

# NRC INSPECTION MANUAL

---

## INSPECTION PROCEDURE 69014

---

### INTEGRATED INSPECTION PROCEDURE FOR CLASS I, II, AND III NON-POWER PRODUCTION AND UTILIZATION FACILITIES

Effective Date: January 1, 2027

#### PROGRAM APPLICABILITY: IMC 2545

This procedure provides guidance for inspection of activities associated with Non-power Production and Utilization Facilities (NPUFs).

#### 69014-01 INSPECTION OBJECTIVES

01.01 The objective of this inspection procedure is to verify that licensees at Class I, II, and III facilities operate, maintain, and manage the non-power production and utilization facility (NPUF) safely and securely, providing assurance of continued compliance with regulatory requirements, technical specifications, and license commitments.

#### 69014-02 INSPECTION REQUIREMENTS

Background. This inspection procedure applies to all facilities licensed under §50.21(a) or (c), or §50.22, as applicable, of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, “Domestic Licensing of Production and Utilization Facilities.” It was developed to combine and update the inspection requirements and guidance contained in legacy inspection procedures (IPs) 69014-69012, which were implemented from 2004-2026. This IP will remain in effect from the time the NRC issues an operating license until the NRC issues a possession-only license.

This procedure may reference standards of the American Nuclear Society (ANS), the American National Standards Institute (ANSI), and the regulatory guides. Section 69014-06, “References,” lists the regulatory guides and standards that provide general guidance for non-power reactors. Reference to the standards and guides in these appendices is to provide additional general guidance to aid the inspector in the technical evaluation of the licensee’s activities.

#### General Inspection Requirements

##### a. Overview

1. This procedure applies to all classes of NRC-licensed NPUFs (Class I, II, III) and includes inspections for operational status and extended shutdown. Coupled with program guidance in Inspection Manual Chapter (IMC) 2545, “Non-Power Production and Utilization Facility Inspection Program – Operations Phase,” this procedure provides a risk-informed, performance-based approach to inspection planning based on reactor class, licensee activities, and significance of operations. Inspectors shall apply the appropriate appendices in accordance with IMC 2545 and facility-specific conditions.

2. Inspections should be risk-informed and performance-based to the maximum extent practical. Rather than specifying rigid sample size criteria in this procedure, inspectors are expected to apply professional judgment to determine the appropriate depth of review necessary to satisfy the requirements of each appendix. As a part of establishing this depth, inspectors should evaluate factors such as facility class, design complexity, operating history, staffing levels, history of reporting, operational challenges, regulatory compliance, and past allegations.

## 69014-03 INSPECTION GUIDANCE

### General Guidance

Before conducting the onsite inspection, the inspector should review the facility license, technical specifications (TS), Safety Analysis Report (SAR), Safety Evaluation Report (SER), and as-built descriptions. These documents, along with American Nuclear Society (ANS) and American National Standards Institute (ANSI) standards and relevant Regulatory Guides (RGs), provide the technical basis for evaluating licensee activities. While these standards aid in technical evaluations, they are not regulatory requirements unless the licensee has formally committed to them in writing or the NRC has mandated their use. Performance-based inspection is the primary method for verification; if written procedures are informal or non-existent, the inspector evaluates the safety and regulatory compliance of the actual function being performed.

Early in the inspection, a facility tour with licensee management should be conducted to evaluate plant conditions and radiation protection activities. Direct observation is the preferred method for verifying requirements; however, if direct observation is not possible, a combination of simplified measurements, walk-throughs, records review, and personnel discussions is acceptable. For specific specialized areas—such as operator requalification, design changes, fuel movement, and emergency preparedness—the inspector ensures the licensee adheres to NRR-approved plans and regulatory standards including 10 CFR Parts 19, 20, 50, and 55.

## 69014-04 RESOURCE ESTIMATE

Completion of this inspection procedure depends on which class of facility is being inspected. For Class I facilities, completing the entirety of Appendices A through I requires a nominal 70 hours of direct inspection. For Class II facilities, completing the entirety of Appendices A through I requires a nominal 60 hours of direct inspection. For Class III facilities, completing the entirety of Appendix J requires a nominal 16 hours of direct inspection. Actual direct inspection hours will vary depending on the specific facility design, history, site events, and other factors mentioned in the General Inspection Requirements. Inspection preparation and documentation are not included in this estimate. This resource estimate is provided for broad planning purposes and to define the typical depth of the inspection. It is not intended to be a rigid requirement on the inspector.

## 69014-05      PROCEDURE COMPLETION

Actual inspection at any facility will require varying levels of depth as described in 69014-02.a.2. Implementation of this IP is considered complete when the requirements in the IP and the applicable appendices are met.

## 69014-06      REFERENCES

Atomic Energy Commission Skovholt Letter on Irradiation of Explosives at Research and Test Reactors, ML20137G472, dated June 23, 1971

IMC 2545, "Non-Power Production and Utilization Facility Inspection Program—Operations Phase"

Nuclear Energy Institute (NEI) 21-06, "Guidelines for 10 CFR 50.59 Implementation at Non-power Production and Utilization Facilities," Revision 1

RG 1.159, "Assuring the Availability of Funds for Decommissioning Nuclear Reactors"

RG 10.1, "Compilation of Reporting Requirements for Persons Subject to NRC Regulations"

RG 10.2, "Guidance to Academic Institutions Applying for Specific Byproduct Material Licenses of Limited Scope"

RG 10.3, "Guide for the Preparation of Applications for Special Nuclear Material Licenses of Less than Critical Mass Quantities"

RG 2.2, "Development of Technical Specifications for Experiments in Research Reactors," November 1973

RG 2.3, "Quality Verification for Plate Type Uranium Aluminum Fuel Elements for Use in Research Reactors," July 1976

RG 2.5, "Quality Assurance Program Requirement for Research Reactors," October 1977

RG 2.6, "Emergency Planning for Research Reactors," March 1983

RG 2.8, "Guidance for Implementation of 10 CFR 50.59, "Changes, Tests, And Experiments," At Non-Power Production or Utilization Facilities," February 2022

RG 4.13, "Performance, Testing, and Procedural Specifications for Thermo-luminescence Dosimetry: Environmental Applications"

RG 4.15, "Quality Assurance for Radiological Monitoring Programs - (Inception through Normal Operations to License Termination) - Effluent Streams and the Environment"

RG 4.20, "Constraint on Releases of Airborne Radioactive Materials to the Environment for Licensees other than Power Reactors"

RG 5.12, "General Use of Locks in the Protection and Control of Facilities and Special Nuclear Materials, Classified Matter, and Safeguards Information"

RG 5.13, "Conduct of Nuclear Material Physical Inventories"

RG 5.38, "Nondestructive Assay of High-Enrichment Uranium Fuel Plates by Gamma Ray Spectrometry"

RG 5.44, "Perimeter Intrusion Alarm Systems"

RG 5.52, "Standard Format and Content of a Licensee Physical Protection Plan for Strategic Special Nuclear Material at Fixed Sites (Other than Nuclear Power Plants)"

RG 5.56, "Standard Format and Content of Safeguards Contingency Plans for Transportation" (Withdrawn)

RG 5.57, "Shipping and Receiving Control of Strategic Special Nuclear Material"

RG 5.59, "Standard Format and Content for a Licensee Physical Security Plan for the Protection of Special Nuclear Material of Moderate or Low Strategic Significance"

RG 5.60, "Standard Format and Content of a Licensee Physical Protection Plan for Strategic Special Nuclear Material in Transit"

RG 5.62, "Reporting of Safeguards Events"

RG 5.7, "Entry/Exit Control for Protected Areas, Vital Areas, and Material Access Areas"

RG 7.1, "Administrative Guide for Packaging and Transporting Radioactive Material"

RG 7.10, "Establishing Quality Assurance Programs for Packaging Used in the Transport of Radioactive Material"

RG 7.2, "Packaging and Transportation of Radioactively Contaminated Biological Materials"

RG 7.3, "Procedures for Picking Up and Receiving Packages of Radioactive Material"

RG 7.4, "Leakage Tests on Packages for Shipment of Radioactive Materials"

RG 7.5, "Administrative Guide for Obtaining Exemptions from Certain NRC Requirements over Radioactive Material Shipment"

RG 7.6, "Design Criteria for the Structural Analysis of Shipping Cask Containment Vessels"

RG 7.7, "Administrative Guide for Verifying Compliance with Packaging Requirements for Shipments of Radioactive Materials"

RG 7.8, "Load Combinations for the Structural Analysis of Shipping Casks for Radioactive Material"

RG 7.9, "Standard Format and Content of Part 71 Applications for Approval of Packaging of Type B, Large Quantity, and Fissile Radioactive Material"

RG 8.1, "Radiation Symbol"

RG 8.10, "Operating Philosophy for Maintaining Occupational Radiation Exposures As Low As Is Reasonably Achievable"

RG 8.13, "Instruction Concerning Prenatal Radiation Exposure"

RG 8.15, "Acceptable Programs for Respiratory Protection"

RG 8.2, "Administrative Practices in Radiation Monitoring"

RG 8.25, "Air Sampling in the Workplace"

RG 8.26, "Applications of Bioassay for Fission and Activation Products"

RG 8.28, "Audible-Alarm Dosimeters"

RG 8.29, "Instruction Concerning Risks from Occupational Radiation Exposure"

RG 8.32, "Criteria for Establishing a Tritium Bioassay Program"

RG 8.33, "Quality Management Program"

RG 8.34, "Monitoring Criteria and Methods To Calculate Occupational Radiation Doses"

RG 8.35, "Planned Special Exposures"

RG 8.36, "Radiation Dose to the Embryo/Fetus"

RG 8.38, "Control of Access to High and Very High Radiation Areas of Nuclear Plants"

RG 8.4, "Personnel Monitoring Device – Direct-Reading Pocket Dosimeter"

RG 8.5, "Criticality and Other Interior Evacuation Signals"

RG 8.6, "Standard Test Procedure for Geiger-Muller Counters"

RG 8.7, "Instructions for Recording and Reporting Occupational Radiation Exposure Data"

RG 8.9, "Acceptable Concepts, Models, Equations, and Assumptions for a Bioassay Program"

END

List of Appendices:

IP 69014.A: Inspection of Operations and Maintenance

IP 69014.B: Inspection of Procedures

IP 69014.C: Inspection of Operator Licenses and Requalification

IP 69014.D: Inspection of Surveillances and Limiting Conditions for Operation

IP 69014.E: Inspection of Experiments

IP 69014.F: Inspection of Radiation Protection and Environmental Monitoring

IP 69014.G: Inspection of Reviews, Audits, and Design Changes

IP 69014.H: Inspection of Emergency Preparedness

IP 69014.I: Inspection of Fuel Handling

IP 69014.J: Inspection of Class III Facilities

## Appendix A: Inspection of Staffing, Operations, and Maintenance

### 69014A-01 INSPECTION OBJECTIVES

- 01.01 Verify that the licensee's organization, staffing, operations, and maintenance activities comply with technical specifications and procedural requirements. Verify that significant problems are identified, documented, and resolved to ensure safe and compliant facility operation.

