURANCE PROGRAM FOR SPENT NUCLEAR FUEL SHIPMENTS

1 INTRODUCTION

The Quality Assurance Program (QAP) submitted here is to assist in the handling of shipments of TRIGA type reactor fuel, and other radioactive material. Specifically the program will cover activities related to the shipping of approved packages containing radioactive material.

The QAP will be the responsibility of the Reactor Supervisor or the Reactor Director at the University of Wisconsin Nuclear Reactor Lab (UWNR). The transport of all radioactive material will be done by a licensed carrier. The shipping containers will be Type B containers with an approved Certificate of Compliance (CoC). The containers will usually be on lease or loan from entities such as the Department of Energy or prime contractor.

The UWNR does not design, fabricate, assemble, or test containers, and does not intend to procure any container for ownership or lease to others. The UWNR does not intend to rework, repair, maintain or modify the container.

The QA Program is submitted pursuant to 10 CFR Part 71.

2 ORGANIZATION

Figure 1 shows the organization chart for the operation of the reactor facility. The QAP will be performed within the operating organization. Written procedures will be reviewed in accordance with UWNR 001 "Standing Operating Instructions" and UWNR 005 "UWNR Administrative Guide". The Reactor staff will have primary responsibility for monitoring all packaging, shipping and receiving activities.

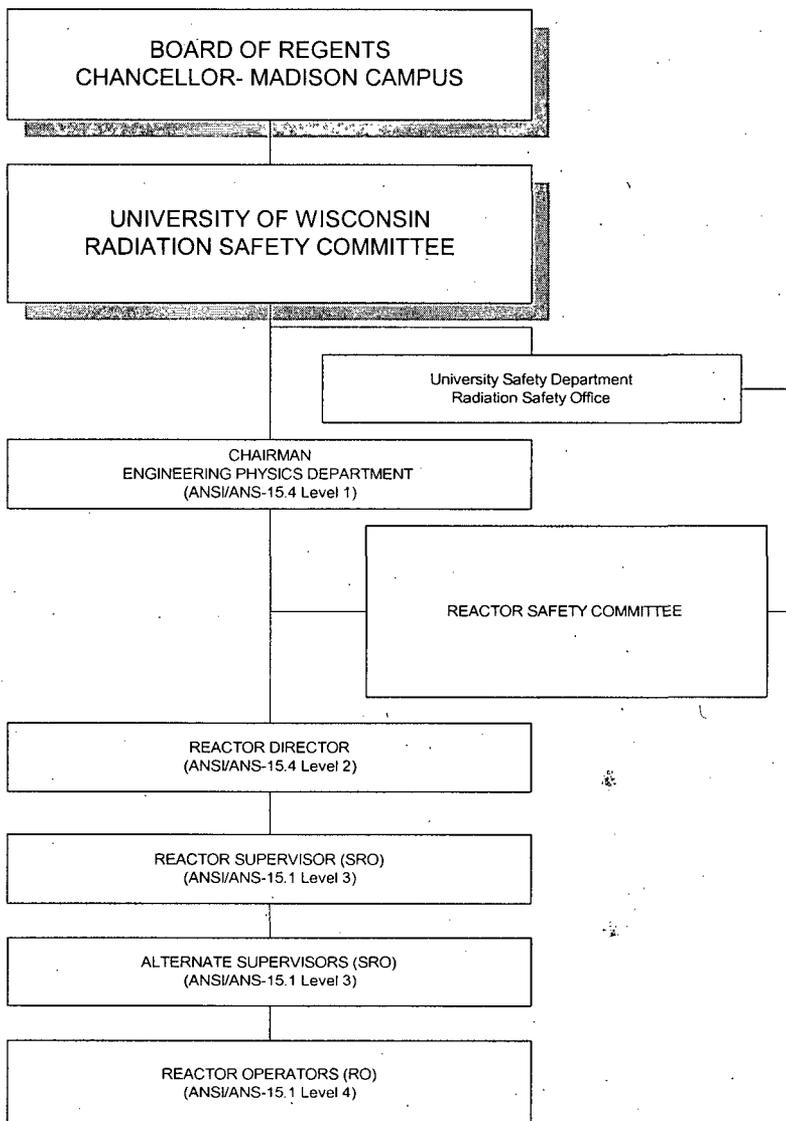


Figure 1

3 QUALITY ASSURANCE PROGRAM

The scope of the program includes handling, loading, delivering to a carrier for transport an approved package for the transport of TRIGA reactor fuel or other radioactive material. The shipments will be periodic in nature and will occur at a maximum frequency of up to several shipments per year. Quality assurance will be exercised primarily through the use of written procedures constructed from regulatory requirements, applicable portions of the UW Radiation Safety Procedures, specific procedures develop by the manufacturer of the package, and other procedures or safeguards developed during review of packaging and transportation planning. Quality assurance will be effected by formatting these procedures as check-lists (or equivalent) to be used by the individuals or their designees who are responsible for quality assurance.

4 PACKAGE DESIGN CONTROL

Design activities related to packages will not to be performed by the UWNR.

5 PROCUREMENT DOCUMENT CONTROL

Procurement activities related to packages will not be performed by the UWNR. The proper procurement document control shall be the responsibility of the supplier of the designated package.

6 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

Activities important to safety will be ensured by following all manufacturer's instructions, procedures, and limitations as they relate to the safe use of the packages.

7 DOCUMENT CONTROL

Control shall be exercised over the documents that are used in this shipping activity. The documents include a master document check-list, inspection procedures, loading and unloading procedures, package certification documents, radiation survey records, and shipping papers. All procedures and changes will be approved in accordance with UWNR001 "Standing Operating Instructions" and UWNR 005 "UWNR Administrative Guide".

