

NRC INSPECTION MANUAL

MSTB

INSPECTION PROCEDURE 87124

FIXED NUCLEAR GAUGE PROGRAMS

Effective Date: 05/16/2022

PROGRAM APPLICABILITY: IMC 2800

87124-01 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 using a risk-informed, performance-based regulatory approach.

87124-02 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. Additionally, the inspector should use a risk-informed approach to perform the inspection, such as choosing the activities that carry the highest risk to inspect first. This can help ensure that in cases of limited time with the licensee due to varying circumstances, the most risk-significant licensee activities are reviewed for each inspection.

For instance, for fixed nuclear gauge licensees, an activity that may carry a significant risk is the need to enter vessels on which fixed nuclear gauges are mounted and used. A robust lockout/tagout procedure properly executed by the licensee should ensure that no gauge user or member of the public working in the vicinity of these nuclear gauges becomes inadvertently exposed to the radiation beam if there is an open gauge shutter.

The inspector should also determine if the licensee possesses licensed material as authorized by a general license. If so, the inspector should assess the adequacy of the licensee's program for management and oversight of the generally licensed material.

The structure and the emphasis of the inspection should be on the following risk modules (RMs) that describe the outcomes of an effective fixed nuclear gauge radiation safety program RMs are defined as program areas that present higher risk, or expected to effectively reduce risk, to health, safety, and security that are identified in each inspection procedure in order to focus inspection effort on these particular program areas. To consider an inspection complete, the inspector should review applicable RMs based on ongoing activities at the time of the

inspection. The RMs that carry the highest risk components should always be completed to the best of the inspector's ability. Additional inspection elements that carry less risk can be found as an appendix to this inspection procedure. These additional elements are not required to be reviewed as part of a risk-informed inspection approach but may be reviewed if the inspector has additional time, if the additional elements are related to safety issues identified in the RMs, or if multiple violations were identified through review of the following RMs.

02.01 RM-1: Security of Licensed Material

The licensee should control access to and prevent loss of licensed material in accordance with 10 CFR 20.1801 and 1802. This should include gauges that are mounted on equipment, as well as gauges that have been removed from service and placed into either temporary or permanent storage pending disposal.

02.02 RM-2: Observation of Activities

If possible, the inspector should observe any licensed activities that may be ongoing during the inspection. This should include activities that may be partially complete, such as observing any fixed gauges that have been locked and tagged out due to maintenance, planned outages, or for any other reason. Both routine and non-routine maintenance activities should also be observed if applicable. The inspector should also ascertain if the fixed gauges are mounted in locations with appropriate protection from excessive temperatures, vibrations, and other environmental factors.

02.03 RM-3: Radiation Surveys, Postings, and Personnel Dosimetry

The licensee should possess (or have ready access to) radiation instrumentation to monitor radiation levels in areas where fixed nuclear gauges are used and stored, in accordance with 10 CFR 20.1501. Additionally, the licensee should post certain areas where fixed nuclear gauges are used and stored with appropriate signage, in accordance with 10 CFR 20.1901 and 1902. If the licensee monitors personnel for radiation exposure, then dosimetry records should be reviewed as well.

02.04 RM-4: Material Control and Accountability

The inspector should verify that licensed material is controlled and accounted for through periodic physical inventories, in accordance with applicable license conditions (usually required at 6-month intervals). This should include a comparison of the licensee's latest physical inventory with the gauges that are actually possessed and verified by the inspector through direct observation. This should include both specifically licensed gauges as well as generally licensed gauges, if any are possessed.

02.05 RM-5: Training of Employees

The licensee should ensure that workers are knowledgeable of radiation uses and safety practices in both normal and accident conditions, in accordance with 10 CFR Parts 19 and 20. Additionally, licensee workers should feel empowered to implement the radiation safety program, which is indicative of a safety conscious work environment.

