INSPECTION PROCEDURE 83750

OCCUPATIONAL RADIATION EXPOSURE

PROGRAM APPLICABILITY: IMC 2561, Appendix A; and 2600, Appendix B

NOTE: IMC 2515, Appendix B and G, refer to this procedure as a supplemental procedure for use during transition from an operating power reactor to a decommissioning reactor facility.

83750-01 INSPECTION OBJECTIVES

To independently gather sufficient information to determine whether licensee performance meets the following objectives:

01.01 To ensure adequate protection of worker health and safety from exposure to radiation or radioactive material at permanently shutdown reactors.

01.02 To evaluate whether the licensee adequately identifies problems and implements appropriate and timely corrective actions related to occupational radiation safety.

83750-02 INSPECTION REQUIREMENTS

02.01 Audits and Appraisals

Review the results of audits and appraisals performed by or for the licensee since the last inspection. Review deficiency reports (also referred to as incident reports or off-normal occurrence reports) issued for the radiation protection program. Evaluate the adequacy of the licensee's corrective actions.

02.02 Changes

Review major changes since the last inspection in organization, personnel, facilities, radiation instrumentation, equipment, programs, and procedures that may affect occupational radiation protection.

02.03 Radiological Work Planning

a. Select 2-4 (depending on the scope of the licensee’s work plans) radiologically significant work activities to verify the integration of ALARA planning into the work procedures and/or radiation work permit (RWP) documents.

b. For the selected activities, verify that the licensee’s planning was commensurate with the risk of the work and identified appropriate dose reduction techniques, and defined reasonable dose goals.

c. Compare the results achieved with the intended dose established in the licensee's ALARA planning for the work activities.

d. Determine if post-job activity reviews identified and documented lessons learned for future work activities.

02.04 Implementation of ALARA and Radiological Work Controls

a. Select 2-4 (depending on the resource estimate from Section 04) radiologically significant decommissioning activities to verify the integration of radiological work controls and ALARA requirements into work procedures and/or RWP documents.

b. Observe the selected work activities to verify the licensee has effectively integrated the planned administrative, operational, and engineering controls into the actual field work to maintain occupational exposure ALARA.

c. Observe the selected work activities to verify the licensee is tracking doses, performing timely in-progress reviews, and appropriately communicates methods to reduce dose.

d. Verify ALARA staff are involved with work activities during each stage of decommissioning. Specifically, ALARA activities should involve evaluation and implementation of in-field dose reduction strategies and not limited to dose estimating activities.

e. Compare the radiological results achieved (e.g., individual radiological exposures, collective radiological exposures, personnel contamination events, radiological intakes/ uptakes, electronic dosimeter alarms) with the intended radiological outcomes.

f. Verify that the licensee captures lessons learned for ongoing and future decommissioning activities.

02.05 Radiation Worker Performance

a. Observe radiation worker and radiation protection technician performance during work activities being performed in radiation areas, airborne radioactivity areas, or high radiation areas to verify if workers implement ALARA techniques.

b. Observe radiation worker performance to determine whether the training and skill level is sufficient with respect to the radiological hazards and the work involved.

c. Interview individuals from selected work groups to assess their knowledge and awareness of planned and/or implemented radiological and ALARA work controls.

02.06 Training and Qualifications of Personnel

a. Review the applicable education, experience, qualifications and training of selected members of the licensee's (and its contractor's) radiation protection organization(s).

b. Review applicable radiation protection worker education, qualification, and training of selected members of other organizations (including contractor employees).

c. By direct questioning of representative workers, determine whether the general knowledge of these individuals in administrative controls, industrial safety, controlled access and security, emergency plans, and quality assurance is sufficient for their assigned tasks and whether their knowledge of radiological health and safety is consistent with 10 CFR 19.12. Determine whether workers have been instructed in the relevant provision of 10 CFR Part 20 (10 CFR 20.1001 – 10 CFR 20.2402) consistent with the requirements of 10 CFR 19.12.

02.07 External Exposure Dosimetry

a. National Voluntary Laboratory Accreditation Program (NVLAP).

