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## INSPECTION PROCEDURE 87122

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### IRRADIATOR PROGRAMS

PROGRAM APPLICABILITY: 2800

#### 87122-01 INSPECTION OBJECTIVES

01.01 To determine if licensed activities are being conducted in a manner that will protect the health and safety of workers and the general public.

01.02 To determine if licensed programs are being conducted in accordance with U.S. Nuclear Regulatory Commission (NRC) requirements.

While this inspection procedure can be used for construction inspections, Manual Chapter 2815, "Construction and Preoperational Inspection of Panoramic, Wet-Source-Storage Gamma Irradiators," is also available for that type of irradiator.

#### 87122-02 INSPECTION REQUIREMENTS

The review of the licensed activities will be commensurate with the scope of the licensee's program. The inspector's evaluation of a licensee's program will be based on direct observation of work activities, interviews with workers, demonstrations by workers performing tasks regulated by NRC, and independent measurements of radiation conditions at the facility, rather than exclusive reliance on a review of records.

The structure and the emphasis of the inspection will be on the following Focus Elements (FE) that describe the outcomes of an effective irradiator radiation safety program:

02.01 FE-1. The licensee should control access to and prevent loss of licensed material so as to limit radiation exposure to workers and members of the public to values below 10 CFR Part 20 limits.

02.02 FE-2. The licensee should maintain shielding of licensed materials in a manner consistent with operating procedures and design and performance criteria for devices and equipment.

02.03 FE-3. The licensee should implement comprehensive safety measures to limit other hazards from compromising the safe use and storage of licensed material.

02.04 FE-4. The licensee should implement a radiation dosimetry program to accurately measure and record radiation doses received by workers or members of the public as a result of licensed operations.

02.05 FE-5. The licensee should provide radiation instrumentation in sufficient number, condition, and location to accurately monitor radiation levels in areas where licensed material is used and stored.

02.06 FE-6. The licensee should ensure that workers are:

- a. knowledgeable of radiation uses and safety practices;
- b. skilled in radiation safety practices under normal and accident conditions; and,
- c. empowered to implement the radiation safety program.

02.07 FE-7. The licensee's management system should be appropriate for the scope of use and should ensure:

- a. awareness of the radiation protection program;
- b. that audits for ALARA practices are performed; and,
- c. that assessments of past performance, present conditions and future needs are performed and that appropriate action is taken when needed.

Usually the inspector's evaluation will examine licensee activities back to the date of the previous inspection. However, issues preceding the last inspection should be reviewed, if warranted by circumstances, such as incidents, repetitive violations, or high radiation exposures.

## 87122-03 INSPECTION GUIDANCE

### General Guidance

The following inspection guidance is designed to assist the inspector in evaluating the performance of the licensee's radiation safety program. The guidance is organized by the individual focus elements described above. Each of the following elements should be reviewed as appropriate, during each irradiator inspection. If the inspector identifies a concern while reviewing any of the following elements, they should closely examine the licensee's actual implementation of that respective portion of the radiation safety program to identify any potential violations or other regulatory concerns. If the inspector has not

identified any concerns relating to the items described in the following sub-elements, the inspector may conclude that the licensee's performance is adequate for that particular element. The inspector has the flexibility, and is expected to, examine other related aspects of the licensee's program if during the examination of these elements, the inspector develops an additional radiation safety concern. The timing and sequence of inspection activities are left to the inspector's discretion based on the circumstances and conditions at the time of the actual inspection.

Common elements to all inspections include inspection preparation, entrance and exit meetings with appropriate licensee management, including the radiation safety officer (RSO), observations of facilities and work in progress, independent confirmatory surveys, and the evaluation of program scope and any special license conditions. Specific guidance regarding these common elements can be found in IMC 2800.

Some of the following areas may not be applicable to all irradiator licensees. In particular, many of the following elements and requirements will not be applicable to self-contained dry-source-storage irradiator licensees. Also, references to 10 CFR 36 requirements only apply to irradiators for which the dose rates exceed 5 grays (500 rads) per hour at 1 meter from the radioactive sealed sources.

