INSPECTION PROCEDURE 87120

INDUSTRIAL RADIOGRAPHY PROGRAMS

PROGRAM APPLICABILITY: 2800

87120-01 INSPECTION OBJECTIVES

01.01 To determine if licensed activities are being performed 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 performed in accordance with U.S. Nuclear Regulatory Commission (NRC) | requirements and license conditions.

87120-02 INSPECTION REQUIREMENTS

A review of the licensed activities will be commensurate with the scope of the licensee's program. A determination regarding safety and compliance with NRC requirements 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 record review. All of these | elements should be documented. See Appendix A, Part II, “Inspection | Documentation.” |

In reviewing the licensee's performance, the inspector should cover the period from the last inspection to the current inspection date. However, issues identified before the last inspection should be reviewed, if warranted by circumstances, such as incidents, non-compliance, or high radiation exposures.

The inspector must have the licensee interrupt activities immediately should an activity cause, or have the imminent potential to cause, undue exposure or harm to either a member(s) of the public or a worker(s). On identification of a safety issue, the inspector must not leave the situation unresolved. The inspector may only leave when all licensed materials are in a safe and
secured condition.

02.01 Preparation. The inspector should allow adequate time to prepare for the inspection. Preparation will include reviewing documents, making travel arrangements, coordinating with | appropriate staff, verifying that appropriate State agencies are | notified, and selecting necessary equipment. In particular, the inspector shall identify whether any license amendments have been issued since the last inspection, or whether the licensee has informed NRC of any major program changes since the last | inspection. The inspector shall also review: 1) the Nuclear | Materials Events Database (NMED) and regional event logs and files, | to determine if the licensee had any incidents or events since the | last inspection; 2) the license file for notification(s) to NRC | under the decommissioning timeliness requirements of 10 CFR | 30.36(d); and 3) the previous inspection history, including the | last notice of violation (NOV) and response, if applicable,

02.02 Entrance Briefing. Inform an available senior management representative of the purpose and scope of the inspection and arrange an exit meeting time.

| 02.03 Followup on Previous Items
|
| a. Determine whether the licensee followed up on cited violations identified during the previous inspection.
|
| b. Determine whether the licensee took the corrective actions described in its response to the NOV and followed up on recommendations, outstanding safety items, and unresolved issues identified during the previous inspection.

| 02.04 General Overview

a. Organization. Interview licensee representatives regarding the current organization of the program. Examine the licensee's organization with respect to changes that have occurred in personnel, functions, responsibilities, and authorities since the previous inspection. Identify the reporting relationship and management structure between the licensee's executive management, the Radiation Safety Officer (RSO), and personnel to whom the RSO may have delegated certain radiation protection functions at field offices, if applicable.

b. Scope of Program. Interview personnel to determine the types, quantities, and use of byproduct material, frequency of use, staff size, etc.

c. Management Oversight. In the course of interviewing personnel, determine if management oversight is sufficient to provide the licensee staff with adequate resources and authority to administer the licensed program.

1. RSO - Determine whether the appointed RSO is named on the license, has sufficient authority to fulfill his responsibilities, and fulfills the appropriate duties

commensurate with the size and scope of licensed activities.

2. Audits - Verify that audits of radiography personnel are performed as required (every 6 months). Verify that the results of the audits are reviewed and addressed by management. Verify that audits of the radiation protection program content and implementation are performed as required (at least annually). Verify that management takes corrective actions for deficiencies identified by the reviewers.

d. ALARA (As Low As Is Reasonably Achievable). Determine that the licensee has ALARA practices in place and in use. Verify that the ALARA practices are effective. Determine management's and workers' commitment to the ALARA concept.

02.05 Walk-Through Orientation Tour

a. Perform a walk-through tour of the licensed facility to make general observations of the condition of the facility and licensed activities being performed.

b. Make direct observations of radiation safety systems and practices in use. Document these observations in the inspection record.

c. The tour may be performed at any time during the inspection. The inspector may need to return to some portions of the facility at a later time to observe specific activities.

02.06 Facilities. Verify that the facility conforms to that described in the license application; permanent radiographic installations and storage areas are secured; and the licensee uses processes or other engineering controls to maintain doses ALARA. Verify that a permanent radiographic facility is shielded so that the radiation levels in adjacent areas, including the roof, do not exceed 0.02 millisievert (mSv) (2 millirem [mrem]) in any 1 hour. Also confirm that the permanent facility has an independent entrance control or visible-audible alarm system.

02.07 Equipment and Instrumentation

a. Verify that equipment in use is authorized on the NRC license, meets the requirements described in 10 CFR 34.20, and is inspected and maintained pursuant to 10 CFR 34.31.

Physically examine a representative sample of drive cable assemblies to determine the condition of the drive cable and the male connector as well as the overall condition of the drive cable assembly. Carefully inspect approximately 12 inches (25 cm) of the drive cable immediately next to the male connector. (Take care not to introduce any dirt or dust on the drive cable during this inspection.)

b. Verify that survey instrumentation, dosimeters, and alarming ratemeters are: checked for operation as required;

appropriate for the use intended; operable, calibrated, and adequately maintained; and conform to equipment and instrumentation described in the license application. If the licensee is authorized to conduct the entire leak test sequence, the inspector should evaluate whether the licensee is following license commitments for radiation laboratory sample-counting instrumentation.

c. Verify that the licensee has established and implemented procedures to identify and report safety component defects per the requirements of 10 CFR Part 21 and 10 CFR 34.101.

d. Verify written procedures for inspection and routine maintenance of radiographic exposure devices, source changers, associated equipment transport and storage containers, and survey instruments.

e. Verify records of inspection, calibration, and maintenance.

02.08 Materials

a. Receipt and Transfer of Licensed Material. Verify that the licensee received packages and made transfers of licensed material in accordance with NRC and applicable U.S. Department of Transportation (DOT) regulations and license conditions.

b. Authorized Uses. Determine from observing the use of licensed material, discussing the activities with licensee personnel, and reviewing records, that the type, quantity, and use of licensed material at the licensee's facility are authorized by the license. Verify that the licensee has procedures to assure that it possesses only the quantities of materials authorized by the limits on the license. To the extent practical, assure by physical confirmation, that the licensee's inventory of licensed material is complete and accurate.

c. Material Security and Control. Verify that the licensee has established procedures for maintaining security and control of licensed material, and that these procedures are understood and implemented by appropriate personnel. Verify that licensed material, when in storage, or when in controlled or unrestricted areas, is secure from unauthorized removal or access. Verify that licensed material, when not in storage, or in controlled or unrestricted areas, is controlled and under constant surveillance. Verify that access to restricted areas is limited by the licensee.

d. Incidents and Unusual Occurrences. Evaluate any incidents or unusual occurrences since the last inspection, and evaluate the licensee's response.

02.09 Training

a. General Training. Verify, by a review of selected records and interviews that appropriate training (including initial

instructions on the licensee's operating and emergency procedures [O&EPs]; 10 CFR Parts 19, 20, and 34; and annual training) is accomplished as specified in the license and regulations for the RSO, radiographers, and assistants.

b. Operating and Emergency Procedures. Verify that O&EPs are being followed by observing licensee personnel during operations and by comparing their activities with established procedures. Also, examine the licensee's procedures to determine that they are as approved by NRC and commensurate with the scope of licensed activities. Through discussions with workers, verify that licensee personnel understand and implement the established procedures and are aware of procedural revisions. Document in the inspection record what activities the inspector observed.

When possible, observe the conduct of licensee's operations for transportation, surveys, and radiographic operations. If unable to observe routine operations, interview key personnel regarding the shipment of licensed materials, source changes, and how they perform surveys and control access to areas where radiography is being conducted.

c. RSO. Verify that the RSO has been trained in accordance with 10 CFR 34.42 (effective June 27, 1999), is aware of his responsibilities, and has the necessary resources to carry out his responsibilities. Determine that the RSO has access to upper management and that there is a management commitment for the RSO to stop unsafe operation.

d. Radiographers and Assistants. Radiographers and assistants may either be named in the license application or be appointed by the licensee. For those appointed by the licensee, verify that the radiographers are trained in accordance with 10 CFR 34.43, have been trained on the licensee's procedures and equipment, and have knowledge commensurate with operational duties. After June 27, 1999, all radiographers must also be certified. Verify that the radiographer's assistant has been trained in accordance with 10 CFR 34.43(c), the licensee's procedures, and has demonstrated an understanding of the instructions in 10 CFR 34.43(c)(1) by the successful completion of a written test and a practical examination on the radiographic hardware.