Obtain the NVLAP certification documentation. Verify that the licensee's personnel dosimeters—that require processing—are processed by a NVLAP accredited processor and that the approved radiation test categories for each type of personnel dosimeter are consistent with the types and energies of radiation present and method of dosimeter use.

b. Passive Dosimeters (e.g. TLD, OSL)

1. Evaluate the onsite storage of dosimeters before their issuance, during use, and before processing/reading.

2. Evaluate whether personnel dosimeters stored at the plant during the monitoring period are stored in a low dose rate area alongside control dosimeters.

3. If the licensee does not require issued dosimetry to be stored on site during the monitoring period, verify that guidance is provided to radiation workers with respect to care and storage of dosimeters.

c. Active Dosimeters (Electronic Alarming Dosimeters)

1. Determine if and how bias has been determined to correct the response of the electronic alarming dosimeter (EAD) as compared to TLD/OSL and verify that the correction factor is based on sound technical principles.

2. Verify that correlations between EADs and passive dosimeter measurements are being performed, and that substantial discrepancies are investigated.

02.08 Internal Exposure Dosimetry

a. Routine Bioassay (in vivo)

1. Review procedures for assessing internal dose that address methods for determining if an individual is internally or externally contaminated; whether the contamination was ingested or inhaled; the release of contaminated individuals; and assignment of dose.
2. If whole body counting (WBC) is used to routinely verify, or quantify, the intakes of radionuclides, verify that the frequency of such measurements is consistent with the biological half-life of the potential nuclides available for intake.

3. If the licensee uses a method other than whole body counting for screening intakes, verify the minimum detectable activity (MDA) is adequate to determine the potential for internally deposited radionuclides sufficient to prompt additional investigation.

4. Select 3-5 whole body counts, and verify that the system used in each had sufficient counting time/low background to ensure appropriate sensitivity for the potential radionuclides of interest; that the appropriate nuclide library was used; and that any anomalous count peaks/nuclides indicated in each output spectra received appropriate disposition.

5. If the licensee relies solely on whole body counting for assessing internal dose, verify that hard-to-detect (HTD) radionuclides are accounted for in the dose assessment.

b. Special Bioassay (in vitro)

1. For licensees with a routine in vitro bioassay program, verify procedures used to assess dose from internally deposited radionuclides address collection and storage of samples; whether the contamination was ingested or inhaled; and assignment of dose.

2. As available, for 1-2 internal dose assessments obtained using in vitro monitoring, assess the adequacy of the dose assessments, beginning with sample collection through assignment of dose; assess the counting lab's QA program or, if a vendor lab is used, the licensee's audits of the lab.

c. Dose Assessments Based on Airborne Monitoring

1. Assess the adequacy of the licensee's program for dose assessments based on air sampling and derived air concentration (DAC)-hour monitoring.

2. Verify that flow rates and/or collection times for fixed head air samplers or lapel breathing zone air samplers are adequate to ensure that appropriate lower limits of detection (LLDs) are obtained.

3. Review the adequacy of procedural guidance used to assess dose when, if using respiratory protection, the licensee applies protection factors.

4. If available, for 1-2 dose assessments performed using air sampling and DAC-hr monitoring, verify that the licensee's DAC calculations are representative of the actual airborne radionuclide mixture, including HTD radionuclides, as appropriate.

d. Internal Dose Assessments

Assess the adequacy of the licensee's internal dose assessments for any actual internal exposure.

02.09 Planned Special Exposures.

Review each planned special exposure to determine whether it meets the regulatory requirements.

02.10 Special Dosimetric Situations

a. Declared Pregnant Workers

1. Verify that the licensees inform workers, as appropriate, of the risks of radiation exposure to the embryo/fetus, the regulatory aspects of declaring a pregnancy, and the specific process to be used for (voluntarily) declaring a pregnancy.

2. If available, review 1-2 workers who have de declared their pregnancy since the last inspection, review the exposure results and the monitoring controls employed by the licensee and verify the monitoring program to assess the dose to the embryo/fetus.

b. Dosimeter Placement and Assessment of Effective Dose Equivalent for External Exposures (EDEX).

1. Evaluate the licensee's methodology for monitoring external dose in situations in which non-uniform fields are expected or large dose gradients will exist.

2. Verify the licensee has established criteria for determining when alternate monitoring techniques are to be implemented.