02.06 RM-6: Management Oversight

The licensee's management system should be appropriate for the scope of use and should ensure the appropriate implementation of the radiation protection program, and that periodic audits are performed, in accordance with 10 CFR 20.1101. Additionally, assessments of past performance, present conditions and future needs should be performed, and appropriate action taken when needed.

87124-03 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 risk modules described above; however, this does not mean that the risk modules should be reviewed in this specific order. Instead, the inspector should use a risk-informed approach to decide which of the risk modules to inspect first. This is likely going to be predicated upon what licensed activities are ongoing when the inspector arrives at the licensed facility. Furthermore, inspectors should not feel constrained by the guidance in this procedure. If an inspector obtains information that indicates that a problem may exist in an area within the NRC's jurisdiction that is not specifically addressed in this procedure, the inspector should redirect, or otherwise expend, inspection effort to address that problem.

An examination of the licensee's records should not be considered the primary part of the inspection. Rather, observations of activities in progress, equipment, facilities and use areas, etc., will be a better indicator of the licensee's overall radiation safety program than a review of records alone.

During the records review, look for trends such as increasing radiation doses to personnel or unusually high or increasing radiation levels. Records such as surveys, receipt and transfer of licensed materials, and training may be examined randomly until the inspector is satisfied that the records are being maintained and are complete. Other records that are more closely related to health and safety (such as personnel dose-monitoring records and incident reports) should be examined in detail.

Common elements to all inspections include 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 Inspection Manual Chapter (IMC) 2800.

Each of the following elements should be reviewed, as appropriate, during each inspection of a fixed nuclear gauge licensee.

Specific Guidance

03.01 RM-1: Security of Licensed Material

The licensee should control access to and prevent loss of licensed material in accordance with 10 CFR 20.1801 and 1802. This should include gauges that are

mounted on equipment, as well as gauges that have been removed from service and placed into either temporary or permanent storage pending disposal.

- Upon arrival at the licensee's facility, the inspector should ascertain the level of security used to protect licensed material against unauthorized removal. Look for any open gates or doors that may normally be closed, especially if it appears that gauges may be stored there either temporarily or permanently.
- Once inside the licensee's facility, and after introductions are made (usually through an entrance meeting with licensee management), the inspector should ask where the gauges are used/stored, and how many are present at the facility. A facility tour should be performed by the inspector at some point during the inspection, accompanied by licensee personnel.
- Fixed nuclear gauges will likely be mounted on equipment, but may also be in storage pending disposal, or temporarily stored due to an outage. It is especially important to inspect the storage location of any gauges that may be stored (including stored in-place), because events have occurred in the past where gauges were inadvertently disposed of due to them not being secured appropriately in their temporary storage location. These temporary storage locations should be locked and keys to those locks should only be maintained by personnel authorized for use of the nuclear gauges.
- Additionally, fixed gauges may be mounted on trucks, called "mobile fixed gauges", which are generally used in the oil and gas industry for density measurements of slurry content.
- For fixed gauges in use, constant surveillance is not required, provided that the licensee has adequate facility security and effective procedures for ensuring that gauges are not removed by unauthorized personnel.

03.02 RM-2: Observation of Activities

If possible, the inspector should observe any licensed activities that may be ongoing during the inspection. This should include activities that may be partially complete, such as observing any fixed gauges that have been locked and tagged out due to maintenance, planned outages, or for any other reason. Both routine and non-routine maintenance activities should also be observed if possible. The inspector should also ascertain if the fixed gauges are mounted in locations conducive to safe operation with respect to temperatures, vibrations, and other environmental factors.

Although the majority of the review of this RM should be based on observations of activities and interviews with personnel, it may be necessary to perform a limited review of records documenting these activities. If this limited review results in the identification of possible weaknesses in the licensee's program, the inspector may expand the review as necessary to determine the extent of these issues.