Determine that the radiographers are personally performing, or supervising the authorized work, rather than a radiographer's assistant or someone else not named in the license. Note that the radiographer must directly observe the radiographers assistant's performance during radiographic operations.

e. Instructor(s) Qualifications. Determine that instructors are qualified to teach the principles of radiation safety and the practices of industrial radiography. Instructors who provide classroom training to individuals in the principles of radiation and radiation safety should have knowledge and

understanding of the principles beyond those obtainable in a course similar to the one given to prospective radiographers. Individuals who provide instruction in the hands-on use of radiography equipment should be qualified radiographers with at least one year of experience in performing radiography or with possession of a thorough understanding of the operation of radiographic equipment (e.g., manufacturer's service representative). Verify, as appropriate, that instructors have completed the training necessary to be named as radiographers and have at least a year of hands-on experience in the performance of industrial radiography.

02.10 Area Radiation and Contamination Control

a. Area Surveys. Verify, during observations and by direct measurements, that the radiation levels are within the limits of 10 CFR 20.1301, and that these areas are properly posted in accordance with 10 CFR 20.1902, 10 CFR 34.53, and license commitments. Verify by observation and direct measurements of radiographic equipment that radiation levels are within the limits of 10 CFR 34.21.

b. Leak Tests. Verify that leak tests of sealed sources and devices containing depleted uranium are performed at the required frequency. Verify that leak tests are analyzed in accordance with 10 CFR 34.27 and the license. If records of leak test results show contamination in excess of the regulatory requirements, verify that the licensee made appropriate notifications and removed the source from service. If the licensee is authorized to conduct the entire leak test sequence, review the quality assurance (QA) for leak tests.

02.11 Radiation Protection

a. Radiation Protection Program. Verify that the licensee has a documented radiation protection program adequate for the activities called for in the license, that the program is being implemented as written, and that it is being reviewed at least every 12 months for both content and implementation. Verify that whenever the program is revised, the implementation is changed to conform to the revised program.

b. Radiation Protection Procedures. Verify that any changes made in the O&EPs since the last inspection are consistent with current regulations and license requirements. [Note that changes to operating and emergency procedures require prior NRC approval.]

c. Instruments and Equipment. Verify that licensees are visually and manually inspecting survey instruments and other radiation protection instruments, and equipment such as pocket dosimeters, alarm ratemeters, electronic personal dosimeters (EPDs), film badges, and thermoluminescent dosimeters (TLDs) before each use, to ensure that no damage has occurred and that instruments are operable. Verify that

appropriate maintenance is being performed, and calibration and alarm settings (where required) are being made in accordance with license requirements and licensee procedures before the instruments or equipment is used.

d. Personnel Dosimeters. Verify that radiographers and radiographers' assistants wear direct reading dosimeters (pocket dosimeters or EPDs), alarm ratemeters, and either film badges or TLDs (10 CFR 34.47). Verify that active dosimeters are operable and calibrated, alarms are set, and that passive dosimeters are processed by a National Voluntary Laboratory Accreditation Program accredited processor.

Verify that, pursuant to 10 CFR 19.13(b), the licensee advises each worker annually of the worker's dose as shown in records maintained by the licensee pursuant to the provisions of 10 CFR 20.2106. Verify that, pursuant to 10 CFR 20.2206(b), the licensee submits annual reports of individual monitoring.

02.12 Waste Management

a. Waste storage and disposal. Verify that waste (usually sources decayed to levels unsuitable for radiography, awaiting return to the vendor) is protected from fire and the elements; that package integrity is adequately maintained (locked source changers and storage vaults); and that adequate controls are in place to minimize the risk from other hazardous materials. Verify that the licensee has appropriate methods to track the items in storage. Verify that leak tests were performed within the appropriate period or before the sources were removed from storage, and the analyses were received before use, transfer, or shipment. Verify that written procedures have been developed, approved by management, and are available to any persons having responsibility for the storage and transfer of sources and devices.

b. Transfer. Transfer is the typical method of disposal authorized for radiography sources. Verify that sources are transferred to an authorized recipient. The licensee shall verify that the intended recipient is authorized to possess the source in accordance with the procedures in 10 CFR 30.41. If transferred as waste, then 10 CFR 20.2006 and 10 CFR Part 61 apply. Depleted uranium is licensed material and must be disposed of according to applicable regulations.

c. Records. Review the records of waste storage, transfer, and disposal to verify that disposals are made in accordance with the requirements of Part 20, 10 CFR 30.51, and 10 CFR 34.63, and that records are complete and accurate for each type of disposal.

d. Financial Assurance and Decommissioning. For all licensees, including sealed source licensees, review the licensees' records of information important to the safe and effective decommissioning of the facility. All field stations are

subject to the rule because they are a site at which licensed material is stored. Field stations must be listed on the license, and may not be released from licensee control without NRC authorization, usually in the form of a license amendment. Verify that the records are completed, updated, and assembled appropriately, in accordance with the requirements in 10 CFR 30.35(g). Review the licensee's list of restricted areas required under 10 CFR 30.35(g)(3) and determine whether any other areas have been released since the last inspection. If areas have been released, verify that the licensee has adequately decontaminated each room and documented the basis for releasing each room. Document the location of the released rooms in the inspection record, and document your findings regarding the adequacy of the licensee's decontamination.

Financial assurance is required if the quantity of cobalt-60 exceeds 10,000 curies. Financial assurance is not applicable for iridium-192. Verify whether radiological conditions at the facility have changed since the financial assurance instrument or decommissioning plan was submitted such that either document needs to be changed to address the new radiological conditions. Examples of changes are radiological incidents such as leaking sealed sources and breakthrough of s-tubes into the depleted uranium shield material. Unauthorized licensee changes as to types, possession limits, or physical forms of licensed materials may also prompt a reevaluation of whether the financial assurance instrument or decommissioning plan remains sufficient. If changes are identified that may affect the financial assurance instrument or the decommissioning plan, the inspector should immediately notify regional management.

If a parent company guarantee or a self-guarantee is used to ensure decommissioning financial assurance, review the licensee's financial assurance file to ensure that 10 CFR Part 30, Appendix A or Appendix C requirements, are met.

e. Decommissioning Timeliness. Review compliance with the Decommissioning Timeliness Rule requirements in 10 CFR 30.36(d) through (h). For additional information, see NRC Administrative Letter 96-05, "Compliance with the 'Rule Timeliness in Decommissioning of Material Facilities,'" dated November 5, 1996, and NRC Enforcement Manual, NUREG/BR-0195, Rev 2, Section 8.6.12, “Guidance for Dispositioning Violations of the Timeliness in Decommissioning of Material Facilities Rule.”

This is one area of the inspection record that should be completed on all inspections. If the license to conduct principal activities has expired or was revoked; if the licensee has made a decision to permanently cease principal activities at the site, in any separate building, or at any outdoor area; or if there has been a 24-month duration when no principal activities were conducted at the site, then the decommissioning timeliness requirements in 10 CFR 30.36, 10 CFR 40.42, 10 CFR 70.38, or Part 72 apply. Note that

licensees are not required to notify NRC when a decision is made to permanently cease principal activities in any separate building or outdoor area or when no principal activities have been conducted for a period of 24 months in any separate building or outdoor area unless the separate building or outdoor area contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with NRC requirements. For further information, refer to the "Decommissioning Timeliness Inspection" Attachment, Attachment A to Appendix A.

02.13 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, DOT regulations, and 10 CFR 34.31 QA regulations for transportation of radioactive materials.

02.14 Posting and Labeling. Verify that the licensee has posted the appropriate documents, notices, forms, and caution signs as required. Also verify that containers of licensed material are appropriately labeled. (See 10 CFR Part 20, Subpart J.)

02.15 Generic Communications of Information. Confirm that the licensee is receiving the applicable bulletins, information notices, NMSS Licensee Newsletter, etc. Verify that the licensee has taken appropriate action in response to these notices.