3. For 1-2 dose assessments performed using multi-badging during the current assessment period verify that the assessment was performed consistently with licensee procedures and dosimetric standards.

c. Shallow Dose Equivalent (SDE)

As available, for 1-2 SDE dose assessments evaluate the licensee's method for calculating SDE from distributed skin contamination or discrete radioactive particles and verify that clear criteria were established for releasing personnel with imbedded radioactive particles.

d. Neutron Dose Assessment

1. As appropriate, evaluate the licensee's neutron dosimetry program, including dosimeter type(s) and/or survey instrumentation.

2. As available, select 1-2 neutron exposure situations and verify that (a) dosimetry and/or instrumentation is appropriate for the expected neutron spectra; (b) there is sufficient sensitivity for low dose and/or dose rate measurement; (c) neutron

dosimetry is properly calibrated; (d) interference by gamma radiation has been accounted for in the calibration; and (e) time and motion evaluations are representative of actual neutron exposure events, as applicable.

e. Dose of Record (DLR)

For the special dosimetric situations reviewed in this section, evaluate how the licensee assigns dose of record for total effective dose equivalent, SDE, and LDE.

02.11 Contamination of Radioactive Material Control

a. Observe locations where the licensee monitors potentially contaminated material leaving the RCA, and verify the methods used for control, survey, and release from these areas are sufficient to control the spread of contamination and prevent the unintended release of radioactive materials from the site.

b. Observe workers exiting the RCA and performing contamination monitoring. Verify that there is guidance and that workers are knowledgeable on how to respond to an alarm that indicates the presence of radioactive material.

c. Verify that radiation monitoring instrumentation has appropriate sensitivity for the type(s) of radiation present and that instrumentation is used at its typical sensitivity levels based on appropriate counting times and background radiation levels.

d. Select 2-3 sealed sources from the licensee's inventory records that present the greatest radiological risk. Verify that sources are accounted for and have been verified to be intact (i.e., they are not leaking their radioactive content).

e. Verify that any transactions since the last inspection involving nationally tracked sources were reported in accordance with 10 CFR 20.2207.

02.12 Source Term Characterization

a. Source Term

Verify the licensee has characterized the radiation types and energies being monitored.

b. Scaling Factors

Very scaling factors have been developed for use in scaling hard-to-detect radionuclide activity and alpha radionuclides for contamination control and in internal dose assessments.

02.13 Plant Areas Unusable as a Result of Operational Occurrences.

Identify plant areas that have become unusable as a result of operational occurrences and decommissioning activities, and licensee actions that have been taken to control such areas.

02.14 Problem Identification and Resolution

Utilize IP 40801 to evaluate the effectiveness of licensee controls in identifying, resolving, and preventing issues that degrade site safety or impact the quality of decommissioning activities, and to determine whether the corrective action program, audits, and assessments are conducted in accordance with the requirements of the NRC-approved quality assurance (QA) program and 10 CFR 50 Appendix B.

83750-03 INSPECTION GUIDANCE

NOTE: The following guidance includes references to publicly available documents in the NRC Agencywide Documents Access and Management System (ADAMS).

03.01 Audits and Appraisals

a. Review the results of radiation protection program audits and condition reports related to occupational radiation safety since the last inspection. The results of the audits and condition report reviews should be used to gain insights into overall licensee performance and focus the inspector's inspection activities on areas that are most likely to yield safety-significant results, consistent with the principle of "smart sampling."

b. Limit the review to a selected sample of reports since the last inspection. Look particularly for those audits that probe for programmatic weaknesses and assess the quality of the program. Focus upon licensee follow-up actions for identified issues. Review licensee deficiency reports regarding radiation protection program issues. Are negative performance trends identified and subsequent corrective actions timely and technically acceptable?

c. Requirements for reviews and audits normally are contained in the technical specifications. Audit teams should include someone with experience or training commensurate with the scope, complexity, or special nature of the activities audited. Periodic audits may be performed by third-party contractors. These reports may provide additional insights on program quality.

d. Subpart H of 10 CFR Part 20 requires each licensee to develop, document and implement a radiation protection program, and to review the program content and implementation at least yearly (10 CFR 20.1101)." Most licensees include radiation protection procedures in the scope of their QA audits and Performance Identification and Resolution programs as part of their QA program, as required by Appendix B to 10 CFR Part 50, in accordance with Regulatory Guide 1.33, "Quality Assurance Program Requirements." NUREG/CR-6204, "Questions and Answers Based on Revised 10 CFR Part 20," provides further guidance on annual program audits in Q&A #118, #134, and #380.