- If possible, the inspector should observe any licensed activities that may be ongoing at the licensee's facility; this is the most important aspect of any inspection.
- If a licensee is used to performing activities a certain way, it is likely that they will unconsciously continue this behavior, whether or not the inspector's presence is

known; therefore, the determination of whether to perform these observations on either an announced or unannounced basis should be left to the judgement of the inspector based on the circumstances at hand.

- If observations cannot be performed, the inspector should ask the licensee to demonstrate these activities. Ask the licensee if any non-routine activities are performed, such as disassembly of gauges or movement of fixed gauges from one location to another.
- Lockout/Tagout Program. The licensee should implement a robust lockout tagout program for fixed gauges that may be temporarily out of use due to various facility conditions (outages, vessel repair/cleaning, relocation of fixed gauges), which is required by license condition. Interview workers (both radiation workers and non-radiation workers) to ascertain their level of knowledge of the lockout/tagout procedures and processes. Non-radiation workers should be cognizant of the existence of the tags and their purpose as well. Events have occurred in the past where members of the public (welders, electrical workers) were exposed to radiation doses above regulatory limits due to the fixed gauges being improperly locked and tagged out during maintenance of the vessel on which they were mounted. A thorough review of the licensee's lockout/tagout process, to include interviews with personnel, could prevent this type of overexposure from occurring. Also, verify that radiological labeling on the gauges is clearly visible and legible.
- Shutter Checks. Through observations of activities and interviews with personnel, verify that the licensee is performing shutter checks at the required intervals (usually every 6 months, as required by license condition) to ensure the proper operation of the shutter mechanism of fixed gauges. This is important because events involving the inability to properly shield the radiation beam are sometimes attributable to the shutter being stuck in the open position due to the failure to adequately perform routine shutter checks.
- Engineering Controls. The licensee should be cognizant of the process/engineering controls for the gauges they possess and use, to include temperature and other environmental conditions. The manufacturer's suggested operational limits of fixed gauges (described on the applicable SSD sheet) should be compared to actual environmental conditions (e.g., corrosion, stress fractures, fatigue) where the gauges are mounted/operated at the licensee's facility through observation and interviews with gauge users. Events have occurred in the past where fixed gauges become damaged: 1) gauges mounted in areas of extremely high temperatures have had their shielding partially melted; 2) gauges mounted in high-vibration environments have become disassembled to the point where their sealed source becomes detached; and 3) gauges mounted in highly caustic environments, such as fixed gauges with dip tubes that extend into the vessel, have become damaged as well as the sealed source itself.
- Non-Routine Maintenance. The inspector should ascertain whether the licensee is performing non-routine maintenance activities, and whether the licensee is authorized to perform such activities. Maintenance or servicing (beyond routine cleaning), that involves activities such as initially installing or repairing/modifying fixed nuclear gauges, must be performed by the gauge manufacturer or a person specifically authorized by the NRC or an Agreement State. The license will contain a

license condition if the licensee is authorized to perform these activities, and the procedures for this activity may be tied down to the license. Since this activity carries with it more risk than routine maintenance, the inspector should ensure that these procedures are reviewed and discussed with the licensee as part of the routine inspection.

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.

03.03 RM-3: Radiation Surveys, Postings, and Personnel Dosimetry

The licensee should possess (or have ready access to) radiation instrumentation to monitor radiation levels in areas where fixed nuclear gauges are used and stored, in accordance with 10 CFR 20.1501. Additionally, the licensee should post certain areas where fixed nuclear gauges are used and stored with appropriate signage, in accordance with 10 CFR 20.1901 and 1902. If the licensee monitors personnel for radiation exposure, then dosimetry records should be reviewed as well.