02.16 Notifications and Reports

a. Determine compliance with the regulations in 10 CFR Part 20, Subpart M, 10 CFR 30.50, and 10 CFR 34.101, and license requirements for notification and reports to NRC.

b. Gather information on events reported to NRC. For verification of licensee event response that could not be performed from the regional office, follow up on site with the licensee to obtain information.

c. Verify that the licensee's event report is accurate and timely.

d. Verify that appropriate corrective action was taken in response to the event.

02.17 Special License Conditions. If applicable, review the licensee's compliance with any special license conditions, such as exemptions or approval of materials or devices not in accordance with 10 CFR 34.20.

02.18 Independent and Confirmatory Measurements. Compare and verify, on a sampling basis, survey results or data that are used by the licensee to show compliance with the regulations or license conditions. Conduct independent measurements to ascertain the radiological conditions of the facility, including temporary job sites inspected. Conduct these independent measurements on all inspections under this inspection procedure, unless warranted by special circumstances. If independent measurements were not made,

provide a justification in the inspection record explaining why independent measurements were not performed. Use radiation detection instruments calibrated within the last 6 months.

02.19 Year-2000 Issues. Verify that the licensee has reviewed its computer software and embedded systems to ensure that any potential year-2000 problems have been identified and corrected.

02.20 Exit Meeting. The inspector will conduct an exit meeting with the most senior licensee management and the RSO, to discuss the preliminary inspection findings, including any apparent violations, safety-related concerns, and any unresolved items identified during the inspection. Discuss any negative Performance Evaluation Factors (PEFs) and encourage the licensee to respond to the PEFs of concern. For further guidance, refer to Inspection Procedure (IP) 87107, "Performance Evaluation Factors."

02.21 Post-Inspection Actions. After an inspection, the inspector shall summarize the findings with his/her appropriate NRC supervisor. This is especially important if there are, or are expected to be, controversial issues arising from the findings.

Inspectors shall also meet with the appropriate licensing staff member or supervisor when any pertinent licensing issues are raised during the inspection, or when inspection findings impact on any licensing actions, to discuss licensee PEF results that indicate potential problems which should be addressed during licensing, or to give feedback on how the licensee has addressed recent licensing actions. This meeting shall be documented in the inspection record.

Additionally, in some instances, inspection findings will warrant Regional management communication with Enforcement staff, Office of Investigations staff, State liaison staff, or Federal agencies with whom NRC has Memoranda of Understanding (MOUs). Similarly, if information related to year-2000 problems and solutions is obtained, it is to be conveyed to the Nuclear Material Safety and Safeguards (NMSS) Year-2000 Coordinator.

The inspector will ensure that inspection findings are clearly documented, and reported to the licensee as appropriate. The inspector shall also follow the requirements of Inspection Manual Chapter (IMC) 0620, "Inspection Documents and Records," regarding notifying the licensee that retained information is subject to public disclosure and giving the licensee the opportunity to request withholding it. (See IMC 0620, Section 04.06.b.)

87120-03 INSPECTION GUIDANCE

General Guidance

An examination of the licensee's records should not be considered the primary part of the inspection program. Rather, observing activities in progress, equipment, facilities, and use areas, etc., will provide a better indication of the effectiveness of the

licensee's overall radiation safety program than a review of records, alone.

Some of the requirements and guidance sections of this procedure instruct the inspector to "verify" the adequacy of certain aspects of the licensee's program. Whenever possible, verification should be accomplished through discussions, observations, and demonstrations.

Consideration should be given to the importance of conducting field inspections (i.e., away from the home office), because this is normally where the more safety-significant violations are likely to occur in the conduct of radiography.

When observing a licensee's performance at other than the licensee's facility, whether the licensee is aware of the observation or not, authorization for your presence should be sought from the senior management of the property. If accompanying the licensee's staff, it is not appropriate to accept transportation from the licensee unless it would be inappropriate for the inspector's vehicle to be at the location. Information concerning the whereabouts of licensed activities may be obtained from the management of large construction jobs, pipeline operators, municipal permit issuing offices, and utility operators, among others. Licensee staff at field locations may delay performing work in the inspector's presence. Informing the staff that work should not be delayed may encourage them to continue, thus allowing observation of licensed activities.

In the records reviewed, look for trends, such as increasing dose events. Records such as leak tests, utilization logs, receipt and transfer of radioactive materials, training, staff audits, etc, may be examined randomly until the inspector is satisfied that the records are being maintained and are complete. Compare related records such as utilization logs and shipping papers to ensure that information is accurate. Records that are more closely related to health and safety (such as personnel dose-monitoring records and incident reports) should be examined in detail. The type of records that were reviewed and the time periods covered by these records should be noted in the appropriate section(s) of the inspection record. The inspector and the Branch Chief should have an understanding of the level of detail needed for a supervisory review and finding of adequacy of the inspection.

When an inspector identifies an apparent violation, he/she should gather copies from the licensee, while on-site, of each pertinent record that is needed to substantiate the finding. In general, inspectors should use caution before retaining copies of licensee documents, unless they are needed to support apparent violations, expedite the inspection (e.g., licensed material inventories), or make the file more complete. In all cases where licensee documents are retained beyond the inspection, the inspector must follow the requirements of IMC 0620 to ensure that the licensee understands that the retained record will become publicly available, and to give the licensee the opportunity to request withholding the information pursuant to the requirements of 10 CFR 2.790(b)(1). Any copies of records retained for the file should be attached to

| the inspection record. If copies of licensee documents cannot be collected, the inspector should make certain that he/she has retained, in the inspection record, for future reference, the pertinent information to support the inspection findings.

| The inspector should keep the licensee apprised of the inspection findings throughout the course of the inspection and not wait until the exit meeting.

| The inspector should inform NRC management as soon as possible of significant findings identified during the course of the inspection that may require immediate corrective actions or further NRC investigation, such as unsafe radiological conditions at the facility, willful violations, or other potential escalated enforcement issues.

| If conducting a field inspection, licensee management should be contacted as part of the exit interview. Telephone exit interviews should include the licensee's on-site representative.

Specific Guidance

03.01 Preparation. Before the inspection, the inspector should do the following:

- **!** Review the licensee's inspection history (at minimum, the past two inspections, or the past 2 years, whichever is of longer duration), the license (including tie-down documents, amendments, and Financial Assurance requirements and instruments), and the status of any allegations or incidents. Note the licensee's commitments, in response to previous violations, for follow-up during the inspection.

- **!** Review the NMED and regional event/incident logs, event/incident files. and the docket file, to determine whether the licensee was involved in any incidents or events. If NRC did receive notification of an incident, review that incident during the inspection and document the licensee's follow-up in the inspection record.

- **!** In the inspection record, complete the administrative information, the inspection compliance history, the listing of any amendments or program changes since the last inspection, and the description of any incidents or events that have occurred since the last inspection.

- **!** Determine the dates that the licensee submitted the most recent financial assurance instrument and decommissioning plan, if applicable.

- **!** Discuss the licensee's program with previous inspector(s) and/or license reviewer(s) as necessary.

- **!** Be sure that appropriate State radiation control program personnel have been notified of the upcoming inspection.

- **!** Review pending license actions.

- Obtain a map of the area and directions.
- Make travel arrangements and prepare itinerary.
- Select calibrated instruments and perform source check [remember that it is only appropriate to use an instrument that has been calibrated within the licensee's instrument calibration interval (i.e., calibrated within the 6 months preceding the inspection)].
- Select the same type instrumentation as the licensee uses, including alarming dosimeters and self-reading dosimeters, as appropriate.
- Select appropriate equipment to take (such as safety glasses, hard hat, safety shoes. wipes, etc.).
- Select appropriate documents.

In selecting the appropriate documents, the inspector should consider taking the applicable regulations, inspection record, generic communications, copy of the license, NRC forms, etc. The inspector should also consider taking any guidance documents (such as NUREG-1556, Vol. 2, "Consolidated Guidance About Material Licenses: Program-Specific Guidance About Industrial Radiography Licenses," regulatory guides, and information notices) that may be helpful to the licensee.

During the inspection, focus (among other areas) on whether the licensee is in compliance with any license amendments issued since the last inspection, and with any program changes described by the licensee since the last inspection. This requires review of documentation submitted in support of the licensing action, before the inspection. The inspection represents NRC's first opportunity to verify whether the licensee has implemented the most recent changes to the license, which cannot always be gained by reviewing records alone. This is also an opportunity for the inspector to discern the actual scope of the licensee's program, and to determine if significant changes have occurred since the last inspection.