### Specific Guidance

#### 03.01 FE-1: The licensee should control access to and prevent loss of licensed material so as to limit radiation exposure to workers and members of the public to values below 10 CFR Part 20 limits

- a. Security. Through direct observation and licensee staff interviews, determine that all entrances to licensee facilities are normally closed, locked or otherwise secured to prevent unauthorized entry. This should include main facility gates, main building entrances, doors to waste storage facilities, etc.
  1. If any entrance or area is found to be unsecured, determine, through questioning of licensee staff, the reason for the area or entrance being unsecured. Determine if the licensee failed to follow established procedures in securing the area or if additional training of staff is needed. Determine if the licensee's facility is configured to separate working areas from unrestricted areas.
  2. If entrances or other areas are found to be unsecured, examine areas where radioactive materials are used and stored. Storage areas should be locked and have limited and controlled access. Radioactive material use areas should be under constant surveillance or physically secured.
- b. Facilities. Through direct observation and licensee staff interviews, verify that the irradiator facility is configured in accordance with the design and performance

requirements found in Subpart C of 10 CFR Part 36. Specifically, verify by the performance of interlock checks that access to the irradiator is controlled pursuant to 10 CFR 36.23.

NOTE: Some irradiator licensees, in particular those using converted teletherapy units, have received exemptions from some of the safety systems described in Subpart C of Part 36. Usually these exemptions are granted based on administrative procedures committed to by the licensee. Inspectors should check the license to ensure that the administrative commitments on which these exemptions were granted are actually implemented by the licensee and are effective.

Verify that the mechanisms to control source movement meet each of the requirements of 10 CFR 36.31. If the product moves on a conveyor system, verify that the source rack and movement mechanism are protected by a barrier or guide, as required by 10 CFR 36.35.

Verify that sealed sources installed after July 1, 1993, meet the performance criteria of 10 CFR 36.21. This may be performed by a review of the sealed source registration certificate. Verify that irradiator pools initially licensed after July 1, 1993, meet the requirements of 10 CFR 36.33. Visual observation of the pool is acceptable verification. Verify that the facility complies with the design requirements of 10 CFR 36.39 and that the licensee performed the pre-source-loading construction monitoring and acceptance testing requirements of 10 CFR 36.41. These verifications involve reviewing the licensee's records on the required design checks, construction monitoring, and acceptance testing.

- c. Receipt and Transfer of Licensed Material. Through direct observation and licensee staff interviews, assess the adequacy of the licensee's package receipt practices implemented in accordance with 10 CFR 20.1906(e). Irradiator facilities do not receive or transfer licensed material on a routine basis. Such activities are usually limited to source loadings or exchanges.

If the inspector is present at the time of the receipt of sources:

1. Determine that packages received at the licensee's facility are properly secured at all times in accordance with 10 CFR 20.1801 and 20.1802.
2. Assess, through observation of actual or simulated surveys, the adequacy of the licensee's performance of radiation measurements, that required wipe tests are properly evaluated and that the licensee has procedures for handling packages where survey results are above regulatory limits.
3. Determine that the incoming packages are checked for damage, and that the licensee has appropriate procedures for the handling of damaged packages.