- It is suggested that the inspector have their survey meter powered on and perhaps audible upon arrival at the licensee's facility. Incidents have occurred in the past where inspectors have inadvertently walked into a radiation field because they did not know licensed activities were ongoing. The inspector should also be aware that some facilities, such as those that process or handle explosive gases, will require the use of intrinsically safe survey instruments to minimize any potential for a spark.
- Radiation surveys should be performed by the inspector in locations where licensed material is stored and/or used; ambient radiation level surveys are appropriate. Surveys should include the exterior surface of any storage rooms, while paying particular attention to those areas where members of the public may have access. It is important to remember that members of the public can also include employees of the licensee that do not require access to or actively participate in the licensee's use of fixed nuclear gauges; this could include welders, electricians, custodial staff, etc.
- If the licensee also possesses and uses radiation detection instruments, the inspector should ask the licensee to demonstrate how they perform radiation surveys; this could be performed side by side to the inspector's radiation surveys so that a comparison can be made of the readings. The inspector should also ask the licensee how often they perform surveys, where they are performed, and how they are documented. Keep in mind that licensees that only possess fixed gauges are not necessarily required to possess their own survey meters, but they should at least have access to one. In this case, the inspector should ask the licensee where they would obtain a survey meter if an emergency should occur.
- If the licensee is required to use radiation detection instruments, the current calibration should be reviewed by the inspector for each instrument on hand. If the licensee possesses a large number of instruments, a random selection of these calibration certificates may be appropriate. Gauge licensees should calibrate their

instruments at intervals not to exceed 12 months, as determined by licensees' procedures.

- While performing radiation surveys, the inspector should observe any and all postings and signage and should ensure that each area is appropriately posted based on ambient radiation levels. Proper labeling of gauges should also be observed, to include isotope type and quantity, as well as "caution-radioactive material" labeling.
- The inspector should observe licensed activities in progress and should visually identify whether licensee personnel are appropriately wearing their personal dosimeters, while keeping in mind that some gauge licensees are not required to monitor their workers for radiation exposure (those not likely to receive greater than 10 percent of the annual limits).
- Dosimetry records are one of the few records that should be reviewed even as part of a performance-based inspection. Records of annual exposure should be reviewed for each radiation worker back to the previous inspection; particular attention should be given to identifying possible upward trends in personnel exposure.

03.04 RM-4: Material Control and Accountability

The inspector should verify that licensed material is controlled and accounted for through periodic physical inventories, in accordance with applicable license conditions (usually required at 6-month intervals). This should include a comparison of the licensee's latest physical inventory with the gauges that are possessed and verified by the inspector through direct observation. This should include both specifically licensed gauges as well as generally licensed gauges, if any are possessed.

Although the majority of the review of this RM should be based on observations of activities and interviews with personnel, it may be necessary to perform a limited review of records documenting these activities. If this limited review results in the identification of possible weaknesses in the licensee's program, the inspector may expand the review as necessary to determine the extent of these issues.

- The inspector should review the inventory of gauges that the licensee possesses. This is usually performed by asking for a copy of the licensee's latest physical inventory record. The inspector would then compare the physical inventory record to the actual gauges possessed by the licensee. For licensees that possess a large number of fixed gauges, a random sample review of the inventory may be appropriate.
- While examining the inventory of gauges on hand, be sure to ask the licensee if there are any gauges that have been removed from service and placed into storage. Ensure that, if so, these gauges are also included on the licensee's routine physical inventory. Many events have occurred in the past where fixed gauges (that have been either temporarily stored due to an outage or unused gauges awaiting disposal) were accidentally disposed of, and later discovered by members of the public in a scrapyard. This can sometimes occur due to improper or ineffective performance of physical inventories of these gauges in storage. This can be prevented by licensee's

ensuring that these gauges are secured against removal by non-radiation workers and routinely inventoried.