03.02 Entrance Briefing. After arriving on site, the inspector should inform the licensee's management representative of the purpose and scope of the inspection to be performed. This notification should be made as soon as practical after arriving on site. However, in certain instances (i.e., unannounced inspections at temporary field sites), the inspector may choose to inform the licensee of his/her presence on site after initial observations of licensed activities currently in progress. Inspectors should not inconspicuously observe activities while allowing licensees to operate in violation of the regulations.

The purpose of the entrance briefing is to inform licensee management that an inspection is being conducted, and to indicate the tentative schedule for discussing or reviewing selected inspection items with various licensee staff personnel. However, in some instances, the inspector may only need to inform management

| of NRC's presence on site, and apprise management that an exit briefing will be conducted, at the end of the inspection, which will detail the inspection findings.

| This is often an opportune time for the inspector to identify personnel to be interviewed. Scheduling interviews will enhance inspector efficiency and give the licensee the opportunity to have the most knowledgeable individuals present to respond in the areas being inspected.

| Certain inspection items involving visual observations and/or records review are better performed unannounced; ideally, these items should not be discussed during the entrance briefing. Inquire as to the schedule for the day, requesting to see specific procedures only if they are not already scheduled, As some records may require considerable time to retrieve, use experience and judgement as to which records to request,and when to request them.

| The licensee representative should be asked to identify any recent problems related to the licensed program, such as equipment failures and unusual radiological problems (e.g., excessive personnel exposures, QA problems, etc.).

| 03.03 Follow-up on Previous Items

a. Through observations and discussions with licensee personnel, determine the following information relating to corrective action on previous violations:

1. the licensee responded in a timely manner;
2. corrective actions were taken for each of the violations and the results of the corrective actions were as described in the licensee's reply to NRC;
3. corrective actions were made within the time period described in the licensee's reply to NRC;
4. corrective actions were successful in preventing recurrence of the previous violation;
5. other licensee commitments discussed in the reply were also completed; and
6. the licensee posted copies of the enforcement correspondence as required by 10 CFR 19.11(a)(4).

b. Through observations and discussions with licensee personnel, determine what action the licensee has made regarding outstanding safety items and unresolved issues identified during the last inspection. If applicable, close out these items.

| 03.04 General Overview. The inspector will interview the cognizant licensee representatives to gain information concerning organization, scope, and management oversight of the radiation safety program.

a. Organization. The licensee's organizational structure will usually be found in the license application and may involve

one or more individuals. Determine the reporting structure between executive management, the RSO, and personnel to whom the RSO may have delegated certain radiation protection functions at field offices, if applicable. Determine whether the RSO has sufficient access to licensee management.

Through discussions with licensee staff, determine if changes in ownership, change of control of licensed activities, or staffing have occurred. If the owner has changed, determine whether the licensee notified NRC and requested approval of the change of ownership as required by 10 CFR 30.34(b), and has received approval from NRC. If the name of the licensee, or the individuals named in the license have changed, determine whether the licensee has submitted to NRC, as appropriate, a notification or request to amend the license. This information must be provided whenever changes in ownership or personnel are made (except for some licenses where only responsibilities are defined). Ask licensee management if changes have occurred, or are anticipated, and ask personnel to confirm (to the inspector's satisfaction) that no changes have taken place. If there have been no changes in the organization since the previous inspection, there is no need to pursue this element in further detail.

The inspector should review any organizational change in the RSO position, authorities, responsibilities, and reporting chains. The inspector should be sensitive to changes that reduce the ability of the RSO to resolve concerns or issues related to the safe conduct of the radiation protection program. The inspector should ask licensee management and the RSO about the RSO's authority and about any changes that may impact the RSO's duties, responsibilities, or effectiveness.

b. Scope of Program. Through discussions with licensee personnel, the inspector can obtain useful information about the types and quantities of material used, frequency of use, incidents, permanent field site locations, temporary job site locations, etc., which cannot always be obtained by reviewing records alone. This is also an opportunity for the inspector to discern the actual size and scope of the licensee's program, and to determine if significant changes have occurred since the previous inspection.

c. Management Oversight. The inspection is a verification of the licensee's implementation of the required program. In the review to verify implementation, pay particular attention to the scope of the program; frequency of licensee audits and the use of qualified auditors; procedures for recording and reporting deficiencies to management; and methods and completion of follow-up actions by management.

1. RSO - The RSO is the individual, appointed by licensee management and identified on the license, who is responsible for implementing the radiation safety program. The inspector should verify that this individual is knowledgeable about the program, and

ensures that activities are being performed in accordance with approved procedures and the regulations. The inspector should verify that, when deficiencies are identified, the RSO has sufficient authority, without prior management approval, to implement corrective actions, including termination of operations that pose a threat to health and safety.

2. Audits - 10 CFR 34.43(e) requires that the licensee have a program for a semi-annual (every 6 months) inspection of the job performance of each radiographer and radiographer's assistant to ensure that the Commission's regulations, license requirements, and the licensee's operating and emergency procedures are followed. Note that audits are not required when a licensee consists of a single individual [see 10 CFR 34.43(e)(4)]. The inspector should examine audit records with particular attention to deficiencies identified by the auditors, and note any corrective actions taken as a result of deficiencies found. In addition to reviewing the records of these audits, the inspector should interview radiographers and their assistants to determine if they received audit feedback on their performance and corrective actions (if appropriate).

   Also note that radiography licensees are required by 10 CFR 20.1101(c) to review the radiation safety program content and implementation at least annually. The results of annual review must be documented. The inspector should examine these records with particular attention to deficiencies identified by the reviewers, and note any corrective actions taken as a result of deficiencies found. If no corrective actions were taken, the inspector should determine why the licensee disregarded deficiencies identified during audits, and whether the lack of corrective actions caused the licensee to be in non-compliance with regulatory requirements.

d. ALARA

1. The licensee should, in addition to complying with regulatory requirements and license conditions, make reasonable efforts to maintain radiation exposures ALARA. This can be accomplished by the implementation of good radiation planning and practices, and by the commitment, from management and workers, to policies that prevent departure from ALARA practices. Also, licensees are required to keep occupational doses and doses to members of the public ALARA, in accordance with 10 CFR 20.1101(b).

2. The inspector should review ALARA practices, and verify implementation of any ALARA commitments in licensing documents,
by reviewing:

(a) A written commitment by high-level management to minimize worker exposure by the implementation of clearly defined procedures and policies.

(b) That licensee personnel are made aware of management's commitment to keep occupational exposures ALARA.

(c) That the radiation safety staff have been given authority to assure ALARA procedures and policies are carried out.

(d) That workers are adequately trained, not only in the radiation safety procedures, but also in ALARA philosophy.

(e) That management and its designees perform periodic audits to find out how exposures might be lowered.

(f) That modifications to procedures, equipment, and facilities have been made to reduce exposures at reasonable costs, where possible.

(g) That the licensee has QA and quality control programs, where applicable.

(h) That the licensee has a preventive maintenance program that is functioning and effective.

03.05 Walk-Through Orientation Tour

a. The inspector should make initial observations of licensed activities to determine that materials are being safely handled and that good health physics practices are followed. The inspector should look at areas of use within the permanent facility (if applicable); a temporary job site (if conducting a "field" inspection); and storage area, to make an initial assessment of the licensee's ALARA practices with regard to facility design, engineering controls, posting, house-keeping practices, etc. Ensure that observations of activities are documented in the inspection record.

b. During the walk-through tour, the inspector should observe equipment, facilities, work in progress, posting of areas, restricting of areas, surveys, and security of devices and materials. To the extent possible, the inspector should verify by direct observation that work is performed only by authorized personnel and that workers are appropriately supervised in their work.