### 69014A-02 INSPECTION REQUIREMENTS

#### 02.01 Organization and Staffing

- a. Determine whether the licensee's organization and any organizational changes comply with technical specifications.
- b. Determine whether the minimum shift staffing composition for operations, including on-call personnel, meets technical specifications.

#### 02.02 Operations Logs and Records

- a. Determine whether operations logs and records are maintained as required by the licensee's administrative procedures.
- b. Determine whether measured parameters recorded for technical specification-required instruments meet technical specification requirements.

#### 02.03 Maintenance Logs and Records

- a. Determine whether maintenance logs and records are maintained as required by the licensee's administrative procedures.
- b. Determine whether maintenance activities are performed in accordance with technical specifications and the licensee's administrative procedures.

#### 02.04 Resolution of Significant Problems

Determine whether significant problems or events identified in operations and maintenance logs and records are reported and resolved as required by technical specifications and the licensee's administrative procedures.

#### 02.05 Operations and Maintenance Activities

Determine whether the licensee's operations and maintenance activities comply with technical specifications and licensee's administrative procedures.

## 69014A-03 INSPECTION GUIDANCE

### 03.01 Organization and Staffing

- a. To determine whether the licensee's organization and any organizational changes comply with technical specifications, review the current organization chart, administrative records, and any relevant documentation of changes since the last inspection.
  - 1. Meet with cognizant staff and management to discuss any changes in organizational structure, reporting relationships, responsibilities, or key personnel.
  - 2. Confirm that the reported organization matches the actual structure and that any required positions or functions are filled as described. Determine if the organization reported in the annual report is consistent with TS requirements.
- b. For minimum shift staffing composition, observe a representative sample of operating shifts or review the shift records for a representative sample of reactor startups to verify the presence of the required number and type of personnel, including on-call staff, as specified in technical specifications.
  - 1. Where possible, ask the licensee to demonstrate the availability of required on-call personnel.

### 03.02 Operations Logs and Records

- a. Review a sample of the operations logs and records maintained since the last inspection.
  - 1. Confirm that these logs are complete, accurate, and maintained in accordance with the licensee's administrative procedures, including recording required information such as date, time, description of activities, and identification of personnel making entries.
- b. For measured parameters, select recent entries for technical specification-required instruments such as nuclear power level or coolant temperature. Verify that the recorded values meet the applicable technical specification limits and that any required actions for out-of-specification values are documented and addressed.
  - 1. If possible, vary the parameters reviewed from those examined during previous inspections, unless only a limited set of parameters is required by technical specifications.

### 03.03 Maintenance Logs and Records

- a. Review a sample of maintenance logs and records generated since the last inspection.
  - 1. Confirm that maintenance activities are accurately documented and that the records include the necessary details required by the licensee's administrative procedures, such as the date, description of work performed, identification of equipment, and personnel involved.

- b. For maintenance activities, select a representative sample of routine and non-routine tasks. Verify that these activities were performed in accordance with technical specifications and the licensee's administrative procedures.
  - 1. Ensure that maintenance affecting safety-related or technical specification-controlled systems followed the required level of review and approval, and that any necessary authorizations, tag-outs, or radiation protection measures were implemented.
  - 2. If possible, observe ongoing maintenance or discuss recent maintenance with staff to confirm adherence to procedures and requirements.
  - 3. If issues or deviations are identified, verify that appropriate corrective actions were taken and documented.

#### 03.04 Resolution of Significant Problems

- a. Review operations and maintenance logs and records for entries that document significant problems or abnormal events since the last inspection.
  - 1. Confirm that these issues are identified, reported, and evaluated in accordance with the requirements of technical specifications and the licensee's administrative procedures.
  - 2. If required, verify that notifications to management, the review committee, or NRC were made in a timely manner.

#### 03.05 Operations and Maintenance Activities

- a. Observe selected operations and maintenance activities while onsite. Confirm that these activities are performed in accordance with applicable technical specifications and the licensee's administrative controls, including adherence to approved procedures, required safety checks, and use of appropriate authorizations.
  - 1. Pay attention to operator and maintenance staff qualifications, communication, and conduct during the activity.
  - 2. If procedures are not followed step-by-step, ensure that the personnel are sufficiently experienced and that the activity remains within the skill of the trade and procedural intent.
  - 3. Verify that safety precautions, interlocks, and radiological controls are in place and followed as required.
  - 4. If direct observation is not possible, review records or discuss recent activities with staff to confirm compliance with requirements.
  - 5. If any deviations are noted, determine how they are addressed and whether corrective actions are taken.

## Appendix B: Inspection of Procedures

### 69014B-01 INSPECTION OBJECTIVES

- 01.01 Verify that the licensee maintains procedures and administrative controls consistent with technical specifications and license requirements. Verify that personnel implement and adhere to these procedures to ensure safe and compliant facility operation.

### 69014B-02 INSPECTION REQUIREMENTS

#### 02.01 Administrative Controls

Determine whether the licensee's administrative control procedures are consistent with technical specifications and license requirements.

#### 02.02 Procedure Review and Approval

Determine whether the procedures in use by the operator are current, reviewed, and approved as required by technical specifications and the licensee's administrative controls.

#### 02.03 Procedural Adherence and Implementation

Determine whether reactor personnel are following administrative controls and technical specification requirements related to procedural adherence.

### 69014B-03 INSPECTION GUIDANCE

#### General Guidance

This appendix focuses on the licensee's administrative controls for procedures. Actual implementation of procedures should also be verified through performance-based observations during related inspection activities (such as Appendix 69014A). The technical specifications (TS), Safety Analysis Report (SAR), and Safety Evaluation Report (SER) dictate which activities require written procedures and establish the licensee's commitments.

The level of procedural control depends on the facility's use and staffing. Facilities with low operator turnover conducting routine functions may use simpler procedures, whereas universities using student operators or facilities conducting complex experiments require more rigorous controls. Procedures minimize reliance on memory and reduce rapid, unverified analysis. However, operators are not strictly required to have a procedure open and follow it sequentially if the activity is routine, easily memorized, within the skill of the trade, and conducted safely by a qualified operator.

Procedures should be open and actively in use under the following conditions:

1. When a student or trainee is manipulating controls under the direction of an operator.
2. When the operation being conducted is non-routine or complicated.

3. When previous incidents or observations indicate a general weakness in procedural knowledge.
4. While general guidance exists in ANS/ANSI Section 15 standards and Division 2 Regulatory Guides, these references are to aid the inspector in technical evaluations and are not binding requirements unless the licensee has committed to them in writing.

### Specific Guidance

#### 03.01 Administrative Controls

To determine whether the administrative control procedures are consistent with requirements, review the TS, license, SAR, and SER. The licensee's administrative controls should clearly address operator and senior operator responsibilities, which typically include:

1. The responsibility to use written procedures and adhere strictly to the TS.
2. The logging of operating information, ensuring entries include the description, date, time, and the identity of the individual making the log.
3. The formalized method of shift turnover.
4. The responsibility to shut down the reactor if the safety of the reactor is felt to be in jeopardy, or if the control system fails to automatically shut down the reactor when operating parameters exceed protection setpoints.
5. The responsibility to believe instrument indications until they are definitively proven to be incorrect.
6. The responsibility to not return the reactor to power following a scram or unexplained power reduction without the presence and direction of a senior operator, in accordance with 10 CFR 50.54(l) and (m)(1).
7. The senior reactor operator's responsibility to determine the circumstances, analyze the root cause, and correct the fault before directing the return of the reactor to power after a scram.

#### 03.02 Procedure Review and Approval

To determine whether procedures are current, reviewed, and approved, examine the licensee's review process as defined in the TS or administrative controls. If the TS do not specify a method, acceptable processes typically include:

1. Conducting sequential walk-throughs of new procedures or significant revisions to test their effectiveness prior to final approval.
2. Obtaining concurrence from persons representing applicable disciplines (e.g., health physics, instrumentation) and formal review by the safety review committee, verified via meeting minutes.

3. Securing final approval from the facility director or designated management, evidenced by an approval signature and issue date on the document itself.

Review the facility provisions for making temporary changes to procedures when discrepancies arise during operation. An acceptable method includes:

1. Allowing a licensed senior operator to approve a change that does not alter the original intent of the procedure.
2. Documenting the change, date, and authorizing personnel in the operating log or procedures manual and informing the operating staff.
3. Requiring the safety review committee and facility director to review and permanently approve (or delete) the temporary change at the earliest convenient time.