4. Verify that the licensee is receiving packages and making transfers of licensed material in accordance with NRC and applicable U.S. Department of Transportation (DOT) regulations and license conditions.
- d. Authorized Uses. Through the observation of licensed activities:
1. Verify that the licensee's use of byproduct material is limited to that which is authorized in the license. Note that pursuant to 10 CFR 36.69, irradiation of explosive material is prohibited (unless authorized in writing by the Commission) and that irradiation of more than small quantities of flammable material is prohibited in panoramic irradiators (unless authorized in writing by the Commission).
  2. Physically examine the inventory of radioactive material on hand (e.g., check for any sources that may have fallen off the source rack). To the extent practical, ensure by physical confirmation that the licensee's inventory is complete and accurate.
  3. If the inspector believes that there is reason to suspect that all irradiator sources have not been accounted for, perform a more detailed assessment of the licensee's accounting system. For example, a beam-type facility will generally need to maintain receipt records, disposal records, and records of any transfers of material. However, a facility with a pool irradiator with multiple sources will need a sophisticated accounting system, for all licensed material, that provides accurate information on the receipt, location, the quantity used and disposed of, and the amount transferred to other laboratories operating under the same license. In both types of accounting systems, the licensee should perform routine physical audits to ensure the accuracy of the system.
- e. Loading, Unloading, and Repositioning of Sources. Verify that loading, unloading, and repositioning the sources are performed by either the licensee or an organization specifically authorized by the Commission or an Agreement State to perform these operations, per the requirements in 10 CFR 36.13(g). If the licensee performs these operations, the procedures used must be authorized in the license. If the licensee loads, unloads, or repositions sources, interview personnel who are authorized to perform the operations, to determine that contamination surveys of the shipping cask, radiation monitoring during operations, and (not a 10 CFR Part 36 requirement) recording of the location of each individual source placed in the source rack are performed. Review the survey records to confirm that the surveys were performed.
- f. Leak Tests. Verify that tests for leaking sources are performed in accordance with the manufacturer's recommendations, the requirements of 10 CFR 36.59, and/or the license. Verify that the leak test is analyzed in accordance with the license.

1. If there has been any indication of a leaking source, verify that the licensee's survey procedures and counting equipment are adequate to detect and control radionuclide contamination, in accordance with 10 CFR 36.59(c). Consider taking confirmatory pool-water samples.
2. Ensure that the licensee has performed the following: 1) cleanup and cooling system operated as required by license; 2) demineralizers are operated and maintained in accordance with license conditions; 3) pool-water level and quality are maintained in accordance with license conditions; and 4) radiation monitor activates alarm [10 CFR 36.59(b)].

03.02 FE-2: The licensee should maintain shielding of licensed materials in a manner consistent with operating procedures and design and performance criteria for devices and equipment

- a. Shielding. Verify that the shielding meets the requirements of 10 CFR 36.25. Several independent measurements to confirm the licensee's survey data are acceptable verifications. Special emphasis should be given to areas where ducting or wireways pass through shielding, edges of walls and doors where shielding overlaps, and where visible defects/cracks appear in the walls. Shield surveys should be completed before initial operation, after source exchange or modification, and at intervals not to exceed 3 years [10 CFR 36.57(a)]. Verify that dose rates conform to the requirements specified in 10 CFR 36.25(a) and (b).

Verify that the licensee has established and implemented procedures to identify and report safety component defects per the requirements of 10 CFR Part 21.

- b. Area Surveys. Verify, during observations and by direct measurements, that the radiation dose rates around the facility are within the limits of Part 20 and 10 CFR 36.25. The inspector may ask the licensee to spot-check radiation levels in selected areas, using the licensee's own instrumentation. However, the inspector must use NRC's instruments for independent verification of the licensee's measurements. If practical, observe how licensees conduct surveys, to determine the adequacy of surveys. Also, note the types of instruments used, and whether they are designed and calibrated for the type of radiation being measured. The survey activities should be at a specified frequency in accordance with the related licensee procedures.
- c. Equipment. Verify that equipment and procedures comply with the requirements in 10 CFR 36.23, 36.31, and 36.37. Verify that equipment and instrumentation are appropriate, operable, calibrated, adequately maintained, and conform to those described in the license.
  1. If it is determined that equipment is not operable or appears to be inadequately maintained, verify that the licensee has established procedures to

perform the inspection and maintenance requirements of 10 CFR 36.61. Verify that non-routine operations (e.g. repairs) are performed by authorized personnel (licensee or others). Procedures and their implementation (practices) must be consistent with license commitments.