03.06 Facilities. Descriptions of the facilities are generally found in the application for a license and subsequent amendments that are usually documented in a license condition (tie-down condition). The actual or as-built facility should be configured to provide safe working areas separated from unrestricted areas and sufficient access controls to preclude unauthorized entry. The inspector should verify that each permanent radiographic facility

| is equipped with appropriate entrance controls or visible-audible
| radiation signals which are tested each day before use or monthly,
| as appropriate. The inspector should observe staff test the
| entrance controls and/or radiation warning signals, to confirm
| operability during the inspection. The inspector should verify that
the radiation levels in all directions around the facility,
| including the roof (if accessible) do not exceed 0.02 mSv (2 mrem)
in any 1 hour. This evaluation should consider the maximum
allowable source quantity and any other limitations on positioning
| within the facility. The inspector should verify that the
radiography exposure devices and source changers are locked when in
storage and that the storage area is adequately secured.

| If possible, the inspector should perform a "field inspection" at
a temporary job site of the licensee. This inspection should be
| unannounced. During the field inspection, the inspector should
| verify that the boundaries of the restricted area are controlled
and posted; the radiation levels at the boundary of the restricted
| area do not exceed 0.02 mSv (2 mrem) in any 1 hour; on and after
June 27, 1998, the operations are conducted by <u>at least two</u>
qualified individuals; and the radiography personnel maintain
continuous surveillance of the restricted area. Manual
Chapter 1220 should be consulted for
reciprocity issues.

The inspector should also be aware of 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 is to be potential non-radiological hazards
| (e.g., occupational safety concerns) personally observed or brought
| to the inspector’s attention by licensee staff.

| 03.07 <u>Equipment and Instrumentation</u>

| a. The inspector should confirm that all sealed sources (source
| assemblies), radiography devices (cameras), and source
| changers used by the licensee (unless specifically exempted)
| meet 10 CFR 34.20 requirements. The inspector should
| verbally confirm that licensees are aware that associated
| equipment needs to comply with 10 CFR 34.20. However, the
| inspector should not attempt to confirm that associated
| equipment used by the licensee complies with 10 CFR 34.20,
| except when an incident or event results from equipment
| failure; the use of an associated equipment component would
| create an apparent public health and safety threat; a
| component is being used with a non-compatible system; or it
| is clearly obvious to the inspector that an associated
| equipment component does not comply [e.g., use of a
| non-typical drive system or guide tube [a garden hose] or an
| end stop taped to a guide tube].
|
| The physical examination of a representative sample of drive
| cable assemblies should be sufficiently thorough to detect
| any of the conditions described in Appendix O, “Daily
| Maintenance Check of Radiographic Equipment,” NUREG-1556,
| Vol. 2, “Consolidated Guidance About Materials Licenses:
| Program-Specific Guidance About Industrial Radiography

Licenses" (August, 1998). These conditions include: excessive or uneven wearing, fraying, unraveling, nicks, kinks or bends, loss of flexibility (abnormal stiffness), excessive grit or dirt, and stretching. Should a damaged cable be found, the inspector should notify an appropriate licensee representative and then expand the scope of the examination. The inspector should monitor actions, if any, taken by the licensee in response to this discovery. Should the licensee elect to not take action, the inspector should consult with regional management.

The inspector should verify that the licensee has an inspection and maintenance program that complies with 10 CFR 34.31(a) and provides for the visual and operability checks of radiographic equipment, survey meters, transport containers, associated equipment, and source changers before use and quarterly to ensure that the equipment is in good working condition, that the sources are adequately shielded, and that required labeling is present. Survey meter operability must be performed before use on each day the equipment is to be used by using check sources or other appropriate means.

b. Equipment and instrumentation should be appropriate to the scope of the licensed program. The inspector should verify that survey instrumentation has the appropriate range of use, which can be found in 10 CFR 34.25. The inspector should verify that the survey instruments are calibrated at 6-month intervals. All survey instruments, pocket dosimeters, and alarming rate meters should have current calibrations. The technical adequacy of calibration procedures at facilities that perform their own calibrations should be examined. Survey instrument calibrations must be in conformity with the requirements of 10 CFR 34.25.

If the licensee is authorized to conduct the entire leak test sequence, the inspector should determine if the type of counting equipment is appropriate for the samples being analyzed and the sensitivity required. The inspector should determine if the laboratory instrumentation is calibrated for the appropriate geometries of the samples to be analyzed and is routinely checked for proper operation. The licensee should maintain calibration records, control charts, and maintenance and repair records, to demonstrate proper operation of laboratory instrumentation.

It is useful to have the licensee demonstrate its methods for checking instruments and dosimeters, and its leak test procedure, if applicable, in addition to the inspector verifying that these checks are being performed by the licensee.

c. The inspector should verify that the licensee has procedures for reporting defects and certain equipment failures in accordance with Part 21 and 10 CFR 34.101(a).

d. No inspection guidance.

e. No inspection guidance.

| 03.08 Materials. Determine compliance with license conditions relating to the authorized licensed material, in terms of the isotopes, forms, and quantities. Determine, and evaluate the adequacy of, the method used by the licensee to demonstrate compliance with license limits.

| a. Receipt and Transfer of Licensed Materials. Examine the licensee's written procedures for package receipt, as required by 10 CFR 20.1906(e), and confirm that the procedures are adequate for safety and are followed. Through discussions with licensee personnel, determine how the licensee ensures that transfers are made to authorized recipients.

The procedures for picking up, receiving, and opening packages should include how and when packages will be picked up, radiation surveys performed, and, if necessary, wipe tests of packages to be done on receipt, and procedures for opening packages (such as the location in the facility where packages are received, surveyed, and opened). Verify security and compliance with 10 CFR 20.1801. The procedures also should include what actions are to be taken if surveys reveal packages that are contaminated in excess of specified limits, and/or radiation levels that are higher than expected. If packages arrive during the course of an inspection, the inspector should, when practical, observe personnel performing the package receipt surveys. The inspector should randomly examine records of package surveys.

Radiography licensees are required by 10 CFR 34.29(a) to conduct a quarterly physical inventory to account for all licensed material received and possessed under the license. Inventory records are to be maintained in accordance with 10 CFR 34.69. Ensure that the inventory includes all radiographic exposure devices and storage containers containing depleted uranium and calibrators used for calibrating survey instruments. Verify that the inventory is complete during observations of the licensee's work and storage areas.

The inspector should determine if the inventory of licensed material is within the license limit. In this regard, records of inventories after receipt and transfer should indicate/demonstrate that the materials on hand at any one time are within the licensee's possession limit.

b. Authorized Uses. Authorized uses of byproduct material will be found in the license and license application. Conduct of radiographic operations on lay-barges, on platforms, and underwater must be specifically approved in the license. Licenses will list the isotopes, physical or chemical forms, and the maximum possession limits. The license may also identify the specific model and manufacturer of sealed sources authorized. Physically examine the inventory of byproduct material on hand or examine records of receipt and

transfer to determine that quantities and forms are as authorized. Verify that sealed sources, and radiographic exposure devices used by the licensee meet the requirements of 10 CFR 34.20 and are in accordance with sealed source and device registrations sheets issued by NRC or an Agreement State.

Section 34.20 provides that equipment used in industrial radiographic operations meet certain minimum criteria. These criteria include meeting the requirements specified in American National Standards Institute N432-1980, labeling sealed sources and devices, additional safety features for "crank-out" radiography devices, performance requirements for associated equipment, and source securing systems on source changers. Section 34.20(d) specifies that all radiographic exposure devices and associated equipment in use after January 10, 1996, must comply with the requirements of that section. Associated equipment has been identified as the source drive systems (cables, cranks, control tubes), guide tubes, exposure heads, source stops, and collimators. Review RADXREF, the Sealed Source and Device Registry, or contact the manufacturer if compliance questions arise concerning equipment compliance with 10 CFR 34.20 requirements.

c. Material Security and Control. Examine areas where radioactive materials are stored. Storage areas should be locked and have limited and controlled access. Radiographic exposure devices and storage containers must be physically secured to prevent tampering or removal by unauthorized personnel and stored in a manner to minimize danger from fire and explosions. The devices must be locked and the keys removed when not in use. Transport packages (including overpacks) containing licensed material must be locked and physically secure in the transport vehicle.

Observe radiographic operations at a field site. If possible, make some of the observations of the licensee's operations before announcing your presence. Licensed material used at temporary job sites areas should be under constant surveillance and physically secured. Verify that radiographic personnel have current procedures for controlling access and observe if personnel implement them effectively. The inspector should test access into the restricted area to elicit a response from the licensee, to verify adequate surveillance and access restrictions. At job sites where other workers are present, interview them to determine their understanding of the licensee's access control. Although these workers may not have or need any knowledge of the licensee's operations, if they were informed of the licensee's operations, this would be an indication of the licensee's good safety practices.