Select a sample of operating and maintenance procedures (such as system checkout, startup, operation, and shutdown) and verify that the versions currently in use by the operators are up-to-date and reflect all required approvals.

### 03.03 Procedural Adherence and Implementation

To determine whether reactor personnel are following administrative controls regarding procedural adherence, observe operations such as pre-startup checks, reactor startup, operation at power, power changes, or shutdown activities.

1. Evaluate whether the procedure enables personnel to accomplish the operation safely and within design characteristics. Pay attention to major systems, components, and interlock features.
2. Confirm that operators utilize the procedures appropriately based on the complexity of the task and their familiarity with it. As noted in the general guidance, physical procedures do not always need to be in hand for simple, routine tasks if the operator accomplishes the activity safely.
3. If direct observation of an operation is not possible, conduct a functional check by reviewing selected procedure steps against the physical, as-built condition of the facility to ensure the procedure is accurate and implementable.

## Appendix C: Inspection of Operator Licenses and Requalification

### 69014C-01 INSPECTION OBJECTIVES

- 01.01 Verify that the licensee implements, documents, and maintains an operator licensing and requalification program that meets regulatory requirements and ensures operators are qualified, actively engaged, and medically fit to safely perform licensed duties.

### 69014C-02 INSPECTION REQUIREMENTS

#### 02.01 Operator License Status

Determine whether each NRC-licensed individual has actively performed the functions of an operator or senior operator for at least four hours per calendar quarter, as required by 10 CFR 55.53(e).

#### 02.02 Requalification Training Program

Determine whether the licensee conducts requalification training for operators and senior operators in accordance with the NRC-approved requalification program and 10 CFR 55.59.

#### 02.03 Records and Documentation

Determine whether the licensee documents operator training, examinations, participation in requalification activities, and maintains requalification records as required by the NRC approved requalification plan.

#### 02.04 Corrective Actions for Deficiencies

Determine whether the licensee identifies and takes appropriate corrective actions for any operator who is disqualified due to inactivity, unsatisfactory evaluation, failure on an annual examination, or other failure to meet the requalification plan before allowing them to resume licensed duties.

#### 02.05 Operator Medical Examinations and License Terminations

- a. Determine whether the licensee ensures that all operators and senior operators have current medical examinations as required by 10 CFR 55.21.
- b. Determine whether the licensee maintains documentation of medical examinations and reports incapacitating conditions to the NRC as required by 10 CFR 55.25.
- c. Determine whether the licensee ensures that all operators and senior operators maintain their licenses current per the requirements of 10 CFR 55.55(a) and that the facility sends license termination letters as required by 10 CFR 50.74(b).

### General Guidance

In accordance with 10 CFR 50.54(i-1), reactor licensees must implement a requalification program for licensed operators and senior operators consistent with 10 CFR 55.59(c), incorporating the specific accommodations for research and test reactors detailed in 10 CFR 55.59(c)(7). The NRC-approved program is typically found in the facility's Safety Analysis Report (SAR) or related administrative documents and applies to all individuals using an NRC license at the facility.

The inspector must verify that the licensee conducts the program as approved and maintains sufficient documentation to validate the technical adequacy of administered exams. While general guidance exists in ANSI/ANS Section 15 standards and Division 2 Regulatory Guides, these are not binding requirements unless the licensee has formally committed to them in writing.

### Specific Guidance

#### 03.01 Operator License Status

To determine whether each NRC-licensed individual has actively performed the required functions, review operator logs, shift schedules, and duty rosters since the last inspection or at least the most recent calendar year to confirm that each licensed operator or senior operator has performed licensed duties for a minimum of four hours during each calendar quarter, as required by 10 CFR 55.53(e).

1. If the facility was shut down during a quarter, verify whether alternative operator activities, such as fuel movements or system checkouts, were performed and documented as meeting the intent of the requirement.
2. Interview licensee management and selected operators to understand how active status is tracked and assured. Ask the licensee to describe how they inform operators of the requirement and how compliance is verified.
3. Review any procedures or tracking tools used to monitor operator activity and confirm these are being applied.
4. If discrepancies are found between records and licensee procedures, discuss the reasons and evaluate whether there are process gaps that could lead to noncompliance.
5. If an operator has not met the active status requirement, review the licensee's corrective actions, including whether the operator was removed from licensed duties and any steps taken to restore qualifications in accordance with 10 CFR 55.53(f).
6. Confirm that the licensee is following the requirements of 10 CFR 55.25 in cases of incapacitations or illness.
7. Verify that license expiration dates are current or have been properly renewed per 10 CFR 55.57.

8. Confirm the licensee has notified the NRC of any changes in operator status (e.g., personnel who no longer need or qualify for a license) in accordance with 10 CFR 50.74.
9. Document the basis for your determination and any observations of best practices or weaknesses in the licensee's process for maintaining operator active status.

### 03.02 Requalification Training Program

To determine whether the licensee conducts requalification training for operators and senior operators in accordance with the NRC-approved program, review the requalification training program documentation to verify it is approved by the NRC and current.

1. Examine training schedules, lesson plans, attendance records, and any associated evaluation materials for the current and previous training cycles.
2. Confirm that the content, frequency, and methods of training align with the requirements of the NRC-approved requalification plan and 10 CFR 55.59.

To determine whether the licensee conducts formal training activities, check that the licensee executes activities such as lectures and seminars as specified in the requalification program, ensuring they encompass the topics specified in 10 CFR 55.59(c)(2).

1. Review records for evidence of participation by all licensed operators and senior operators unless specifically exempted by the plan per 10 CFR 55.53(h).
2. Confirm that the training covers required subject areas and is delivered at appropriate intervals.
3. If any operators are exempted from specific training sessions (e.g., due to college courses or collateral duties), review the basis for the exemption and verify that their acceptable knowledge of the subject was otherwise confirmed through class grades or documented discussions.

To determine whether the licensee provides training on changes to the facility, operating procedures, and the license, interview training coordinators and selected operators.

1. Request examples of recent changes and verify that affected operators received timely and documented training on these topics.
2. Note that credit for collateral duties (e.g., a senior reactor operator routinely reviewing procedures on the safety committee) is acceptable to meet this requirement if their understanding is verified and documented.

To determine whether the licensee provides training and simulations for abnormal and emergency procedures, review records of abnormal and emergency procedure training.

1. Verify that the licensee conducts training and simulations, such as table-top exercises or drills, that address both the understanding and application of these procedures.

2. This requirement may also be satisfied through documented supervisory observations or participation in emergency preparedness drills in accordance with the approved requalification program.
3. If possible, observe a training session or drill to assess effectiveness and operator engagement.

### 03.03 Records and Documentation

To determine whether the licensee documents operator training, examinations, participation in requalification activities, and maintains requalification records as required by the NRC-approved requalification plan, review the licensee's requalification records for a representative sample of licensed operators and senior operators.

1. Confirm that records are complete, current, and maintained in accordance with the requirements of the licensee's requalification plan and 10 CFR 55.59(c)(5).
2. Check that the records include documentation of operator training, written examinations, operating tests, and participation in all required requalification activities.
3. Verify that written examinations cover TS requirements, normal operations, and emergency conditions, and that records include both the test questions and the operator's answers. Confirm the method of examination (e.g., open/closed book, timed, proctored) aligns with program requirements.
4. Verify that the records provide clear evidence of each operator's attendance, performance, and completion of required training, including properly documented on-the-job training, required reactor manipulations, and supervisor observations.
5. Look for documentation of remedial actions taken for any deficiencies or failures and confirm that records of exemptions or alternative training are properly justified.
6. Ensure that records are legible, retrievable, and retained for the required period.
7. If electronic records are used, confirm that access controls and backup measures are in place to protect data integrity.

### 03.04 Corrective Actions for Deficiencies

To determine whether the licensee identifies and takes appropriate corrective actions for any operator who is disqualified before allowing them to resume licensed duties, verify the licensee implements appropriate corrective actions in accordance with the NRC-approved requalification plan and 10 CFR Part 55.

1. Review the licensee's records for any operators who were disqualified due to not meeting requirements such as inactivity, unsatisfactory performance evaluations, or failure of annual examinations, and verify that the licensee promptly identified these deficiencies.
2. Examine documentation of the remedial actions taken, including any required retraining, requalification activities, or medical clearances.

3. Confirm that the licensee completed all required actions, such as additional training, examinations, or supervised operating experience, before permitting a disqualified individual to resume licensed duties.
4. For disqualifications due to inactivity (failing to meet the active status requirement for three months), verify the individual satisfies the requirements of 10 CFR 55.53(f), including performing at least six hours of licensed activity under the direction of a licensed operator or senior operator, before resuming duties.
5. For disqualifications due to unsatisfactory supervisor evaluations or failed annual examinations, confirm that specific remedial actions were completed as dictated by the requalification program.
6. Interview licensee management or training staff, if necessary, to understand the process for tracking and restoring qualifications.
7. Ensure that the licensee notified the NRC as required for operator status changes and maintained records of each corrective action and its completion.

#### 03.05 Operator Medical Examinations

- a. To determine whether the licensee ensures that all operators and senior operators have current medical examinations as required by 10 CFR 55.21, review selected operator and senior operator medical examination records.
  1. Confirm that biennial medical examinations are performed at least every two years and that certifications are completed by qualified medical professionals in accordance with 10 CFR 55.21, 55.23, and 55.27, as well as the approved requalification program.
  2. Additional guidance regarding these evaluations is available in Information Notice No. 91-08, "Medical Examinations for Licensed Operators."
- b. To determine whether the licensee maintains documentation of medical examinations and reports incapacitating conditions to the NRC as required by 10 CFR 55.25, check that the licensee maintains clear and complete documentation of each operator's medical status, including any restrictions or limitations noted by the examining physician.
  1. Verify that the licensee has procedures to promptly notify the NRC of any incapacitating medical conditions or disqualifications in accordance with 10 CFR 55.25.
  2. If any operators were found medically unfit, confirm that their removal from licensed duties was documented and reported to the NRC as required.
  3. Ensure that medical records are protected for privacy while remaining readily available for NRC review.
- c. To determine whether the licensee maintains active license holders and terminations current, review personnel rosters against active NRC license docket. For any operators who have left the facility or no longer require a license, confirm that the licensee submitted a formal notification to the NRC under 10 CFR 50.74(b) within 30 days. For

facilities transitioning to a permanently defueled state, audit the definitive management determination letter that triggers the automatic expiration of individual licenses under 10 CFR 55.55(a).