- While reviewing the licensee's inventory of gauges, the inspector should also compare this inventory to the gauge types and quantities authorized on the license.
- Generally licensed devices (GLD's) are devices that are not specifically licensed, but are distributed under a general license pursuant to 10 CFR Part 31; these devices present some challenges for inspectors, because they are usually not listed on the specific license, so inspectors may not know that the licensee possesses them. The inspector, through interviews with licensee employees, should ascertain whether the licensee is in fact in possession of any GLD's. It is a good practice for these GLD's to be included in the licensee's physical inventories, usually performed at six-month intervals. This is important because some generally licensed fixed gauges can have sealed sources with activities as high as 1000 millicuries, and present just as much if not more of a hazard than specifically licensed fixed gauges. Additionally, the inspector should verify that GLD's that are required to be registered are done so in accordance with 10 CFR 31.5(c)(13).
- Through interviews of the RSO and selected licensee personnel, determine whether the licensee has experienced any events since the last inspection, involving lost or missing gauges. Review and evaluate any such incident or unusual occurrence that took place since the last inspection. 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. For incidents or unusual occurrences that were not required to be reported, determine whether the licensee performed 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.

03.05 RM-5: Training of Employees

The licensee should ensure that workers are knowledgeable of radiation uses and safety practices in both normal and accident conditions, in accordance with 10 CFR Parts 19 and 20. Additionally, licensee workers should feel empowered to implement the radiation safety program, which is indicative of a safety conscious work environment.

Although the majority of the review of this RM should be based on observations of activities and interviews with personnel, it may be necessary to perform a limited review of records documenting these activities. If this limited review results in the identification of possible weaknesses in the licensee's program, the inspector may expand the review as necessary to determine the extent of these issues.

- Through observations of activities and interviews with personnel, determine that appropriate training and initial instructions are being accomplished as specified in the license and/or regulations. The interviews should include discussions about actual or hypothetical emergency conditions in order to assess the worker's response to such conditions. Observe licensed activities in progress or a demonstration of activities to assess the worker's understanding of the radiation protection requirements associated with their assigned activities.

- If an employee is observed performing licensed activities, and the performance indicates that the employee is knowledgeable of proper radiation safety techniques, the inspector has satisfied this portion of the training review. Likewise, if the inspector interviews a worker on how they perform routine maintenance on a fixed gauge, and the worker describes all parts of the process as required by regulatory requirements and/or operating procedures, then the inspector has satisfied this portion of the training review.
- Records review would be appropriate for those circumstances where licensed activities were not able to be observed, and workers were perhaps not available for interviews. The requirements for certain kinds of training and instruction are found in the regulations, while the procedures for their implementation are generally found in the procedures included in the license's "tie-down" condition. Discuss with the licensee how, and by whom, training is conducted, and the content of the training provided to workers (generally found in the license application).
- If the licensee is authorized to perform non-routine maintenance activities, the inspector should ensure that employees are trained on this non-routine maintenance as a part of their periodic training regimen.

03.06 RM-6: Management Oversight

The licensee's management system should be appropriate for the scope of use and should ensure the appropriate implementation of the radiation protection program, and that periodic audits are performed, in accordance with 10 CFR 20.1101. Additionally, assessments of past performance, present conditions and future needs should be performed, and appropriate action taken when needed.

Although the majority of the review of this RM should be based on observations of activities and interviews with personnel, it may be necessary to perform a limited review of records documenting these activities. If this limited review results in the identification of possible weaknesses in the licensee's program, the inspector may expand the review as necessary to determine the extent of these issues.

- Review the licensee's oversight of their safety program. Performing a review of the safety program at the end of the inspection could allow the inspector to use what they identified (or did not identify) during the course of the inspection to better inform how the licensee reviewed their safety program. For instance, if the inspector identified one or more violations during the inspection, then the inspector could review the most recent annual radiation safety review to ascertain whether the RSO also identified the issue during the audit. Alternatively, the inspector may want to begin the inspection with a review of management oversight so that they can focus on the areas where the licensee has found deficiencies. The decision of when to review this RM is left at the inspector's discretion.
- The review of management oversight should include interviews with the RSO's supervisors, if available. This is important for fixed gauge licensees because the use of fixed nuclear gauges is ancillary to the primary function of the facility (i.e. primary functions could be coal mining, petroleum refining, electricity production). For this reason, the upper-level managers of these facilities need to understand the

importance of radiation safety with respect to the possession/use of these nuclear gauges, as they sometimes are unaware of the presence of these gauges.