Radiographic equipment can only be used by a radiographer or in the physical presence of the radiographer (i.e., the radiographer must have visual surveillance) if used by a radiographer's assistant. During the performance of

radiographic operations after June 26 1998, the licensee is required to have at least two radiographic personnel present (one of the individuals must be a radiographer). The inspector should verify that the high radiation area is under constant surveillance, as required by 10 CFR 34.51.

Review the licensee's utilization logs to determine if they contain all information specified in 10 CFR 34.71. Compare information recorded on the utilization log with other licensee records to verify their completeness.

d. Incidents and Unusual Occurrences. Review and evaluate any incident or unusual occurrence that took place since the last inspection. Verify if incidents were required to be reported, and, if so, that proper reporting procedures were followed. For incidents or unusual occurrences not required to be reported, determine that the licensee performed sufficient investigation to identify the cause of the incident, and took appropriate corrections to prevent recurrence of the situation leading to the incident or unusual occurrence.

03.09 Training

a. General Training. Certain requirements for training and instruction are found in the regulations; how they are implemented will be found in the license application and related program implementation. 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).

Verify, pursuant to 10 CFR 19.12, that initial 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). As part of the basic instructions, it is management's responsibility to inform the workers of the storage, transfer, and use of radiation and radioactive material; health protection problems associated with exposure to radiation and/or radioactive material; precautions or procedures to minimize exposure; and the purposes and functions of protective devices employed. 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. Verify that authorized users and workers understand the mechanism for raising safety concerns and the proper response to warnings made in the event of any unusual occurrence or malfunction that may involve exposure to radiation and radioactive material.

The quality of the training received by the RSO, radiographers, and radiographers' assistants is of utmost importance. Interview the RSO and one or more radiographers or radiographers’ assistants, to determine that they have received the required training, both in the basic

instructions and those specified in the license application. Determine that instructors are qualified. Instructors who provide classroom training to individuals in the principles of radiation and radiation safety should have knowledge and understanding of the principles beyond those obtainable in a course similar to the one given to prospective radiographers. Individuals who provide instruction in the hands-on use of radiography equipment should be qualified radiographers with at least 1 year of experience in performing radiography or possess a thorough understanding of the operation of radiographic equipment (e.g., manufacturers' service representatives).

Randomly examine records of training of personnel and attendant examinations or tests (if applicable) to verify that the training program is being implemented as required. Randomly examine certification records to verify radiographer certification. 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.

Observe related activities (i.e., transportation of licensed materials, surveys and equipment checks, and maintenance activities) and interview personnel to assure that appropriate training was actually received by these individuals. Note that if a radiographer or radiographer's assistant has not participated in an industrial radiographic operation for more than 6 months, the radiographer must demonstrate knowledge of training requirements of 10 CFR 34.43.(b)(3) and the radiographer's assistant must demonstrate knowledge of the training requirements of 10 CFR 34.43(c)(2), by a practical examination, before these individuals can participate in a radiographic operation. Radiographers should understand they must directly supervise radiographic operations and radiographers' assistants should be aware they can operate radiographic equipment only under the direct supervision of radiographers. The licensee's radiation safety training may include, but is not limited to, demonstrations by cognizant facility personnel, formal lectures, testing, films, and "dry runs" for more complex or hazardous operations.

Note that, at a minimum, the licensee is required to perform refresher training, pursuant to 10 CFR 34.43(d), for radiographers and radiographers' assistants, at least every 12 months.

b. Operating and Emergency Procedures. O&EPs will be found in license applications and may vary from step-by-step procedures to more generalized procedures. The O&EPs will be approved by NRC and reviewed and updated by the licensee. Revisions to the written O&EPs, submitted with the license application pursuant to 10 CFR 34.13(d), may require an amendment to the license.

Review and evaluate a sample of operating and emergency procedures required by the license. Select a sample of operating areas and verify that pertinent procedures are available to personnel and in use in those selected areas. If no operations are being performed, ask workers to describe their work to determine compliance with approved written procedures.

Review and evaluate the adequacy of any changes in the operating and emergency procedures made since the last inspection, or since license issuance, if performing an initial inspection. The inspector should assure, through spot checks, that revisions and changes to procedures have been properly implemented.

Through interviews with licensee staff, the inspector should verify that personnel have an adequate understanding of the procedures for conduct of radiography and the steps to be followed if a source fails to retract, a ratemeter alarms, a dosimeter is off scale, a piece of equipment that is important to safety fails, a source is lost, or licensed materials have caused contamination. The inspector should establish that the licensee has adequate training, procedures, and equipment in place if it intends to conduct source retrieval operations, including provisions for planned special exposures.

c. No inspection guidance.

d. No inspection guidance.

e. No inspection guidance.

03.10 Area Radiation and Contamination Control

a. Area Surveys. The inspector should verify that radiation levels at the boundary of the restricted area do not exceed 0.02 mSv (2 mrem) in any one hour. This will require the inspector to determine the instantaneous exposure rate and the number of radiographic exposures performed by the licensee. The inspector may ask the licensee to spot-check radiation levels in selected areas, using the licensee's own instrumentation. However, use NRC's instruments for independent verification of the licensee's measurements. [The inspector's instruments shall be calibrated (within the last 6 months)(”in calibration”), and should be checked with a radiation source (”source checked”) for proper operation, before leaving the regional office.] Ensure that the licensee's survey meters are operational and have been calibrated within the last 6 months.

The inspector should verify that the radiographer or radiographer's assistant performs a survey of the exposure device and guide tube after each exposure of the source. The survey must be sufficient to confirm that the source has returned to its shielded position. Review the licensee's procedures, to become familiar with the licensee's survey

technique. If practical, observe how licensees conduct surveys, to determine the adequacy of surveys.

The inspector should review the licensee's survey records to determine that surveys were made during operations at temporary job sites. The licensee is also required to perform a survey and record the results in accordance with 10 CFR 34.85, whenever a source is exchanged and whenever an exposure device is placed in storage.

b. Leak Tests. Through discussions with licensee personnel, demonstration of leak test procedures, and review of records, verify that leak tests are performed in accordance with license commitments and 10 CFR 34.27. Verify that the wipe of a sealed source is taken from the nearest accessible surface to the sealed source where contamination might accumulate, at intervals not to exceed 6 months. Determine that devices containing depleted uranium are leak tested annually, to verify the integrity of the "s" tube.

Determine if the licensee's leak test analyses have sufficient sensitivity to measure 183 Becquerels (0.005 microcurie) for each type of isotope present on its license. During discussions with licensee's personnel and review of records, determine if the licensee had a leaking source or indication that the integrity of any "s" tubes was compromised. If the licensee had a leaking source or compromised "s" tube, then verify that the licensee took appropriate corrective action and made the appropriate reports or evaluation.

03.11 Radiation Protection

a-c Specific guidance is set forth in IP 83822, "Radiation Protection."

d. Personnel Dosimeters. 10 CFR 19.13(b) requires that each licensee shall advise, annually, each worker who requires monitoring, of that worker's annual dose as shown in dose records maintained by the licensee. Verify that this has been done by asking workers and management if the written report requiring this information has been provided to each of them within the last year, as required by 10 CFR 19.13(a). The report must include external doses from routine operations, planned special exposures, accidents, and emergencies. The report to the individual must contain all of the information required in 10 CFR 19.13(a).

In verifying that, pursuant to 10 CFR 20.2206(b), the licensee submits annual reports of individual monitoring, note that the required reports are to be submitted, on or before April 30 of each year, covering the previous year, to the REIRS Project Manager, Office of Nuclear Regulatory Research.

03.12 Waste Management

a. Waste storage and disposal. Verify that waste (usually sources decayed to levels unsuitable for radiography, awaiting return to the vendor) is protected from fire and the elements; that package integrity is adequately maintained (locked source changers and storage vaults); and that adequate controls are in place to minimize the risk from other hazardous materials. Verify that the licensee has appropriate methods to track the items in storage. Verify that leak tests were performed within the appropriate period or before the sources were removed from storage, and the analyses were received before use, transfer, or shipment. Verify that written procedures have been developed, approved by management, and are available to any persons having responsibility for the storage and transfer of sources and devices.