## Appendix D: Inspection of Surveillances and Limiting Conditions for Operation

### 69014D-01 INSPECTION OBJECTIVES

- 01.01 Verify that the licensee implements and documents surveillance activities in accordance with technical specifications and procedural requirements and maintains limiting conditions of operation within the bounds of safety analysis assumptions to ensure safe and compliant facility operation.

### 69014D-02 INSPECTION REQUIREMENTS

#### 02.01 Surveillance Procedures

- a. Determine whether the surveillance procedures required by technical specifications are current, approved, and can be used to perform their intended function for the as-built configuration of the facility.
- b. Determine whether surveillance procedures are implemented as written and are effective in achieving their intended purpose.

#### 02.02 Conduct of Surveillances

Determine whether required surveillances have been performed, completed, and documented in accordance with the technical specifications and applicable licensee procedures for the as-built condition of the facility.

#### 02.03 Limiting Conditions of Operation

- a. Determine whether limiting conditions of operation with specified surveillance frequencies in the technical specifications are maintained in accordance with those requirements.
- b. Determine whether parameters identified in the technical specifications, such as limiting conditions of operation, design features, limiting safety system settings, or safety limits that do not have a specified surveillance frequency, are maintained within the bounds assumed in the technical specifications or safety analysis report.

### 69014D-03 INSPECTION GUIDANCE

#### General Guidance

This appendix determines if the licensee has met the technical specification (TS) surveillance requirements and maintained the facility within the bounds of safety analysis assumptions. Surveillance is the verification of set points and conditions required by the TS on both a regular and irregular basis. This includes reactivity measurements, conductivity checks, and interlocks that must be checked before startup. It also covers values or conditions specified by the TS that have no assigned surveillance frequency but have a definite bearing on safety, such as required air flow for exhaust systems.

General guidance may be found in the ANSI/ANS Section 15 Standards and Division 2 Regulatory Guides. These references aid the inspector in the technical evaluation of licensee programs and are not to be used as requirements unless the licensee has committed in writing to the NRC to use the specific guidance document.

### Specific Guidance

#### 03.01 Surveillance Procedures

- a. To determine whether the surveillance procedures required by technical specifications are current, approved, and can be used to perform their intended function for the as-built configuration of the facility, review the procedures against descriptions in the TS, Safety Evaluation Report (SER), Safety Analysis Report (SAR), and facility drawings.
  1. Verify that any applicable design changes are reflected in the licensee surveillance activities.
  2. Ensure the procedure actually tests the intended function for the as-built system configuration and instrument accuracy. For example, a float alarm procedure should ensure the weight of the float actuates the sensing relay when the water level drops, rather than personnel simply depressing the float manually.
  3. If the TS do not explicitly require surveillance procedures, evaluate the need for them based on performance observations. For example, if personnel use widely varying methods to calculate rod worth without a procedure, the inconsistent results may fail to provide a uniform basis to determine core conditions. Report such concerns to appropriate management and the NRR project manager.
- b. To determine whether surveillance procedures are implemented as written and are effective in achieving their intended purpose, monitor work in progress when onsite.
  1. Consider the experience level of the personnel. For facilities with experienced personnel and low turnover, activities within the skill of the trade may not require step-by-step delineation.
  2. For facilities with high turnover, such as those using student operators, verify that more detailed procedures are provided and utilized.

#### 03.02 Conduct of Surveillances

To determine whether required surveillances have been performed, completed, and documented in accordance with the technical specifications and applicable licensee procedures for the as-built condition of the facility, observe the surveillances in progress.

1. If direct observation is not possible, perform a walk-through of selected surveillance activities with responsible personnel, or conduct discussions and obtain separate or simplified measurements to determine compliance.
2. Review records to demonstrate that all required surveillances have been completed as required.
3. Verify that the licensee reviews and approves the conduct and results of TS-required surveillance activities in accordance with their administrative controls. For example, if

reactivity measurements are performed as student class projects, confirm that appropriate licensee personnel review and approve the results to satisfy TS requirements.

### 03.03 Limiting Conditions of Operation

- a. To determine whether limiting conditions of operation with specified surveillance frequencies in the technical specifications are maintained in accordance with those requirements, verify that the licensee executes and tracks these surveillances effectively to ensure initial licensing assumptions are not changed.
- b. To determine whether parameters identified in the technical specifications, such as limiting conditions of operation, design features, limiting safety system settings, or safety limits that do not have a specified surveillance frequency, are maintained within the bounds assumed in the technical specifications or safety analysis report, examine how the licensee ensures these limits are maintained.
  1. Focus only on matters having a direct bearing on safety. Use the TS bases, SAR, and SER descriptions to establish the appropriate safety significance.
  2. Verify compliance through related controls or indirect indicators if direct measurements are not taken. For example, primary coolant conductivity limits could be assured through the use of demineralizers with indication of spent resin capacity, or fuel temperature limits could be assured by maintaining the reactor within specified power levels.
  3. For older TS that lack specific surveillance frequencies, do not attempt to establish new frequency requirements unless a significant safety need is identified due to inadequate surveillance. Bring any such discrepancies to the attention of appropriate management and the assigned NRR Project Manager.

## Appendix E: Inspection of Experiments

### 69014E-01 INSPECTION OBJECTIVES

- 01.01 To verify that the licensee approved, conducted, and controlled experiments in accordance with NRC regulatory requirements, including technical specifications, license conditions, and licensee commitments, to ensure adequate protection of public health and safety.

### 69014E-02 INSPECTION REQUIREMENTS

#### 02.01 Experiment Review and Approval

- a. Determine whether the licensee reviewed and approved experiments, including substantive changes to previously approved experiments, in accordance with technical specifications and approved procedures.
- b. Determine whether the licensee prepared, reviewed, and approved written procedures for the conduct of experiments that could affect reactor safety or core reactivity in accordance with technical specifications and approved procedures.
- c. Determine whether the licensee reviewed experiments in accordance with 10 CFR 50.59 and obtained license amendments as required.

#### 02.02 Safety Assessment and Hazard Control

- a. Determine whether the licensee identifies potential hazards associated with experiments (radiological, chemical, or physical) and takes appropriate remedial actions as required by procedures.
- b. Determine whether experiments are constrained by limits specified in the TS (e.g., materials, encapsulation, or temperatures).
- c. Determine whether engineered radiation safety controls are installed and areas are posted with radiation warning signs and information as required by procedures, TS, and 10 CFR 20.1901, 20.1902, and 20.1903, with special attention to neutron beam ports per 10 CFR 20.1601 and 20.1602.
- d. Confirm that experiments do not reduce the operator's ability to manipulate reactivity or the protective system's ability to safely shut down the reactor.

#### 02.03 Reactivity Management

- a. Determine whether the licensee evaluates and predicts the approximate reactivity effect of an experiment on the reactor prior to conduct.
- b. Determine that the reactivity worth of experiments is confirmed by measurements in accordance with TS requirements and licensee procedures.

## 02.04 Operational Handling and Material Control

- a. Determine whether researchers and facility personnel adhere to procedural controls and authorizations when installing (loading) or removing experiments from the test facilities.
- b. Determine whether the licensee accounts for, controls, and tracks irradiated items from the point of creation through decay or final disposal in accordance with regulatory requirements and procedures.

## 69014E-03 INSPECTION GUIDANCE

### 03.01 Experiment Review and Approval

- a. Review the Annual Report, experiment logs, and safety committee minutes to ensure the scope aligns with the SAR, SER, and license conditions. Verify that procedures for routine and non-routine experiments are established per the TS and administrative controls, including emergency actions and log orders.
- b. Verify that experiments and changes are reviewed per TS and administrative procedures:
  1. Review proposals, review forms, and log entries to confirm operator authorization.
  2. Ensure routine experiments are re-documented if the experimenter changes or if the task has not been performed within one calendar year.
  3. Per 10 CFR 50.54(j), confirm that every experiment insertion or manipulation is performed with the explicit consent of the Senior Reactor Operator (SRO) on duty.
  4. The inspector should audit the "Experimenter List" to ensure researchers have completed required training per 10 CFR 19.12 before handling facility equipment.
- c. Confirm that experiments—specifically fueled samples or those involving explosives—undergo a 10 CFR 50.59 review.
  1. Use Appendix G of this procedure for technical evaluation. Per the 1971 Skovholt letter (ML20137G472), verify that any irradiation of explosives (Class A, B, or C per 49 CFR 172/173) has specific NRR approval. The inspector should ensure the licensee has calculated that a potential detonation would not damage the reactor tank or primary coolant boundary.
  2. Confirm that each experiment's 50.59 review addresses:
    - (a) Whether the activity constitutes a change to the facility or procedures as described in the safety analysis report (SAR).
    - (b) Whether the change requires a TS amendment or NRC approval.
    - (c) Criteria and thresholds used for making these determinations.
  3. For experiments determined to require NRC approval or a TS amendment, review the licensee's submittals and correspondence with the NRC to verify that proper regulatory processes were followed.