- It is important that licensees understand the importance of self-identification of violations through periodic audits of their safety program. The inspector should take some time during a review of management oversight to discuss with the licensee how the NRC dispositions violations that are self-identified and self-corrected prior to the inspection to encourage a robust safety review is performed by the licensee.
- Periodic audits by management should include a review of the most risk-significant portions of the licensee's program. This could include a licensee's lockout/tagout procedures and processes, and how they are implemented by the gauge users.
- If no violations or weaknesses in the licensee's radiation safety program were observed by the inspector, then a review of records of annual audits may not be necessary.

87124-04 RESOURCE ESTIMATE

A typical fixed gauge licensee's inspection will be based on the number of fixed nuclear gauges possessed by the licensee, as well as the number of locations the fixed gauges are used and/or stored. Additionally, there is usually a safety video that is required to be viewed prior to the inspector being granted access to the facility. The typical fixed gauge inspection may be approximately four to six hours, with additional time possibly necessary for travel to and inspection of facilities with multiple locations of use and/or storage.

87124-05 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

Appendix
Appendix A: Additional Inspection Elements

Attachment
Attachment 1: Revision History for IP 87124

Appendix A: Additional Inspection Elements

87124A-01 PURPOSE

The guidance in this Appendix is intended to supplement inspection requirements and associated guidance provided in this procedure. The additional inspection guidance provided herein may be used as time allows or to assist in completing a rounded performance-based inspection.

87124A-02 BACKGROUND

Risk modules are defined as program areas that present higher risk, or expected to effectively reduce risk, to health, safety, and security that are identified in each inspection procedure in order to focus inspection effort on these particular program areas. The risk profile for each licensed program could be different and some programs may need more in-depth review. Therefore, the additional inspection elements included herein may be used to expand the scope inspection effort and/or supplement the risk modules in this procedure.

87124A-03 GUIDANCE

03.01 Leak Tests

Verify that leak tests of sealed sources are performed at the required frequency. Also verify that leak test samples are analyzed in accordance with the license requirements.

- If records of leak test results show contamination in excess of the regulatory requirements, then verify that the licensee made appropriate notifications and removed the source from service. Additionally, the inspector should determine if contamination to equipment or the facility occurred as a result of the leaking source, and if so, how the licensee handled the situation (i.e. decontaminated the area themselves or requested assistance from an outside source).
- Through performance-based observations, determine how the leak tests are being performed. Ensure that licensees are following the manufacturer's instructions on performing the leak tests.

03.02 Fire Protection

Materials licensees are not required by NRC regulations to implement a fire protection program. However, in many cases, the risk posed to radiological safety by fires is comparable to or exceeds the risk from other events involving licensed activities. Determine if licensees have a plan in place for preventing fires and combating fires that might occur. Any perceived problems/deficiencies (i.e., improper storage of combustible or flammable material, fire extinguishers out of service, lack of fire alarm or detection system, lack of fire suppression system) noted by the inspector should be brought to the licensee's attention and discussed with regional management. Proper fire protection systems can be evidenced by the licensee's involvement with the local fire department. Additional guidance for reporting fire protection concerns can be found in IMC 1007 "Interfacing Activities Between Regional Offices of NRC and OSHA."

03.03 Transportation

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 U. S. Department of Transportation (DOT) regulations for transportation of radioactive materials.

- Examine packages and the associated certification documentation, vehicles (including cargo blocking and bracing, and gauge security), and shipping papers. Review any incidents required to be reported to the DOT.