8 CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES

No materials or equipment are to be purchased for this activity. Any required services such as container off-loading and carrier transport will be procured via normal UW procedures.

9 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, AND COMPONENTS

No materials, parts or components are to be identified or controlled for this activity. Replacement parts will be obtained from the manufacturer or certificate holder.

10 CONTROL OF SPECIAL PROCESSES

No special processes are to be undertaken for this activity.

11 INTERNAL INSPECTION

The following inspection activities will be implemented for each package procured for shipping purposes:

11.1 Receiving Inspections

Inspections will be performed to ensure the integrity of containers that are used for transportation purposes. Visual inspection will include surface conditions, structural integrity, gaskets and flanges, tie-downs, labeling and marking, and other features as specified by the certificate holder.

11.2 Final Inspections

Inspections will be performed to verify:

1. Proper package assembly
2. Moderators and neutron absorbers are present (if applicable)
3. Valves are set to specification and to prevent tampering

4. Shipping papers are properly completed
5. Packages are conspicuously and durably marked in compliance with USDOT regulations
6. Measures are established to ensure that appropriate personnel designated by the package user sign shipping tags or indicators prior to the authorization for shipping

11.3 Maintenance Inspections

These inspections will not be performed under this activity unless specifically designated by the package standard operating procedures.

11.4 Inspection Documentation

Inspection records will be maintained to document performance of inspection activities

12 TEST CONTROL

12.1 Procedures

Measures will be established to ensure that applicable tests, surveys, or other measurements be performed according to manufacturer's instructions. Calibrated equipment will be used and test results will be documented.

12.2 Acceptance Tests

Measures will be established to ensure that acceptance tests (as applicable) are performed prior to offering a package for transport. Tests may include structural integrity, leak tightness, component performance, and shielding and thermal integrity.

12.3 Results

Measures will be established to ensure that test results are documented, evaluated, and maintained as QA records.

13 CONTROL OF MEASURING AND TEST EQUIPMENT

13.1 Calibration Control

Equipment used for acceptance tests will be calibrated. Radiation measuring equipment will be calibrated according to UWNR 177 "Procedure for Use and Calibration of Health Physics Instruments".

13.2 Out of Calibration Equipment

Not applicable. Equipment used for acceptance tests will be calibrated. Radiation measuring equipment will be calibrated.

14 HANDLING, STORAGE, AND SHIPPING CONTROL

14.1 Preservation

Measures will be established to ensure that cleaning, handling, storage, and shipping are accomplished in accordance with the package design requirements to prevent damage or

deterioration by environmental conditions. Provisions for use of special equipment such as cranes or lifting devices will be adequately identified to protect package components. Conditions identified in the CoC will be adhered to when unloading packaging.

14.2 Preparation, Release and Delivery to Purchaser

Measures will be established to ensure that the following requirements are completed prior to shipping:

1. Cavities have been adequately dried
2. All conditions have been completed prior to offering for transport
3. All USNRC and USDOT requirements have been satisfied prior to offering for transport
4. All shipping papers have been completed and reviewed by qualified personnel for accuracy and completeness.

15 INSPECTION, TEST, AND OPERATING STATUS

A master check-list will be established to track the status of inspections, test, and operating conditions.

16 NONCONFORMING MATERIALS, PARTS, OR COMPONENTS

This section does not apply to this activity.

17 CORRECTIVE ACTION

Causes of conditions that are detrimental to quality will be promptly identified and reported to the Reactor Director or the Reactor Supervisor. Measures will be established to identify any corrective action from suppliers. The program will insure that corrective actions are implemented and effective.

18 QUALITY ASSURANCE RECORDS

18.1 General

QA records will be generated for activities that are performed during the receipt, unloading, opening and closing, loading, preparation of shipping papers, and adherence to conditions specified by the manufacturer. The records will demonstrate delivery to a carrier and have evidence to show that USNRC and USDOT requirements have been satisfied.

Inspection and test records will identify the test or observation, show that the tests or inspections were complete, record test or survey data, identify any conditions that are non-conforming or are detrimental to quality, names of individuals performing the tests or inspections, and whether the results were acceptable.

18.2 Generating Records

Measures will be established to generate and store records. Paper copies of records generated will be stored in secure files. Additionally documents will be stored electronically.

18.3 Indexing and Classification Records

Records generated for these activities will be designated as non-permanent and will be retained for a period of at least 3 years.

18.4 Receipt, Retrieval, and Disposition of Records

The records generated by these activities will be maintained. Procedures are in place for storage of records that relate to transportation and health physics activities that relate to the use of licensed material at the University.

18.5 Storage, Preservation, and Safekeeping

Measures will be established to maintain records for the required period. Measures to be established include:

1. Prevention of damage from fire, flood, or other environmental damage
2. Paper records will be filed in steel storage cabinets
3. Electronic records will be stored in a manner to ensure a backup record is available
4. Unauthorized personnel will not have access to records
5. Damaged records will be promptly replaced

19 AUDITS

19.1 Elements of an Audit Program

Due to the small number shipments an audit will be conducted after each shipment. An auditor will be appointed by the Reactor Director or Reactor Supervisor.

19.2 Scheduling of Audits

An audit will be performed after each shipment to ensure that elements of the program are in place and that appropriate documentation was generated and maintained.

19.3 Team Selection

Due to the small scope of this activity an independent individual will be chosen that has an understanding of the program and the requirements for compliance.

19.4 Various Audit Actions

The auditor will meet prior to the audit to discuss scope and objectives and after the audit to discuss findings, clarify facts, and to ensure all appropriate information has been gathered. A report will be generated to identify deficiencies and a response is required to address deficiencies. The auditor will ensure that a schedule for resolving the items identified is presented and that corrective action is implemented.