### 03.02 Safety Assessment and Hazard Control

- a. Verify that staff understand experiment hazards (e.g., gas leaks or capsule ruptures) and response methods per 10 CFR 19.12. Confirm that monitor gauges (pressure/vacuum) and remedial actions were defined in proposals per administrative procedures. Inspectors should check that capsules containing materials prone to radiolytic decomposition or heating (e.g., plastics, hydrated salts) have documented pressure-rise calculations to prevent in-core ruptures.
- b. Confirm experiments meet TS limits for reactivity, encapsulation, and materials. Ensure the safety committee has recommended devices to minimize hazards for experiments posing risks to the reactor, personnel, or public. Review the "Approved Materials" list to ensure no prohibited items, such as mercury or unencapsulated corrosive chemicals, were introduced. Verify that double-encapsulation is utilized for any material that is toxic or could become a gas under irradiation temperatures.
- c. Verify engineered radiation safety controls and postings per the following regulatory requirements:
  1. 10 CFR 20.1901-1903:
    - (a) Confirm that "Caution, Radiation Area" signs are posted for areas where dose rates exceed 5 mrem/hr at 30 cm and "Caution, High Radiation Area" signs for areas exceeding 100 mrem/hr at 30 cm.
    - (b) Verify if the licensee is utilizing exceptions for laboratory settings where radioactive materials are handled for less than 8 hours and are constantly attended, ensuring this is not misapplied to permanent beam port installations.
    - (c) Verify that any radiation warning signs used specifically for neutron beams are of the correct color scheme and contain supplemental information regarding the nature of the hazard.
  2. 10 CFR 20.1601
    - (a) Confirm that each entrance or access point to a High Radiation Area features a control device that reduces the level of radiation below 100 mrem in 1 hour upon entry, or a device that energizes a conspicuous visible or audible alarm signal.
    - (b) Ensure that no control prevents an individual from leaving a High Radiation Area and that locked entryways have positive control over each individual entry.
    - (c) Verify that continuous direct or electronic surveillance is maintained to prevent unauthorized entry if the area is an open floor configuration.
  3. 10 CFR 20.1602
    - (a) For areas where dose rates could exceed 500 rads/hr at 1 meter, verify the licensee has instituted physical measures to ensure an individual is not able to gain unauthorized or inadvertent access.

- (b) Verify the integrity of interlocks that close shutters or SCRAM the reactor if a Very High Radiation Area shield is breached, ensuring these controls are not merely administrative.

#### 4. Technical Shielding and Streaming

- (a) Observe the physical condition of beam port plugs and tangential ports.
  - (b) Verify that streaming surveys have been performed at the seams of shielding blocks to ensure dose rates at 30 cm remain within the limits defined by the area's posting.
- d. Per 10 CFR 50.54(j), confirm experiments are manipulated only with SRO consent and do not cause reactivity anomalies, shadow nuclear detectors, or interfere with control rod movement. Inspectors should evaluate whether large experiments placed near ex-core detectors could cause "shadowing," leading to a non-conservative power indication on the nuclear instrumentation.

### 03.03 Reactivity Management

- a. Confirm the licensee predicts approximate reactivity effects prior to conducting experiments. Verify that calculations ensure compliance with TS limits for shutdown margin, excess reactivity, and individual/total experiment worth. Per 10 CFR 50.36, the inspector should confirm that even with the most reactive experiment in its most reactive position, the reactor can still be shut down safely with the required shutdown margin (typically  $-1.00$  or as specified in TS).
- b. Verify reactivity worth is confirmed by measurement. For low-worth experiments (less than or equal to  $0.001$  delta  $k/k$ ), monitoring regulating rod position is sufficient. Confirm operators have a "cutoff point" to stop experiments and calculate actual values if rod movement or power changes exceed conservative limits. If the measured worth deviates significantly from the predicted value, the inspector should verify the licensee followed procedures to suspend the experiment and re-evaluate the calculation.

### 03.04 Operational Handling and Material Control

- a. If possible, observe loading/unloading to ensure adherence to protocols and 10 CFR 19.12. Items must be treated as contaminated until surveyed. Verify that fueled or high-hazard experiments are handled under the direct supervision of the Reactor Supervisor or an SRO. Ensure that "Special Handling Tools" like long-handled tongs or shielded casks are used as required to maintain doses As Low As Reasonably Achievable (ALARA) per 10 CFR 20.1101.
- b. Verify the status and location of irradiated items from creation to disposal per 10 CFR Part 20. Confirm byproduct transfers to other licenses follow 10 CFR 30.41 and IMC 9900. If possible, the inspector should perform a "trace-back" on selected samples, following them from the experiment log to their physical storage location in the decay pool or hot cell. Final disposal must meet 10 CFR Part 20, Subpart K, ensuring that radioactive waste is properly characterized and documented prior to shipment. Additional guidance can be found in Information Notice 85-92 and ANSI/ANS-15.11.

## Appendix F: Inspection of Radiation Protection and Environmental Monitoring

### 69014F-01 INSPECTION OBJECTIVES

- 01.01 Verify that the licensee implements effective radiation protection and environmental monitoring programs in accordance with regulatory requirements, technical specifications, and licensee procedures to protect workers, the public, and the environment.

### 69014F-02 INSPECTION REQUIREMENTS

#### 02.01 Environmental and Effluent Monitoring

- a. Determine whether the licensee's records and procedures for controlling, monitoring, and recording radiological effluent releases are commensurate with regulatory and TS requirements.
- b. Determine whether radiological effluent releases were controlled, monitored, and recorded in accordance with regulatory requirements such as 10 CFR 20.1302, Tables 2 and 3 of Appendix B to 10 CFR Part 20, and the TS. Confirm that reported values, such as those included in annual facility reports to the NRC, remain within regulatory limits.
- c. Determine if facility effluent releases are maintained as required by the licensee's ALARA program.
- d. Determine if gaseous, liquid, and solid radioactive wastes are accounted for and stored as required.
- e. Determine if the licensee has controlled cold water chemistry as required.
- f. Determine whether the magnitude of the annual emission of radionuclides to the ambient air from the licensee's facility meets the 10 CFR 20.1101(d) constraint, and if not, determine if the licensee meets 10 CFR 20.1101(d) requirements for reporting.

#### 02.02 Radiation Protection Controls

- a. Determine whether restricted areas, as defined in 10 CFR 20.1003, are posted and controlled as required by licensee procedures and regulatory requirements (e.g. 10 CFR 20.1902 and 10 CFR 20.1903).
- b. Determine whether current notices to workers, including NRC Form 3, are posted in locations readily accessible to facility personnel as required by 10 CFR 19.11.
- c. Determine whether appropriate protective clothing is used in accordance with the licensee's procedural requirements.
- d. Determine whether personnel working around radioactive materials are instructed in radiation safety as required by the licensee's procedures and by 10 CFR 19.12.

### 02.03 Personnel Dosimetry and Exposure

- a. Determine whether the personnel dosimetry program meets the requirements of 10 CFR 20.1501 and 20.1502, technical specifications, and licensee procedures.
- b. Verify that dosimeters are issued to all required individuals, that dosimetry is appropriate for the types of radiation present, and that results are reviewed and documented.
- c. Determine whether the licensee is in compliance with regulatory limits for occupational exposure, including special exposures and exposures to declared pregnant women as specified in 10 CFR 20.1201, 20.1206, and 20.1208.
- d. Confirm that exposures are properly recorded, reported, and evaluated, and that any unusual or excessive exposures are investigated and resolved according to procedures.
- e. Determine whether training covers the risks of radiation, proper use of dosimetry, protective measures, and procedures for emergencies or unusual events.

### 02.04 Radiation Surveys, Sampling, and Instrumentation

- a. Determine whether radiation surveys, environmental sampling, and monitoring activities are performed at the required frequencies and locations in accordance with regulatory requirements, TS, and licensee procedures.
- b. Verify that survey meters, sampling equipment, and effluent monitoring instruments are calibrated at intervals specified in the TS or licensee procedures. Confirm that calibration records are complete, traceable to national standards, and that corrective actions for out-of-tolerance instruments are documented and implemented.
- c. Verify that radiological instruments are properly maintained and appropriate for the specific types and levels of radiation or contamination present. Ensure that maintenance and repair activities are documented and that any identified deficiencies have been addressed with appropriate corrective actions.

### 02.05 Programmatic Requirements

- a. Determine whether the licensee has developed, implemented, and periodically reviewed a comprehensive radiation protection program that meets the requirements of 10 CFR 20.1101 and is supported by complete implementation records.
- b. Determine whether the ALARA program is effectively implemented by verifying that radiological work planning, exposure evaluations, and daily operations incorporate practical measures to minimize radiation exposure in accordance with 10 CFR 20.1101(b).
- c. If respiratory protection is utilized, verify that the program complies with 10 CFR 20.1701–20.1704, including requirements for equipment maintenance, fit-testing, user training, and periodic effectiveness evaluations.
- d. Confirm that recent changes or modifications affecting radiation protection are reviewed and documented in accordance with 10 CFR 50.59, the facility license, and Technical Specifications, ensuring that appropriate safety evaluations are performed.

- e. Confirm that radiologically significant events, such as unplanned exposures or releases, are investigated, reported, and addressed through corrective actions and notifications in accordance with regulatory and procedural requirements.