2. Equipment and instrumentation should be appropriate to the scope of the licensed program. All sampling and monitoring instruments should have current calibrations appropriate to the types and energies of radiation to be detected. The technical adequacy of calibration procedures at facilities that perform their own calibrations should be examined. Processing equipment, ventilation, and exhaust systems should be sufficient to provide safe use, handling, and storage of the materials in use. An operable, calibrated, conductivity meter should be available.
3. Verify that the licensee has procedures to perform the inspection and maintenance requirements of 10 CFR 36.61. The licensee should have a procedures manual for performing the inspections, as well as a log book, of the outcomes of the inspections, that can be reviewed. Procedures, as well as practices (as determined by review of records and interviews of staff), for maintenance, repair, modification, or replacement of equipment affecting safe operation of the facility must be consistent with licensee commitments regarding what will be done by licensee personnel (and the training to be provided for such activities) and what functions will be conducted by outside personnel (equipment manufacturers or others).

03.03 FE-3: The licensee should implement comprehensive safety measures to limit other hazards from compromising the safe use and storage of licensed material

The inspector should be attentive to potential industrial safety hazards, for referral to the U.S. Department of Labor's Occupational Safety and Health Administration (see Manual Chapter 1007). The focus should be on potential non-radiological hazards personally observed or brought to the inspector's attention by licensee staff.

- a. Fire Protection. Verify that the fire protection requirements of 10 CFR 36.27 are met. Discussions with the operators regarding the systems and procedures in the event of fire, and observations of the detectors, alarms, and fire extinguishing systems are acceptable verifications.
- b. Ozone. The inspector should be aware of the potential health hazard of ozone within the radiation facility. Irradiators with large sources are typically equipped with ventilation systems to exhaust ozone (and nitrogen oxides), produced by irradiation of air. Such facilities could be expected to also have operative ozone monitors as well as procedures to restrict access of personnel to areas when ozone concentrations exceed limits established by the Occupational Safety and Health Administration (OSHA). Also, note that ozone can be detected by odor at a concentration

which is 15% of the OSHA concentration limit; ozone odor does not necessarily indicate that an air concentration of ozone warranting concern is present. Concerns in this area should be referred to OSHA.

- c. Transportation. The inspector should review: the licensee's hazardous material training; packages and associated documentation; vehicles (including placarding, cargo blocking, and bracing, etc.); shipping papers; and any incidents reported to Department of Transportation (DOT). Verify that the licensee's procedures and documentation are sufficient to ensure that licensed material is transported in accordance with 10 CFR Part 71 and DOT regulations for transportation of radioactive materials.

NOTE: For further inspection guidance, refer to IP 86740, "Inspection of Transportation Activities." Inspectors should also refer closely to "Hazard Communications for Class 7 (Radioactive) Materials," the NRC field reference charts on hazard communications for transportation of radioactive materials, which contain references to the new transportation requirements, and are useful field references for determining compliance with the transportation rules on labeling, placarding, shipping papers, and package markings.

03.04 FE-4: The licensee should implement a radiation dosimetry program to accurately measure and record radiation doses received by workers or members of the public as a result of licensed operations

A radiation dosimetry program includes all of the licensee's activities that measure the radiation dose to workers and members of the public as the result of licensed activities. These activities would include for example, the measurement of quantities of licensed materials present, radiation and contamination levels, and the concentration of licensed materials in effluent streams.

- a. Personnel Dosimeters. Through observation, verify that personnel dosimetry devices are worn by appropriate licensee personnel in accordance with 10 CFR 36.55. Dosimetry devices appropriate to the type, energy, and the anticipated radiation fields must be issued to licensee personnel. Verify that dosimeters are processed by a National Voluntary Laboratory Accreditation Program (NVLAP) accredited processor. Verify, based on the review of reports of monitoring results, that worker doses adequately reflect the nature and scope of the licensee's activities.
- b. Radiation Doses. Through reviews of dosimetry reports and annual licensee evaluations of public dose, and interviews of the RSO and selected licensee personnel, verify that the licensee has not experienced any events, since the last inspection, involving exposures to occupational workers or members of the public that were in excess of any regulatory limit.