03.02 Changes

a. By observation and discussion with cognizant supervisory and management personnel, determine whether the changes have affected the licensee's program for control of radiation exposures. Determine what regulatory process was used to make the change. Review the licensee's procedures for conducting change in accordance with

the applicable regulatory requirement or license condition. Review a selection of changes and the associated basis provided to demonstrate compliance. Be sensitive to changes that result in a lessening of the ability of the radiation protection manager (RPM) to have direct recourse to the on-site plant/station manager in order to resolve questions related to the conduct of the radiation protection program. Additionally, be sensitive to any organizational change in the RPM position relative to its reporting chain and level in the organization. Document any such changes in the inspection report.

b. Verify the licensee informs workers of changes in radiological conditions that could significantly impact their occupational dose, consistent with 10 CFR Part 19. Are workers aware of and do they understand the changes, as evidenced by observation and discussion? Have there been changes to the plan that results in new radiological hazards for onsite workers or members of the public? If a new hazard has been identified, verify that consistent with 10 CFR 20.1501, the licensee has assessed the potential impact of these changes and has implemented periodic monitoring to detect and quantify the radiological hazard.

03.03 Radiological Work Planning.

a. Review a selected sample of records, discuss decommissioning planning with licensee representatives, and obtain from the licensee a list of work activities (e.g., radiation work permits) ranked by actual or estimated exposure rate that are in progress or were completed recently. Select 2-4 work activities of the highest exposure significance or that involve work in high dose rate areas. Emphasize work with the potential for high individual and/or collective exposures, such as work typically performed during major dismantlement and decontamination activities that require greater exposure or unusual work practices.

Examples of other areas that may be examined are special training; adequacy of licensee controls and monitoring of contractor work standards, equipment, and practices; review of special (non- routine, seldom used, or new) procedures and infrequent evolutions that have the potential for creating radiological hazards; and use of engineering controls, such as auxiliary ventilation systems to minimize the need to use respiratory protection equipment. See section C.2.d of Regulatory Guide 8.8, “Information Relevant To Ensuring That Occupational Radiation Exposures At Nuclear Power Stations Will Be As Low As Is Reasonable Achievable,” and IP 711124 Attachment 02, “Occupational ALARA Planning and Control.”

b. The licensee should have an appropriate basis for establishing goals and objectives. For activities selected in item 02.03.a, consider if the licensee has reasonably grouped decommissioning activities by radiological work activities. For plants planning their first significant decommissioning tasks (e.g., removal of plant systems with elevated radiation levels), determine the extent to which the decommissioning experience of other similar plants is being used in the planning process. For plants that have significant decommissioning experience, determine the extent to which experience from, and lessons learned during, decommissioning activities are being incorporated to improve performance.

Observe activities to verify necessary planning and preparations and management support for radiation protection planning. Determine whether planning and preparation for radiation work are adequate. The review of plans should focus on the means of

controlling airborne and surface contamination, the need for special equipment if required, and the control of high radiation areas.

ALARA work plans and dose reduction techniques should consider the overall benefit of the dose reduction method to collective dose. ALARA assessments should take into account decreased worker efficiency from use of respiratory protective devices and/or heat stress mitigation equipment (e.g., ice vests). A TEDE ALARA evaluation may be used to document the planning for dose reduction based on use (or non-use) of respiratory protection equipment.

Consider if the licensee's work planning considered the use of remote technologies (such as teledosimetry, remote visual monitoring and robotics) as a means to reduce dose and the use of dose reduction insights from industry decommissioning experience and last learned. Determine whether management support for, and cooperation with, radiation protection planning for radiation work are adequate.

c. The regulation in 10 CFR 20.2206(c) requires that, on or before April 30 of each year, licensees submit to the NRC an annual report containing the results of individual monitoring (when required by 10 CFR 20.1502) carried out by the licensee for the previous year's collective exposure.