## 69014F-03 INSPECTION GUIDANCE

### 03.01 Environmental and Effluent Monitoring

- a. Verify that effluent procedures and records align with 10 CFR Part 20, Subpart L and Technical Specifications (TS), ensuring that monitoring systems (online and laboratory) are maintained and calibrated per TS, manufacturer recommendations, or ANSI/ANS 15.11. Confirm the licensee can identify all radionuclides, typically utilizing gamma spectrometry for gamma emitters and liquid scintillation for beta emitters such as  $^3\text{H}$ ,  $^{89}\text{Sr}$ ,  $^{90}\text{Sr}$ , and  $^{59}\text{Fe}$ .
- b. Observe gaseous and liquid effluent releases (or review records) since the previous inspection to confirm adherence to 10 CFR 20.1302 (Compliance with dose limits for individual members of the public) and 10 CFR 20 Appendix B (Tables 2 or 3). This includes verifying the correct application of dilution factors and concentration limits for discharges to the sanitary sewer per 10 CFR 20.2003, observing online instrumentation for operability, and cross-verifying reported values in the annual facility report against raw monitoring data to ensure total effective dose equivalent (TEDE) remains within the limits of 10 CFR 20.1301.
- c. Verify that effluent systems are used only for their intended design to maintain releases ALARA, verifying that unintended isotopes (e.g., fission fragments) are not being vented through systems designed solely for  $^{41}\text{Ar}$ . Inspect for undetected release paths, with particular focus on  $^{41}\text{Ar}$  and tritium in experiment loops.
- d. Verify controls for gaseous, liquid, or solid radioactive wastes produced by experiments or decontamination, confirming they are accounted for and stored per 10 CFR 20.2001 in a manner that prevents unauthorized release or degradation of storage containers.
- e. Verify that the licensee maintains policies and procedures for the control of plant process water to minimize corrosion and out-of-core radiation fields, including the identification of chemical variables (pH, conductivity), specific monitoring locations, and representative sampling schedules. Evaluate provisions for diagnostic actions when limits are exceeded, assess methods for preventing impurity ingress to prevent metal attack and corrosive environments. Confirm that reagents are fresh, properly stored, and all records are consistent with the TS and SAR.
- f. Review the magnitude of annual radionuclide emissions to ensure they meet the 10 mrem per year constraint of 10 CFR 20.1101(d). If the constraint is exceeded, verify the licensee submitted the required reports to the NRC per 10 CFR 20.2203.

### 03.02 Radiation Protection Controls

- a. Verify conspicuous signage for radiation areas, high radiation areas (HRA), very high radiation areas, airborne contamination areas, and general access control points per 10 CFR 20.1901–1903. Confirm that areas containing radioactive materials, including ionizing radiation-producing devices or sealed sources, are properly marked. Evaluate

physical barriers (e.g., tape, rope, or locks) to prevent unauthorized entry to ensure they are consistent with the associated radiological hazard.

- b. Verify that the current version of NRC Form 3 is conspicuously posted in hallways, laboratories, or the control room per 10 CFR 19.11. Ensure the quantity and location of postings permit workers to observe them while traveling to or from any location to which the notice applies.
- c. Verify that protective clothing (PPE) worn during work matches the requirements in licensee procedures or posted precautions, and evaluate the suitability of the PPE for specific tasks, such as rubber aprons for handling liquids. Review the process for handling contaminated clothing, including disposal, laundering of durable items, or storage for decay based on half-lives.
- d. Confirm that personnel, particularly experimenters and students who may be less familiar with radiological hazards, are instructed in radiation safety as required by 10 CFR 19.12. Verify the use of "dry runs," formal lectures, or demonstrations, and ensure training includes the proper use of PPE and instructions concerning prenatal radiation exposure per RG 8.13.

#### 03.03 Personnel Dosimetry and Exposure

- a. Verify that the dosimetry program meets 10 CFR 20.1501 and 20.1502 requirements and is implemented according to the licensee's procedures and TS. Ensure that all dosimeters processed are accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).
- b. Verify that issued dosimetry is appropriate for the types and energies of radiation present (beta, gamma, fast/slow neutrons) and includes appropriate devices such as TLD or film badges for whole-body monitoring and extremity badges for handling activated samples or "rabbits." Confirm that results from permanent and direct-reading dosimeters (including operability checks of pocket chambers) are reviewed and documented.
- c. Verify compliance with occupational dose limits in 10 CFR Part 20, Subpart C (e.g., 20.1201), and confirm that voluntary, written declarations for pregnant women meet 10 CFR 20.1208 and the guidance in RGs 8.36 and 8.7. Verify that any planned special exposures comply with 10 CFR 20.1206 and Regulatory Guide 8.35. Evaluate whether exposures exceeding 20 percent of limits are consistent with the ALARA program and RG 8.10.
- d. Verify that exposure records are maintained on NRC Form 5 or equivalent per 10 CFR 20.2106. In the event of exposures exceeding 10 CFR Part 20 limits, confirm the licensee reported the event per 10 CFR 20.2202 and 20.2203, and evaluate the licensee's investigation and corrective actions.
- e. Verify that radiation safety training is commensurate with tasks and includes the risks of radiation, proper use of dosimetry, and emergency procedures. Ensure training includes the provisions of RG 8.13 (Instructions Concerning Prenatal Radiation Exposure) and exit survey procedures as required by 10 CFR 19.12.

#### 03.04 Radiation Surveys, Sampling, and Instrumentation

- a. Accompany a qualified individual during surveys to verify techniques for taking smears and instrument readings are consistent with 10 CFR 20.1501. Focus on beam ports, ion exchangers, and labs adjacent to restricted areas, and confirm the licensee checks for excessive contamination at exits and evaluates potential dose in uncontrolled areas per 10 CFR Part 20, Subpart D. If necessary, perform independent surveys to verify licensee measurements and shielding assumptions.
- b. Confirm instrumentation used for surveys and monitoring is calibrated at required intervals per 10 CFR 20.1501(b) and licensee procedures. Verify that records are complete, traceable, and maintained per 10 CFR 20.2103, and ensure the licensee evaluates the impact of any out-of-tolerance instruments on previous surveys.
- c. Confirm that personnel perform operability tests (battery/source checks) immediately before use and evaluate whether the instruments (e.g., ion chambers, neutron detectors) are appropriate for the specific radiation types present. Verify that technicians are qualified by training, observation, and discussion. Ensure that defective instrumentation is removed from service and repaired before returned to use.

#### 03.05 Programmatic Requirements

- a. Verify the licensee performs periodic reviews of the radiation protection program content per 10 CFR 20.1101(c) and maintains records per 10 CFR 20.2102. Confirm that supervisors periodically observe staff work practices and that the safety committee audits the program for compliance with the TS and 10 CFR Part 20.
- b. Confirm the effectiveness of the ALARA program per 10 CFR 20.1101(b) by evaluating routinely performed experiments with significant exposure potential. Verify through discussion that ALARA principles are actively considered and incorporated into facility administrative controls and daily activities.
- c. If respiratory protection is utilized, verify the program complies with 10 CFR 20.1701–20.1704 and aligns with RG 8.15. Confirm that equipment maintenance, fit-testing, and user training meet regulatory requirements and that engineering controls are used to limit intakes consistent with ALARA principles.
- d. Verify that facility or procedural changes were evaluated and documented in accordance with 10 CFR 50.59. Confirm that organization changes do not diminish the Radiation Protection Manager's authority or reporting chain and that personnel are qualified by training to understand how changes affect work activities.
- e. Verify that significant radiological events were investigated and reported to the NRC in accordance with 10 CFR 20.2202. Verify that the safety review committee reviewed corrective actions and that workers understand the causes and corrective actions to prevent recurrence.

## Appendix G: Inspection of Reviews, Audits, and Design Changes

### 69014G-01 INSPECTION OBJECTIVES

- 01.01 Verify that the licensee implements effective audit, review, and design change processes in accordance with technical specifications, regulatory requirements, and licensee procedures to ensure issues are identified, evaluated, and resolved to maintain facility safety and compliance.

### 69014G-02 INSPECTION REQUIREMENTS

#### 02.01 Review and Audit Committee Composition and Functioning

- a. Determine if the members of the review and audit committee were qualified as required by the TS and the Safety Analysis Report (SAR).
- b. Determine if required staffing was maintained and that required audits were conducted in accordance with the technical specifications (TS) requirements.
- c. Determine if the individuals conducting the audits were independent from the audited function, in accordance with the licensee's administrative controls.
- d. Determine whether the audit committee charter complies with TS requirements.

#### 02.02 Audit Committee Meeting Reviews, Frequency and Quorum

- a. Determine if the meeting review topics, frequency and quorum were as required by TS for the review and audit committee.
- b. Determine if the safety review committee staffing met TS requirements since the last inspection.

#### 02.03 Review and Audit Committee Recommendations

- a. Determine if the licensee implemented or resolved the recommendations of the review and audit committee as required by TS and licensee administrative controls.
- b. Determine if audit-identified problems were brought to the attention of the responsible individual and were acceptably resolved in accordance with the TS and the licensee's administrative controls.

#### 02.04 Design Change Review and Approval

- a. Determine if the licensee's design change process was in accordance with the requirements of 10 CFR 50.59, the TS, and the licensee's administrative controls.
- b. Determine if design changes were reviewed and approved in accordance with 10 CFR 50.59, the TS, and the licensee's administrative procedures.

- c. Determine if the performance of modified equipment meets regulatory requirements, licensee commitments, and procedural requirements.
- d. Determine if the licensee reviews and approves procedures related to modified systems in accordance with the TS and the licensee's procedures.
- e. Determine if the licensee changes as-built drawings to reflect the actual design change as required by the licensee's procedures and the design change package.

## 69014G-03 INSPECTION GUIDANCE

### 03.01 Review and Audit Committee Composition and Functioning

- a. Verify the education, training, and experience for committee members, ensuring records for all new members since the last inspection are maintained. For small facilities where full independence is challenging, verify that auditors meet qualification requirements and that the licensee provides adequate guidance to ensure a critical review.
- b. Verify that the licensee maintains required staffing levels to support oversight activities. Review audit schedules and completed reports to confirm that all audits were conducted at the frequency and scope required by the TS.
- c. Confirm auditor independence by verifying that individuals conducting each audit did not participate in, supervise, or have direct responsibility for the specific activities being audited.
- d. Verify the audit committee charter against TS requirements and actual audit committee practices to ensure compliance.