For further guidance, refer to IP 84850, "Radioactive Waste Management - Inspection of Waste Generator Requirements of 10 CFR Part 20, Subpart K and 10 CFR Part 61."

b. Transfer. Ascertain if the licensee has an adequate method of determining that recipients of radioactive materials are licensed to receive licensed material.

c. Records. Review the records of waste storage, transfer, and disposal to verify that disposals are made in accordance with the requirements of Part 20, 10 CFR 30.51, and 10 CFR 34.63, and that records are complete and accurate for each type of disposal. As a general rule, the records should be sufficient to determine at some future time the types, quantities, and locations of disposal of licensed material.

d. Financial Assurance and Decommissioning. The decommissioning recordkeeping requirements specified in 10 CFR 30.35(g) are applicable to all materials licensees, including licensees with only sealed sources. Financial assurance is required if the quantity of cobalt-60 exceeds 370 Terabecquerels (10,000 curies). For further guidance, refer to 10 CFR 30.35.

These records should contain, among other information: (1) records of spills or other unusual occurrences involving the spread of contamination in and around the facility, equipment, or site (when contamination remains after cleanup, or when contaminants may have spread to inaccessible areas such as seepage into concrete); (2) as-built drawings and modifications of structures and equipment in restricted areas where radioactive materials are used and/or stored, and locations of possible inaccessible contamination; (3) except for areas with only non-leaking sealed sources or byproduct materials with half-lives of less than 65 days, a single document detailing restricted areas and formerly restricted areas that, if the license expired, would have to be decontaminated or approved for disposal; and, if required, (4) records of the cost estimate performed for a decommissioning funding plan or the amount certified for decommissioning. This list is not all-inclusive of the information and requirements given in 10 CFR 30.35(g). Ensure that the licensee has such decommissioning records, that the

records are complete, that they are updated as required, and that the decommissioning records are assembled or referenced in an identified location.

Some licensees may release rooms within a building for unrestricted use, without a license amendment. The release of these areas may fall outside of the reporting requirements in the Decommissioning Timeliness Rule if the licensee continues to conduct other activities in the same building. Inspectors should identify any rooms that have been released since the last inspection and perform confirmatory measurements to verify that radiation and contamination levels are below release limits. Licensee survey records and other documentation should be reviewed to verify that the basis for releasing each room is adequately documented in the licensee's decommissioning records.

Licensees submit financial assurance instruments and/or decommissioning plans for a specific set of conditions. Occasionally, those conditions may change over time and the licensee may not notify NRC. The inspector should be aware of changes in radiological conditions, while inspecting a licensee's facility, that would necessitate a change in the financial assurance instrument and/or decommissioning plan, especially where the radiological conditions deteriorate and the financial assurance instrument or decommissioning plan may no longer be sufficient. In preparation for the inspection, the inspector should determine the dates that the financial assurance instrument and decommissioning plan (if applicable) were submitted to NRC. Then during the inspection, through observations, discussions with licensee personnel, and records review, the inspector should determine whether the radiological conditions at the licensee's facility have changed since the documents were submitted to NRC. If conditions have changed and the adequacy of the financial assurance instrument and/or decommissioning plan is in doubt, the inspector should immediately contact regional management from the licensee's site to discuss the situation.

Additionally, some licensees are required to maintain decommissioning cost estimates and funding methods on file. If the licensee uses a parent company guarantee or a self-guarantee as a funding method, verify that the licensee has a Certified Public Accountant certify each year that the licensee passes a financial test. The financial test ratios for parent company guarantees and self-guarantees are specified in 10 CFR Part 30, Section II, Appendices A and C, respectively.

e. Decommissioning Timeliness. Determine whether the license to conduct a principal activity has expired or been revoked. If the license remains in effect, determine if the licensee has made a decision to cease principal activities at the site or in any separate building or outdoor area. Determine if there has been a 24-month duration in which no principal activities have been conducted in such areas. A principal activity is one that is essential to the purpose for which a license was issued or amended, and does not include storage incidental to decontamination or decommissioning. If the licensee meets any of the above conditions, the

decommissioning timeliness requirements apply, and the inspector must complete the "Decommissioning Timeliness Inspection Record," Attachment A to Appendix A.

Note that licensees are not required to notify NRC when a decision is made to permanently cease principal activities in any separate building or outdoor area or when no principal activities have been conducted for a period of 24 months in any separate building or outdoor area unless the separate building or outdoor area contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with NRC requirements. Refer to NRC Enforcement Manual, NUREG/BR-0195, Rev 2, Section 8.6.12, "Guidance for Dispositioning Violations of the Timeliness in Decommissioning of Material Facilities Rule."

The requirements of 10 CFR 30.36 and 10 CFR 40.42 do not apply to released rooms within a building where principal activities are still on-going in other parts of the same building. However, in those cases, follow the guidance in Section 03.12.d of this IP, regarding confirmatory measurements of the released area. Once principal activities have ceased in the entire building, then the decommissioning timeliness requirements will take effect.

The Decommissioning Timeliness Rule became effective on August 15, 1994. In completing the Attachment A record, specific guidance is needed regarding the timing of the notification requirements. If the license has expired or been revoked, or if the licensee has made a decision to permanently cease principal activities, and the licensee provided NRC notification before August 15, 1994, then August 15, 1994, is considered to be the date for initiating the decommissioning calendar (i.e., date of notification). If there has been a 24-month duration in which no principal activities have been conducted at the location before the effective date of the rule, but the licensee did not notify NRC, then the 24-month time period of inactivity is considered to be initiated on August 15, 1994, and the licensee must provide notification to NRC within either 30 or 60 days of August 15, 1996 (depending on whether the licensee requests a delay).

NRC has a stringent enforcement policy with respect to violations of the decommissioning timeliness requirements. Failure to comply with the Decommissioning Timeliness Rule (failures to: (a) notify NRC; (b) meet decommissioning standards; (c) complete decommissioning activities, in accordance with regulation or license condition; or (d) meet required decommissioning schedules without adequate justification) may be classified as a Severity Level III violation and may result in consideration of monetary civil penalties or other enforcement actions, as appropriate.

Decommissioning timeliness issues can be complex. For situations where an inspector has questions about the licensee's status and whether the decommissioning timeliness standards apply, he/she should immediately contact regional management.

For planning and conducting inspections of licensees undergoing decommissioning, refer to: IMC 2605, "Decommissioning Procedures

for Fuel Cycle and Materials Licensees"; the "NMSS Handbook for Decommissioning Fuel Cycle and Materials Licensees"; IMC 2602, "Decommissioning Inspection Program for Fuel Cycle Facilities and Materials Licensees"; and IP 87104, "Decommissioning Inspection Procedure for Materials Licensees."

03.13 Transportation. Review the licensee's hazardous material training; packages and associated documentation (including those described in Section 34.31(c)); vehicles (including placarding, cargo blocking, and bracing, etc.); shipping papers; and any incidents reported to DOT. This is an ideal area for the inspector to make observations of licensee practices.

For further guidance, refer to IP 86740, "Inspection of Transportation Activities."

Inspectors should also refer closely to "Hazard Communications for Class 7 (Radioactive) Materials"; and the NRC "Field Reference Charts" on hazard communications for transportation of radioactive materials, which contain references to the new (effective April 1, 1996) transportation requirements and are useful field references for determining compliance with the transportation rules on labeling, placarding, shipping paper, and package markings.

03.14 Posting and Labeling. The inspector should determine whether proper caution signs are being used at access points to areas containing licensed materials and radiation areas. Section 34.53 requires conspicuous posting of high radiation areas in accordance with 10 CFR 20.1902. The exemptions under 10 CFR 20.1903 do not apply to radiographic operations. When applicable, the inspector should also spot-check signals and alarms to determine operability. The inspector should also spot-check labeling on packages or other containers to determine that proper information (e.g., radionuclide, quantity, and date of measurement) is recorded.

Temporary job sites should be conspicuously posted as required by 10 CFR 20.1902. Depending on the associated hazard and licensing requirements, controls may include tape, rope, or structural barriers to prevent access into the restricted area. High radiation areas should be conspicuously posted in the vicinity of the radiographic exposure.

The inspector should also 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.