Consider person-hour estimates provided by maintenance planning and other groups to the radiation protection group with the actual work activity time results, and the accuracy of these time estimates. Consider the reasons (e.g., failure to adequately plan the activity, failure to provide sufficient work controls) for any inconsistencies between intended and actual work activity doses.

For licensees with work activity dose that significantly exceeds projections, consider evaluating the following:

1. The interfaces between operations, radiation protection, maintenance, maintenance planning, scheduling and engineering groups for interface problems or missing program elements,

2. The shielding requests generated by the RP group with respect to dose rate reduction problem definition and assigning value (dose savings or dollars), engineering shielding responses for follow through, and

3. Whether work activity planning considers the benefits of dose rate reduction activities such as shielding provided by water-filled components/piping, job scheduling, and shielding and scaffolding installation and removal activities.

d. Licensees may use multiple means to track lessons learned (e.g., corrective action program, just in time training files, etc.).

03.04 Implementation of ALARA and Radiological Work Controls

a. 10 CFR 20.1101(b) requires licensees use, to the extent practical, procedures and engineering controls based on sound radiation protection principles to achieve occupational doses that are as low as is reasonably achievable (ALARA). Performance in this area is judged on whether the licensee has taken appropriate measures to track,

and if necessary, to reduce exposures and not on whether each individual exposure and dose represent an absolute minimum, or whether the licensee has used all possible methods to reduce exposures.

The radiologically significant activities selected for this review may be the same, or different, work activities than those selected in section 02.03, “Radiological Work Planning.”

Review the radiological administrative, operational, and engineering controls planned for the work activities and review the integration of radiological work controls and ALARA requirements into work packages, work procedures and/or RWP documents.

Risk-significant work activities take place in highly contaminated, high radiation, locked high radiation or very high radiation areas and should be inspected whenever possible. Also, work activities that involve hard-to-detect radionuclides, alpha contamination and/or respirable radiation hazards should be evaluated. Focus on work activities that present radiological risk to workers in terms of high collective doses, high individual doses, activities in or around spent fuel or highly activated material, or that involves potentially changing radiological conditions for detailed review.

b. Radiological administrative, engineering and operational controls include, but are not limited to procedures, RWPs, ALARA Plans, TEDE ALARA Evaluations, work orders, etc. Engineering controls include temporary and permanent (e.g., lead, tungsten, and water) shielding, system flushing, permanent and portable ventilation systems, glove bags, tents, etc. Operational controls include work sequencing, work scheduling, and other operational dose mitigation strategies such as consideration of the benefits of dose rate reduction activities provided by water filled components/piping, maintaining steam generators full when working on reactor coolant pumps, etc.

   Observe pre-job briefings and determine if the planned controls are discussed with workers.

   Evaluate the in-plant placement and use of shielding, contamination controls, airborne controls, RWP controls, and other engineering work controls against the licensee’s ALARA plans.

c. In-progress reviews are important to ensure the effectiveness of ALARA planning and implementation.

   Verify HP and ALARA staff are involved with the management of radiological work control if/when in-field activities deviate from the planned controls (e.g., RWP, ALARA plans, work order instructions, radiological hold points, and stop work criteria).

   Verify the licensee management provides sufficient support for ALARA re-planning as needed. The licensee’s organizational structure for ALARA responsibilities should have a clear delegation of authority and responsibility, including dedicated ALARA staff adequate to implement the program on a daily basis.

d. Emergent work activities create the need for prompt ALARA planning to achieve dose reductions, such as procedure review, work controls, shielding and worker pre-job ALARA briefings for dose intensive tasks.

When possible, attend in-progress review discussions, outage status meetings, and/or ALARA committee meetings.

e. A comparison of dose accrual with dose estimates is an indicator of ALARA performance. The evaluation of any significant exposure variations which may exist among workers and collective exposures may indicate worker job skill differences or whether certain workers are receiving higher doses because of poor ALARA work practices.

f. No guidance provided.

03.05 Radiation Worker Performance

a. Concentrate on work activities that present the greatest radiological risk to workers. (This review can be performed in concert with the inspection of exposure controls in this IP).