### 03.02 Meeting Reviews, Frequency, and Quorum

- a. Review meeting minutes and licensee procedures to verify that meeting frequency, subject matter reviewed, and quorum requirements align with the TS. Ensure the quorum does not allow the operating staff to constitute a majority unless specifically authorized.
- b. Review the committee meeting minutes for all meetings held since the last inspection to confirm that any staffing changes were properly documented. Technical Specifications typically require NRC notification for level 1 or level 2 staff changes.

### 03.03 Review and Audit Committee Recommendations

- a. Verify that the committee documents recommendations and that the licensee tracks these through a corrective action program or log. Discuss the status of any open or delayed recommendations with licensee management to determine the basis for delays and how issues are escalated.
- b. Review audit reports and related correspondence to confirm that findings or nonconformances were communicated to responsible personnel, such as operators or experimenters. Verify that identified problems are assigned for resolution and tracked to completion in accordance with TS and administrative procedures.

#### 03.04 Design Change Review and Approval

- a. Review design change documentation created since the last inspection to ensure the process follows the steps described in the TS, 10 CFR 50.59, and licensee procedures.
- b. Examine safety review committee minutes and supporting analyses to confirm that the 10 CFR 50.59 criteria were correctly applied and that any changes requiring prior NRC approval were appropriately submitted.
- c. Review acceptance and pre-operational test records to confirm modified systems function as intended. Verify that required personnel training related to the design change was completed before implementation.
- d. Verify that the licensee reviewed and approved new or revised procedures related to the modified systems in accordance with the TS and administrative controls.
- e. Confirm that as-built drawings and physical facility configurations accurately reflect the completed changes as required by the design change package and licensee procedures.

## Appendix H: Inspection of Emergency Preparedness

### 69014H-01 INSPECTION OBJECTIVES

- 01.01 Verify that the licensee maintains an effective emergency preparedness program that meets regulatory requirements and licensee commitments, ensuring the capability to respond to and mitigate emergency events to protect public health and safety.

### 69014H-02 INSPECTION REQUIREMENTS

#### 02.01 Emergency Plan and Implementing Procedures

- a. Verify that changes to the emergency plan and implementing procedures were made in accordance with 10 CFR 50.54(q) and licensee administrative controls.
- b. Verify that the current, approved versions of the plan and procedures are readily accessible and consistent with regulatory requirements and facility configuration.

#### 02.02 Emergency Response Facilities, Equipment, and Alarms

- a. Verify that key emergency facilities and equipment are maintained, inventoried, and functional as specified in the plan.
- b. Verify that emergency alarms are operable and maintained in accordance with technical specifications and the emergency plan.

#### 02.03 Emergency Response Personnel

Verify that personnel assigned to key emergency roles meet the training and qualification standards defined in the emergency plan and demonstrate an understanding of their responsibilities.

#### 02.04 Emergency Preparedness Exercises and Drills

Verify that emergency preparedness exercises and drills are conducted at the required frequency and scope, and that results are used to improve the program.

#### 02.05 Offsite Support

Verify that agreements with offsite support organizations are current and that these organizations participate in emergency preparedness activities as specified.

### 69014H-03 INSPECTION GUIDANCE

#### General Guidance

The emergency preparedness inspection ensures the licensee can mitigate the consequences of radiological and non-radiological emergencies. If a facility is in long-term shutdown with all fuel removed, the licensee may request an NRR exemption to discontinue the emergency plan; otherwise, all requirements remain in effect. Whenever practical, the inspector should observe

work in progress or functional testing of emergency equipment. If significant deficiencies are identified, the inspector should consult management and the NRR project manager to establish the need for additional oversight using IMC 2545.

### Specific Guidance

#### 03.01 Emergency Plan and Implementing Procedures

- a. Review revisions to the plan or procedures since the last inspection to verify they were evaluated per 10 CFR 50.54(q). 10 CFR 50.54(q) allows changes without NRC approval provided the plan continues to meet 10 CFR 50.47(b) and Appendix E, and does not decrease the effectiveness of the plan.
  - 1. Examine documented evaluations to ensure they address if changes decreased plan effectiveness; confirm that any effectiveness decrease received prior NRC approval.
  - 2. Verify that changes made without prior NRC approval were reported to the NRC within 30 days.
  - 3. Review meeting minutes of safety review or management committees that evaluated or approved these changes.
  - 4. Resolve any concerns regarding 10 CFR 50.54(q) compliance with appropriate management and the NRR project manager.
- b. Verify that the emergency plan and implementing procedures are up to date and reflect all approved changes.
  - 1. Ensure the latest revisions are readily accessible in specified locations, such as the Control Room and Emergency Support Center/Emergency Operations Center.
  - 2. Confirm the current versions are consistent with regulatory requirements, technical specifications, and licensee commitments.

#### 03.02 Emergency Response Facilities, Equipment, and Alarms

- a. Verify that emergency facilities and equipment, including radiological survey kits, potassium iodide, and communication systems, are maintained and functional.
  - 1. Confirm that required inventories are performed as specified in the emergency plan.
- b. Verify that emergency alarms, such as evacuation and high radiation alarms, are operable.
  - 1. Review calibration and surveillance records to ensure consistency with technical specifications and the emergency plan.

#### 03.03 Emergency Response Personnel

Review qualification records, training logs, and attendance sheets for a sample of key personnel (e.g., Emergency Director, Shift Supervisor, Health Physics staff, and Communication Coordinators).

1. Verify that personnel completed all required training before assuming their roles and meet the standards defined in the plan.
2. Interview selected personnel to assess their understanding of their roles, responsibilities, and the procedures they are expected to follow during an emergency.
3. Review the process for tracking qualification status and ensuring prompt retraining for changes or lapses.
4. Evaluate any changes in personnel availability or functions, such as an individual moving farther from the facility or assuming new collateral duties, that may impact their response capability.

#### 03.04 Emergency Preparedness Exercises and Drills

Review the schedule and records of exercises and drills (e.g., fire, medical, radiological) to verify compliance with required frequency, scope, and participation.

1. Observe an exercise or drill, if practical, to assess scenario development, conduct, and the demonstration of emergency response functions.
2. Review after-action reports, critiques, and corrective action reports to ensure issues are identified.
3. Confirm that lessons learned are documented and used to improve program preparedness.
4. Observe or review records of actual events to evaluate personnel performance in implementing the plan.

#### 03.05 Offsite Support

Verify that Letters of Agreement (LOAs) or Memoranda of Understanding (MOUs) with offsite agencies, such as fire departments, hospitals, and police, are current and signed. Confirm that offsite support organizations participate in drills or exercises as specified in the emergency plan.

## Appendix I: Inspection of Fuel Handling

### 69014I-01 INSPECTION OBJECTIVES

- 01.01 Verify that the licensee conducts all fuel handling activities in accordance with technical specifications, approved procedures, radiation protection and security requirements, and identifies and resolves any significant problems to ensure the safety and integrity of fuel movement operations.

### 69014I-02 INSPECTION REQUIREMENTS

#### 02.01 Fuel Handling Procedures

Determine whether the licensee's fuel handling procedures are current, approved, and sufficient to ensure safe and compliant fuel movement activities.

#### 02.02 Fuel Handling Implementation and Records

- a. Determine whether the licensee moves and inspects fuel in accordance with technical specifications (TS) and approved procedures.
- b. Determine whether fuel handling logs and records accurately document fuel movements, inspections, and locations, and comply with TS and procedural requirements.
- c. Determine whether the licensee performed required tests, checks, and verifications to ensure compliance with TS before resuming normal operations after fuel movement.

#### 02.03 Radiation Protection During Fuel Handling

Determine whether fuel handling activities are conducted in accordance with 10 CFR Part 20 and the licensee's radiation protection procedures and programs.

#### 02.04 Security Controls for Fuel Movement

Determine whether the licensee implemented security plan requirements during fuel movement activities.

#### 02.05 Problem Resolution in Fuel Handling

Determine whether the licensee identified and resolved significant fuel movement or inspection problems in accordance with procedural requirements.

### 69014I-03 INSPECTION GUIDANCE

#### 03.01 Fuel Handling Procedures

Verify that fuel handling procedures were prepared, reviewed, and approved prior to any movement in accordance with administrative controls. The guidance should adequately describe steps for safe movement, specifically addressing criticality safety constraints such as geometry and interlock requirements. Procedures should also define decay heat

removal requirements, minimum cooling times before movement, and minimum shielding or pool water levels necessary to minimize operator exposure. Additionally, confirm that procedures require load testing of fuel handling equipment and specialized tools before use.

### 03.02 Fuel Handling Implementation and Records

- a. Observe or review recent fuel movement to confirm adherence to TS. If direct observation is not possible, interview personnel to verify that fuel was handled and inspected as required. Specific focus should be placed on the communication protocols between the handling floor and the control room, the verification of fuel element serial numbers during core loading, and physical inspections for cladding integrity, such as checking for corrosion, blistering, or longitudinal bowing.
- b. Verify the accuracy and completeness of fuel handling logs and the Special Nuclear Material (SNM) ledger. The inspector should cross-verify the documented core map against the actual physical locations of a sample of fuel elements and confirm that each movement was authorized and signed off by a licensed Senior Reactor Operator (SRO) if required by the facility's technical specifications.
- c. Review documentation for required tests and safety checks performed after fuel movement but before resuming normal operations. Confirm that excess reactivity and shutdown margin calculations were performed and meet TS limits. Additionally, verify that any required safety system calibrations, such as control rod drop times, were conducted and documented before the reactor was restarted.

### 03.03 Radiation Protection During Fuel Handling

Observe fuel handling or review recent records to verify compliance with 10 CFR Part 20 and the licensee's radiation protection program. Confirm that the licensee performed required surveys per 10 CFR 20.1501 to evaluate the magnitude and extent of radiation levels. Verify that area radiation monitors and constant air monitors are functional and that high radiation area controls are strictly enforced per 10 CFR 20.1601 when fuel is near the pool surface. Review survey records for potential fission product gas releases and verify that dosimetry required by 10 CFR 20.1502 and contamination controls were implemented. Ensure that all areas are properly posted according to the requirements of 10 CFR 20.1902 based on the surveyed dose rates during movement.