03.15 Generic Communications of Information. Through discussions with licensee management and the RSO, the inspector should verify that the licensee is receiving the applicable bulletins, information notices, NMSS Licensee Newsletter, etc., and that the information contained in these documents is disseminated to appropriate staff personnel. Also, the inspector should verify that the licensee has taken appropriate action in response to these NRC communications, when a response is required.

| 03.16 Notifications and Reports

| a. The inspector should determine the licensee's compliance regarding notifications and reports to the Commission. The licensee may be required to make notifications after loss or theft of material, overexposures, incidents, high radiation levels, safety-related equipment failure, etc. Additionally, industrial radiography licensees are required
| to make annual exposure data reports to NRC. Licensees are
| also required to notify individuals of their occupational
| doses, if monitored, or members of the public, if public dose
| limits are exceeded. The licensee should also have ready
| access to the NRC Operations Center telephone number.

| b. Through observations and discussions with licensee personnel,
| and by a review of representative records, the inspector
| should gather information concerning the events reported to
| NRC. The depth of on-site followup by the inspector should
| be proportional to the severity of the event. The guidance
| here is flexible, to the extent that the type of event may
| cause some of the guidance to be inapplicable. Follow-up
| involves on-site verification that could not be
| done during the regional in-office review, and is in addition
| to that review.

| c. Corrective Actions
|
| 1. Determine that the corrective action stated in the report
| is appropriate to correct the stated cause.
|
| 2. Verify that the corrective action stated in the report
| has been taken. Corrective action items of a long-term
| nature, such as a design change in associated mechanical
| equipment, should be tracked to completion. See Item 3,
| below.
|
| 3. For corrective actions not yet complete, verify that
| responsibility has been assigned for assuring completion.
| Formal reporting requirements should be established to
| assure that corrective actions are completed.
|
| 4. Determine whether the corrective action is adequate to
| prevent recurrence. Corrective action should generally
| include: action taken at the time of the event, to
| eliminate the cause or to mitigate consequences; action
| taken to correct the specific fault or failure; and
| action taken to reduce the probability of, or to prevent,
| recurrence. The inspector should request that any
| changes in the licensee's corrective action from that
| stated in the report should be documented in an updated
| report to NRC.

| 03.17 Special License Conditions. Some licenses will contain special license conditions that are unique to a particular practice, procedure, or piece of equipment used by the licensee
| (e.g., rigid guide tubes specially fabricated, or jigs made for
| specific duties). In these instances, the inspector should verify

that the licensee understands the additional requirements, and maintains compliance with the special license conditions. The inspector should also note that some special license conditions will state an exemption to a particular NRC requirement.

03.18 Independent and Confirmatory Measurements. The inspector should perform independent and confirmatory measurements in restricted and unrestricted areas of the licensee's facility (storage locations, permanent radiographic facilities, and temporary job sites). Independent measurements should be performed on all inspections, unless exceptional circumstances make it impossible to perform the measurements (e.g., inspector's detection equipment malfunctions during an inspection trip). Measurements of dose rates at the boundaries of the restricted areas should be performed at the surfaces of the most accessible planes. Measurements of dose rates at permanent radiographic facilities should be performed at 30 cm (12 in.) from the surface of the outer facility wall. Examples of measurements that may be performed include area radiation surveys, wipe samples, leak tests, etc. Confirmatory measurements are those whereby the inspector compares his/her measurements with those of the licensee's. Independent measurements are those performed by the inspector independently of the licensee's measurements. To perform the independent or confirmatory measurement, use NRC radiation detection equipment calibrated within the past 6 months.

03.19 Year-2000 Issues. Verifying that the licensee has reviewed its computer software and embedded systems to ensure that any potential year-2000 problems have been identified and corrected can be accomplished, in part, by covering the following points: (a) confirm that the licensee received Information Notice 96-70, "Year 2000 Effect on Computer System Software," and Information Notice 97-61, "U. S. Department of Health and Human Services Letter to Medical Device Manufacturers, on the Year 2000 Problem"; (b) inform the licensee of the NRC list server on the year-2000 problem, and encourage its use in sharing any identified problems and solutions; and (c) determine whether the licensee has identified any potential problems, and if so, taken corrective action. (Note that if information related to year-2000 licensee-identified problems and associated corrections is obtained during the inspection, the inspector is to convey it to the NMSS Year-2000 Coordinator.)

03.20 Exit Meeting. If safety concerns or violations of significant regulatory requirements that affect safe operation of a licensee's facility are identified, prompt corrective action must be initiated by the licensee. The inspector should not leave the site until the concern is fully understood by the licensee and corrective action has been initiated. If the inspector and the licensee disagree on the magnitude of the concern regarding safe operation of the facility, regional management should be notified immediately. If significant safety issues arise that could be handled by issuance of an Order or a Confirmatory Action Letter, the inspector should contact regional management.

When the inspection is over, there should be an exit meeting with the most senior licensee management representative present at the

facility. If a senior management representative is unavailable for the exit meeting, the inspector may hold a preliminary exit meeting with appropriate staff on site. However, there must be a formal exit meeting with a senior management representative (and the licensee's RSO, if not present at the preliminary exit meeting) as soon as practical after the inspection. This meeting will usually be held by telephone conference call.

During the exit meeting, the licensee representatives should be made aware of the preliminary inspection findings, including any negative PEFs, apparent violations of regulatory requirements, safety-related concerns, or unresolved items identified during the inspection -- and the status of any previously identified violations. Significant safety concerns must receive immediate attention from the licensee.

Although deficiencies identified in some areas (e.g., workers' knowledge of the Part 20 requirements) are not always violations, the inspector should bring such deficiencies to the attention of licensee management at the exit meeting and also in the cover letter transmitting the inspection report or Notice of Violation.

03.21 Post-Inspection Actions. Regional office policy will dictate with whom the inspector will review his/her inspection findings (e.g., the inspector's supervisor), following the guidance in IMC 2800, "Materials Inspection Program." The inspector should discuss the findings in detail commensurate with the scope of the licensee's program. Apparent violations, items of concern (e.g., negative PEFs), and unresolved items should be discussed in sufficient depth for management to make appropriate decisions regarding enforcement actions, referral to other State and Federal agencies, and decisions on the scheduling of future inspections of the licensee's facility.

If appropriate, the inspector should also discuss inspection findings with licensing staff. This information exchange can be particularly useful if the licensee is having its license renewed or has recently submitted a license amendment request. The inspector should inform licensing staff about how the licensee has addressed (or failed to address) special license amendments or recent licensing actions. Licensing information requested by the licensee should also be discussed with the licensing staff.

Inspectors should be aware that NRC has entered into several MOUs, with other Federal agencies, that outline agreements regarding items such as exchange of information and evidence in criminal proceedings. The inspector should ensure that the exchange of information relevant to inspection activities is made in accordance with the appropriate MOU.

The inspector may report the results of inspections to the licensee either by issuing an NRC Form 591 or a regional office letter to the licensee, following the guidance in IMC 2800. The inspector must also ensure that the findings are documented in the inspection record and/or inspection report, in sufficient detail for the reader to determine what requirement was violated, how it was violated, who violated the requirement, and when it was violated.

The inspection record should not be used as merely a checklist to note areas reviewed. It should be used to describe what procedures or activities were observed and/or demonstrated by the licensee during the inspection, and any items of concern identified that were not cited as a violation of regulatory requirements.

Inspectors may complete the inspection record either by hand or electronically. If the inspector is documenting the inspection record in electronic format, the sub-items under major sections that are not applicable or not reviewed may be deleted. However, the heading itself (e.g., "Radioactive Waste Management," or "Transportation") should remain in the inspection record, and the inspector should enter appropriate remarks about why the section is not applicable or
not reviewed.

For further inspection guidance, refer to Section 07.04 of IMC 2800.

87120-04 REFERENCES

A listing of IMCs and IPs applicable to the inspection program for materials licensees can be found in Section 2800-11 of IMC 2800. Inspectors are to use these documents as guidelines for inspectors in determining the inspection requirements for operational and radiological safety aspects of various types of licensee activities.

Specific references to regulatory requirements can be found in the "Industrial Radiography Inspection References" Appendix following this IP.

END

Appendices:
A. "Industrial Radiography Inspection Record"
B. "Industrial Radiography Inspection References"