1. If any such incident or unusual occurrence took place, review and evaluate the licensee's actions. If such incidents were required to be reported, verify, through interview of the RSO and review of event reports, that a complete and timely report was made to the NRC.
  2. For incidents or unusual occurrences that were not required to be reported, verify that the licensee performed a sufficient investigation to identify the cause of the incident, and took appropriate corrective actions to prevent recurrence of the situation leading to the incident or unusual occurrence.
- c. Reports. Part 19.13(b) requires that each licensee shall advise each worker annually of the worker's dose as shown in dose records maintained by the licensee. Verify, through discussions with workers and management, and through records review, that the licensee has advised workers of their doses annually. The licensee must advise all workers for whom monitoring is required (and, therefore, dose records are required). The licensee must advise these workers of internal and external doses from routine operations, and doses received during planned special exposures, accidents, and emergencies. The report to the individual must be in writing and must contain all the information required in 10 CFR 19.13(a).
- d. Public Doses. Examine the licensee's evaluation or documentation to demonstrate compliance with dose limits for individual members of the public. [10 CFR 20.1302]

03.05 FE-5: The licensee should provide radiation instrumentation in sufficient number, condition, and location to accurately monitor radiation levels in areas where licensed material is used and stored

- a. Instruments. Radiation protection instrumentation should be appropriate to the scope of the licensed program. Verify that portable survey instruments are available, have the appropriate range of use and are used in accordance with the requirements of Part 36. Verify that area radiation monitors required by 10 CFR 36.23 (c), 36.29, 36.39 (e), 36.41 (e), and 36.59 (b) are appropriate, operable; have the proper alarm settings (if applicable), are adequately maintained and conform to the requirements of Part 36.
- b. Calibrations. Verify that the survey instruments are calibrated at least annually and in accordance with the requirements in 10 CFR 36.57(c). All survey, sampling, and monitoring instruments should have current calibrations appropriate to the types and energies of radiation to be detected. Survey instruments must be calibrated and checked for appropriate response in accordance with 10 CFR 36.55(b) and 36.57(c) and licensee procedures. The inspector may choose to examine the instrument calibration records (efficiency checks, lower-limit-of-detection calculations, etc.); physical location of counting instruments; methods of detection; and pool-water-sample locations.

- c. Inspection and maintenance. Verify that the licensee has established procedures to perform the inspection and maintenance requirements of 10 CFR 36.61 with regard to radiation monitors. Verify that non-routine operations (e.g. repairs) are performed by authorized personnel (licensee or others). Procedures and their implementation (practices) must be consistent with license commitments.

03.06 FE-6: The licensee should ensure that workers are knowledgeable of radiation uses and safety practices; skilled in radiation safety practices under normal and accident conditions; and empowered to implement the radiation safety program

- a. Authorized Operators. Verify through observations and interviews that the operators have knowledge commensurate with operational duties. (An example of an activity to observe is entering and leaving the radiation room, with requirements of this activity listed in 10 CFR 36.67.) Authorized operators should be trained in accordance with the approved license criteria. The instruction, testing, training, periodic safety reviews and safety performance evaluations required for individuals operating an irradiator without a supervisor present are listed in 10 CFR 36.51. Also listed in that section are training requirements for individuals permitted unescorted access to irradiators and for individuals who must be prepared to respond to alarms.
  - 1. If, during the course of observations or interviews, a situation develops that causes the inspector to question the quality the staff's knowledge, verify that appropriate training and initial instructions have been accomplished as specified in the license and/or regulations.
  - 2. Review examples of tests and scoring to determine that relevant topics of 10 CFR 36.51 are effectively covered in the training program. Ascertain the licensee's method of reinstructing and retesting those operators who do not initially pass the testing.
  - 3. Also, verify that the licensee is conducting operator safety reviews and safety performance evaluations at least annually as required by 10 CFR 36.51(d) and 36.51(e).