### 03.04 Security Controls for Fuel Movement

Review the security plan for specific requirements related to exposed fuel or SNM in transit as dictated by 10 CFR 73.67 for material of moderate or low strategic significance. For nonpower reactors, verify that the licensee maintains the additional physical protection measures required by 10 CFR 73.60. If possible, observe movement to verify that physical security measures and access controls to the reactor area are strictly implemented. If observation is not possible, review security logs and interview personnel to confirm that required notifications or compensatory measures, such as enhanced surveillance or personnel postings required by the approved security plan, were active during the movement window.

### 03.05 Problem Resolution in Fuel Handling

Review logs, reports, and the corrective action program to identify any documented anomalies, such as dropped objects, stuck fuel elements, or unexpected reactivity changes. Confirm that significant problems are evaluated and resolved according to procedures. Verify that any fuel element failing inspection was properly quarantined and that the licensee performed a technical evaluation or root cause analysis before continuing the fuel movement campaign.

## Appendix J: Inspection of Class III Facilities

### 69014J-01 INSPECTION OBJECTIVES

- 01.01 To determine if activities at Class III research and test reactors were conducted safely and in accordance with regulatory requirements and licensee commitments, since the last inspection.

### 69014J-02 INSPECTION REQUIREMENTS

#### 02.01 Audits

- a. Verify that members of the review and audit committee are qualified as required by the technical specifications (TS) and the Safety Analysis Report (SAR).
- b. Verify that required staffing is maintained, required audit frequencies are met, and individuals conducting audits are independent of the audited function in accordance with administrative controls.
- c. Verify that the audit committee meeting review topics and quorum requirements comply with the TS and the committee charter.
- d. Verify that the licensee resolves or implements committee recommendations and audit findings in accordance with administrative procedures.

#### 02.02 Operator Requalification and Active License Status

- a. Verify that the licensee maintains and implements an NRC-approved operator requalification program and that all licensed individuals are actively participating.
- b. Verify that licensed operators maintain active status per 10 CFR 55.53(e) by performing licensed duties for at least four hours per calendar quarter or satisfy the requirements of 10 CFR 55.53(f) before returning to duty.
- c. Verify that operators have current biennial medical examinations and that any changes in license status are reported to the NRC per 10 CFR 50.74.
- d. Verify that requalification examinations and operating tests are technically adequate, protected from compromise, and that remedial actions are taken for failures.
- e. Verify that the licensee maintains appropriate exemptions if the facility is permanently shut down and fuel-free before discontinuing the program.

#### 02.03 Radiological Surveys

Verify if radiological work activities and surveys, including leak tests for sealed sources and contamination monitoring, ensure adequate protection of worker health and safety.

## 02.04 Surveillance

Verify if surveillance activities required by the technical specifications are completed, documented, and utilize operational, calibrated instrumentation.

## 02.05 Emergency Preparedness

- a. Verify if the licensee completes emergency preparedness exercises and drills as required by the emergency plan.
- b. Verify if personnel have completed emergency preparedness training and participated in drills in accordance with the emergency plan commitments.

## 69014J-03 INSPECTION GUIDANCE

### General Guidance

This appendix applies to Class III research and test reactors, including those in long-term shutdown or under a possession-only license. It is not applicable if the licensee is conducting fuel movements, maintenance, or major modifications with the intent of resuming operations; in such cases, the facility is considered to be in an operating status. The decision to transition a facility to Class III status requires a collaborative evaluation between the inspector, their management, and the NRR project manager. This evaluation should consider the facility's current radiological risk, long-term plans for decommissioning or restart, and any changes in licensed activities. More detailed information on the criteria and processes for this transition is available in Inspection Manual Chapter (IMC) 2545.

If safety concerns arise during the inspection, or if a facility transitioned to long-term shutdown following a period of operation, the inspector should consult with management to evaluate whether an expansion of the inspection scope is necessary to address safety-significant events or conditions. This consultation with management and the NRR project manager ensures that the inspection depth remains appropriate for the facility's risk profile and that any additional oversight is properly coordinated. Reference IMC 2545 for additional guidance on the oversight program for research and test reactors in other than an operating status.

Before conducting the inspection, the inspector must establish all shutdown requirements through a thorough review of the TS. If the TS lacks the flexibility to suspend unnecessary items, the licensee may pursue a license amendment through NRR. General guidance for technical evaluations is available in ANSI/ANS Section 15 Standards and Division 2 Regulatory Guides, though these are not regulatory requirements unless the licensee has formally committed to them in writing. Whenever practical, the inspector should directly observe work in progress, particularly changes to required functions resulting from maintenance or design modifications during shutdown.

### Specific Guidance

## 03.01 Audits

- a. To determine if committee members are qualified, verify required education, training, and experience for functions defined in the TS and SAR. Review qualification records for all new committee members assigned since the last inspection. If staffing shortfalls or

gaps are identified, discuss with licensee management how coverage is maintained and responsibilities are reassigned.

- b. Verify that individuals conducting audits did not participate in, supervise, or have direct responsibility for the activities being audited. Confirm that the licensee maintains required staffing levels and follows the audit frequency and scope specified in the TS. For small facilities where full independence is challenging, verify that auditors meet qualification requirements and that the licensee provides adequate guidance to ensure a critical review.
- c. Review audit meeting minutes and schedules to confirm that meeting frequency, subject matter, and quorum requirements align with the TS or implementing procedures. Verify that the quorum does not allow the operating staff to constitute a majority if so specified. Confirm the audit committee charter complies with TS requirements and reflects actual committee practices.
- d. Verify whether the committee documents recommendations and audit findings and that these are tracked to completion. Review tracking systems, logs, or corrective action programs to confirm that problems are documented and assigned for resolution. If audit follow-up is not timely or effective, discuss the basis for any delays with licensee management to determine how unresolved or recurring issues are evaluated and escalated.

#### 03.02 Operator Requalification and Active License Status

- a. Verify that the licensee meets the requirements of the NRR-approved requalification training program and that all licensed individuals are participating. Review individual license folders, training attendance logs, and examination results to ensure program maintenance is consistent with approved plans.
- b. Confirm that operators satisfy 10 CFR 55.53(e) regardless of plant status, noting that active status duties may include reactor checkouts and fuel movements. Review operator duty logs and shift schedules for the previous inspection period to confirm that each selected individual performed licensed duties for at least four hours in each calendar quarter. If active status is lost, verify the licensee follows 10 CFR 55.53(f) regarding the performance of six hours of licensed activity under direction, or has pursued a specific exemption under 10 CFR 55.11.
- c. Verify that all licensed operators have completed their biennial medical examinations. Confirm that license expiration dates are current and that the licensee has reported status changes, such as personnel no longer qualifying for a license, to the NRC as required by 10 CFR 50.74.
- d. Review the facility's biennial written examinations and annual operating tests to ensure technical adequacy. Verify that examination materials, including questions and scenarios, are protected and that there is no compromise between different groups of examinees. Review any remedial training provided and the adequacy of the subsequent re-examination for any operator who fails any portion of these exams before they return to licensed duties.

- e. If the facility is permanently shut down and all fuel has been removed, verify that the licensee has obtained a formal NRR exemption before discontinuing the requalification plan.

### 03.03 Radiological Surveys

Observe radiation and contamination surveys, including radiological control area exit surveys and material handling. Verify procedures for checking sealed sources for leaks and monitoring the spread of contamination from irradiated materials or experiments. If direct observation is impractical, perform independent surveys using NRC or licensee instrumentation and compare the results to the licensee's most recent recorded surveys. Verify documentation for survey results, leak tests, dosimetry records, and instrument calibration certificates. Confirm that survey meters are operational and have been calibrated within the required period.

### 03.04 Surveillance

Verify that surveillance activities required by the TS are performed and documented correctly. Review completed documentation for survey results, leak tests, and instrument calibration certificates required by the TS. Confirm that meters are operational and have been calibrated within the required period for use. Review supporting documentation, such as system drawings or design change records, to confirm that surveillance procedures remain current with the facility's configuration. Note that surveillance checks performed during radiological survey inspections may satisfy this requirement if the survey is TS-mandated.

### 03.05 Emergency Preparedness

- a. Verify the conduct of the most recent required emergency exercise or drill as specified in the emergency plan. Review after-action reports or critiques to ensure personnel demonstrated an understanding of emergency procedures and staff adherence to safety protocols. If the facility is in permanent shutdown and fuel-free, confirm the licensee has requested an exemption from the Office of the Chief Nuclear Reactor Inspector (CNRI) before discontinuing the emergency plan.
- b. Verify that personnel with emergency response responsibilities have completed required training and participated in drills as specified in the emergency and operator requalification plans. Interview staff and management to gauge their technical knowledge and understanding of their specific roles during an emergency. Observe work in progress or review records to ensure that training attendance and drill participation satisfy emergency plan commitments.

END

Attachment 1: Revision History for IP 69014

| Commitment Tracking Number | Accession Number<br>Issue Date<br>Change Notice | Description of Change                                                                                                                                                                                                                                                                                     | Description of Training Required and Completion Date | Comment Resolution and Closed Feedback Form Accession Number<br>(Pre-Decisional Non-Public Information) |
|----------------------------|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
|                            | ML26156A176<br>09/10/26<br>CN 26-039            | Created a unified and efficient inspection framework for research and test reactors by consolidating multiple reactor inspection focus areas into a single, modernized procedure. Extracted essential requirements of the previous IPs 69001 through 69013 and eliminated outdated or redundant guidance. |                                                      | N/A                                                                                                     |