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

03.04 Authorized Users

Authorized users may either be named in the license application or be appointed by the licensee, depending on the type of license issued and/or the wording in the license. For those appointed by the licensee, verify that the authorized user is trained in accordance with the approved criteria and has knowledge commensurate with operational duties. Typically, successful completion of one of the following is considered as evidence of adequate training and experience for operating gauging devices:

- a) Gauge manufacturer's course for users; or
 - b) Equivalent course that meets Appendix D criteria in either NUREG 1556, Volume 1, Program-Specific Guidance About Portable Gauge Licenses" or NUREG 1556, volume 4, Program-Specific Guidance About Fixed Gauge Licenses."
- Authorized users are required to either be physically present or to otherwise supervise the use of gauges. The level of supervision will depend on the wording in the license conditions or regulations. Some licenses have conditions such as "... used by or under the supervision of ..." For some licenses that have the condition "... under the direct supervision of ...," the authorized user must be physically present at the facility for easy contact or to observe the individual(s) working. Another phrase used is "... may only be used by ..." Finally, "... under the direct supervision and physical presence of ..." means the authorized user must directly supervise and be present at the work station. Considering the many license condition phrases, the inspector must exercise judgment to interpret the role of the authorized users.
 - When the wording of the license condition is "... used by or under the supervision of ...," an authorized user named on the license is considered to be supervising the use of licensed materials when he or she directs personnel in the conduct of operations involving the licensed material. This does not imply that the authorized user must be present at all times during the use of such materials. The authorized user is responsible for assuring that personnel under his/her supervision have been properly trained and instructed and is responsible for the supervision of operations involving the use of licensed materials, whether he or she is present or absent.

03.05 Operating and Emergency Procedures

During the licensing process, the licensee may have committed to developing, implementing, and maintaining operating and emergency procedures that meet regulatory guidance. The effectiveness of those operating and emergency procedures will need to be evaluated through interviews, observations and review of the written procedures by the inspector during the inspection. The licensee may also have committed to implementing the standard procedures found in NUREG-1556 Volumes 1 and 4

- Verify that licensee personnel are knowledgeable of the operational procedures by observing the performance of tasks at selected work stations and by a comparison of their performance with established procedures. Assess the licensee's emergency procedures to determine that these procedures are as approved by or described to NRC. Through interview of workers, verify that licensee personnel understand and implement the established procedures and are aware of procedural revisions.
- Licensees should be aware of relative radiological risks and not try to protect the device to the extent that they would be subjected to fire or other life-threatening situations (e.g., attempting to rescue a portable gauge from the path of approaching soil compacting equipment.)
- Some licensees may have agreements with other agencies (i.e., fire, law enforcement, and medical organizations) regarding response to emergencies. Through interviews of licensee officials, determine what actions the licensee has taken to ensure that such agencies (involved in such agreements) understand their roles in emergency responses.

03.06 Radiation Safety Officer

Through the review of records, and interviews of the Radiation Safety Officer (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.

END

Attachment 1: Revision History for IP 87124

Commitment Tracking Number	Accession Number Issue Date Change Notice	Description of Change	Description of Training Required and Completion Date	Comment Resolution and Closed Feedback Form Accession Number (Pre-Decisional Non-Public Information)
N/A	ML033370758 11/25/03 CN 03-037	Revised. Based on changes in revised Inspection Manual Chapter 2800 (October 2003), a comportsing change was made to add the second paragraph under Section 87124–02, Inspection Requirements. Inspectors should assess the adequacy of a licensee’s program for management and oversight of the general license material as well as material authorized under the specific license.	N/A	N/A
N/A	ML22046A218 04/26/22 CN 22-008	Revised in its entirety. Specific changes include: (1) divided inspection guidance into risk-modules; (2) included inspectors’ observations; (3) updated inspection guidance; (4) added an estimated level of effort to complete an inspection; (5) developed new appendix titled “Additional inspection elements”; and (6) removed guidance associated with portable gauges. This guidance was included in a new inspection procedure IP 87139 “Portable Gauge Programs.”	N/A	ML22046A219