Non-authorized operators may only operate the irradiator in the presence of a supervisor who is an experienced authorized user. Determine that the authorized operators are personally performing or, if permitted in the license, supervising the work of non-authorized operators.

- b. General Training. Also interview workers other than operators to verify that, pursuant to 10 CFR 19.12, instructions have been given to individuals who in the course of employment are likely to receive in a year an occupational dose in excess of 1 mSv (100 mrem). Individuals should understand the radiation protection requirements associated with their assigned activities. Under the basic instructions,

it is management's responsibility to inform the workers of precautions to take when entering a restricted area, kinds and uses of radioactive materials in that area, exposure levels, and the types of protective equipment to be used. The workers should also be informed of the pertinent provisions of NRC regulations and the license and the requirement to notify management of conditions observed that may, if not corrected, result in a violation of NRC requirements. Also verify that authorized users and workers understand the mechanism for raising safety concerns.

If any concerns are identified regarding the level of knowledge of staff, examine records of training and attendant examinations or tests (if applicable) to the extent that the inspector is satisfied that the training program is being implemented as required. Where examinations are required, read a few of the examination questions to ascertain that they are indicative of what the worker should know to carry out his/her responsibilities.

- c. Operating and Emergency Procedures. Verify that operational procedures are being followed by observing licensee personnel perform tasks at selected work stations and by a comparison of their activities with established procedures.
1. If concerns are identified regarding a specific procedure or task, examine the licensee's written procedures to determine that these procedures are as approved by NRC.
  2. With regard to emergency procedures, verify that licensee personnel understand and implement the established procedures and are aware of any procedural revisions. The licensee can revise these procedures, without Commission approval, if the conditions of 10 CFR 36.53(c) are met. Verify that the conditions were met for any revisions of these procedures made without NRC approval.

When applicable, discuss with the licensee's representatives, or observe, the conduct of periodic tests and drills, especially for scenarios involving fires and large releases of radioactive material. Some licensees may have agreements with other agencies (i.e., fire, law enforcement, and medical organizations) regarding response to emergencies,. Discuss with the licensee's representatives what has been done to ensure that agencies (involved in such agreements) understand their roles in emergency responses.

- d. Posting and Labeling. Verify that proper caution signs are being used at access points to areas containing licensed materials and radiation areas as required by 10 CFR 20.1902. Also randomly examine signals and alarms to determine operability and audibility at occupied locations, per 10 CFR 36.23(b). [Note: Do not perform tests of systems that may result in unnecessary radiation exposure to NRC

or licensee personnel. Instead of actual tests, look for evidence of radiation effects damage to wiring and warning lights.]

Also randomly observe labeling on packages or other containers to determine that proper information (e.g., isotope, quantity, and date of measurement) is recorded. Examine locations where notices to workers are posted. Applicable documents, notices, or forms should be posted in a sufficient number of places to permit individuals engaged in licensed activities to observe them on the way to or from any particular licensed activity location to which the postings would apply.

03.07 FE-7: The licensee's management system should be appropriate for the scope of use and should ensure awareness of the radiation protection program; that audits for ALARA practices are performed; and that assessments of past performance, present conditions, and future needs are performed, and that appropriate action is taken when needed

The NRC holds the licensee responsible for the radiation protection program; therefore, it is essential that strong management controls and oversight exist to ensure that licensed activities are conducted properly. Management responsibility and liability are sometimes under emphasized or not addressed in applications and are often poorly understood by licensee employees and managers. Senior management should delegate to the RSO sufficient authority, organizational freedom, and management prerogative to communicate with and direct personnel regarding NRC regulations and license provisions and to terminate unsafe activities involving byproduct material..

Through observations, interviews and the review of selected records, determine that senior licensee management is fulfilling its responsibility of ensuring the effective operation of the radiation safety program. Specific areas of management focus should include:

- Maintaining awareness of significant events such as the loss or theft of licensed materials.
- Maintaining radiation safety, security and control of radioactive materials, and compliance with regulations.
- Committing adequate resources (including space, equipment, personnel, time, and, if needed, contractors) to the radiation protection program to ensure that members of the public and workers are adequately protected from radiation hazards and that compliance with regulations is maintained.
- Obtaining the NRC's prior written consent before transferring control of the license;
- Notifying the appropriate NRC regional administrator in writing, immediately following filing of petition for voluntary or involuntary bankruptcy (10 CFR 30.34(h)).
- Assuring the appropriate response, when applicable, to generic communications from the NRC.
- Assuring that adequate provisions have been made to fund the safe and effective decommissioning of licensee facilities. (10 CFR 30.35)

- Notifying the NRC of the decision to discontinue licensed activities or to decommission a facility in which licensed activities took place. (10 CFR 30.36)
- Notifying the NRC of defects or other radiation safety equipment malfunctions in accordance with the requirements of 10 CFR, Part 21.
- Maintaining awareness of issues and measures to ensure worker performance and safety are not being compromised due to safety significant human performance issues.

- a. RSC (where required or used). Through the review of records, and interviews of the RSO and RSC members, determine that the committee is made up of a representative from each type of program area, the RSO, and a representative from management. If practical, attend and observe the conduct of an RSC meeting. Review meeting minutes (and interview selected committee members when practical) to determine the committee's effectiveness. Determine that the RSC meets at the required frequency as specified in the license application, other commitment documents, or in a specific license condition. Topics of discussion during committee meetings should include ALARA reviews, incidents, generic communications, authorized users and uses, waste issues, audits, etc.

Determine if the committee has been assertive in seeking out areas needing improvement, rather than just responding to events and information from outside sources. Determine whether the RSC has recommended any specific actions and assess the implementation of those recommendations. The inspector's review should be of sufficient depth and detail to provide an overall assessment of the committee's ability to identify, assess, and resolve issues. Also consider the effectiveness of the RSC to communicate the results of audits and trend analyses to appropriate personnel performing licensed activities.

- b. RSO. Through the review of records, and interviews of the RSO and authorized users, verify that the RSO has been appointed by licensee management, identified on the license, and is responsible for implementing the radiation safety program. Determine, through interviews, that this individual is knowledgeable about the program, and ensures that activities are being performed in accordance with approved procedures and the regulations. Determine that, when deficiencies are identified, the RSO has sufficient authority, without prior approval of the RSC or licensee management, to implement corrective actions, including termination of operations that pose a threat to health and safety.

Determine that the knowledge and training of any radiation safety staff are commensurate with their assigned duties. Verify that the radiation safety staff levels, including numbers and types of positions, are as described in the license application.

1. If the inspector identifies high staff turnover or prolonged shortfalls in staffing levels, through interviews and observation determine if these shortfalls have had a negative impact on licensee performance.
  2. If so, discuss these findings with the RSO and senior licensee management to determine the source of the staffing issues and the licensee's plans to address the deficiency. The issue should also be brought to the attention of regional management.
- c. Audits. Through reviews of audit records and interviews, verify that the radiation safety program content and implementation is reviewed at least annually. The results of all audits must be documented in accordance with 10 CFR 20.2102(a)(2). Examine these records with particular attention to deficiencies identified by the licensee's auditors, and note any corrective actions taken as a result of deficiencies found.
1. If no corrective actions were taken, determine why the licensee disregarded deficiencies identified during audits.
  2. Determine if the lack of corrective actions caused the licensee to be in non-compliance with regulatory requirements.

#### 87122-04 REFERENCES

A listing of IMCs and IPs, applicable to the inspection program for materials licensees, can be found in IMC 2800. These documents are to be used as guidelines for inspectors in determining the inspection requirements for operational and radiological safety aspects of various types of licensee activities.

END