Radiation workers should be utilizing the low dose waiting areas to maintain their doses ALARA (e.g., moving to the low dose waiting area when subjected to temporary work delays).

b. Determine if workers demonstrate the ALARA philosophy in practice (e.g., workers are familiar with the work activity scope and tools to be used, workers use ALARA low-dose waiting areas) and follow procedures (e.g., workers are complying with work activity controls).

c. Work groups (e.g., craft personnel, supervisors, managers and radiation safety staff) should be aware of ALARA controls and should receive appropriate on-the-job supervision to ensure the ALARA requirements are met. First-line job supervisor should be ensuring the work activity is conducted in a dose efficient manner (e.g., work crew size minimized, workers properly trained, proper tools and equipment available at start of job).

03.06 Training and Qualifications of Personnel

a. 10 CFR 19.12 includes the requirement that "All individuals working in or frequenting any portion of a restricted area shall be instructed to observe, to the extent within the worker's control, the applicable provisions of Commission regulations and licenses for the protection of personnel from exposures to radiation or radioactive materials occurring in such areas."

The following general guidance concerns information on 10 CFR 50.120, “Training and Qualification of Nuclear Power Plant Personnel,” on inspections of training and is consistent with HPPOS #325, "New Training Rule for Nuclear Power Plant Personnel."

1. The only radiation protection personnel covered by 10 CFR 50.120 are "radiological protection technicians" (HPTs) who are employees of the power plant. No supervisory, managerial, or technical staff are covered. Contractor HPTs are not covered unless they occupy regular positions performing independently within the licensee's organization. See item b of this section for information on contractor HPTs.

2. 10 CFR 50.120 covers qualification only in the sense of job task qualification, not qualification based on pre-selection criteria. Furthermore, successful completion of a training program required by the rule does not obviate the need to comply with other training or qualification requirements imposed by other regulations and/or license conditions.

3. Inspect the training area for cause. When a performance deficiency could be related to a training program problem, examine the training area in sufficient depth to determine if and why inadequate training contributed to the performance problem.

Select individuals who have joined the radiation protection staff since the last inspection. Place emphasis on training provided to new employees required for the specific decommissioning tasks. Discuss training programs with plant management and the Radiation Protection Manager.

b. Determine the adequacy of the contractor HPT qualification program, including compliance with required education and experience criteria. Review the licensee's method to provide training of contractor personnel on safety significant changes in procedures and recent events. For a selected sample of contractor HPTs, review the actions taken by the licensee, in accordance with 10 CFR 50.120 to ensure these individuals are task qualified to perform their assigned activities. If short-term contractor HPTs are assigned to work independently, they must be qualified to perform their assigned tasks. See NISP RP-012, “Training and Qualification of Supplemental RP Technicians” (ADAMS Accession No. ML18253A074).

c. In discussions with HPTs, focus on ensuring adequate knowledge of radiological hazards, and focus on radiological work in high radiation areas and new decommissioning activities that differ from previous operations. By direct observation and discussion with workers, do they have the minimum training (10 CFR 19.12) required to work with radioactive material and have knowledge of the job activities and radiological conditions to provide adequate coverage?

03.07 External Dosimetry

a. National Voluntary Laboratory Accreditation Program (NVLAP).

Obtain the NVLAP certification documentation to verify the dosimeters are processed by a NVLAP accredited processor.

Verify that the approved irradiation test categories for each type of personnel dosimeter used are consistent with the types and energies of the radiation present, and the way that the dosimeter is being used. Relevant test categories are Categories I (accident photons), Category II (Photon mixture), Category III (betas), and Category IV (photon/beta mixtures), Category V.C (moderated Cf-252 neutrons and photons), and possibly Category V.A (neutron/photon mixtures) and possibly Category V.B (unmoderated Cf-252 neutrons and photons).
Note: The test categories for low energy photon exposure is not important for the radiation spectrum in nuclear power plants.

Additional guidance is provided in American National Standards Institute (ANSI) N13.11-2009, “Personnel Dosimetry Performance - Criteria for Testing,” and Information Notice 2014-05, “Verifying Appropriate Dosimetry Evaluation.”

b. Passive Dosimeters (e.g. TLD, OSL)

1. Storage of dosimeters prior to issuance and after the monitoring period (prior to processing) should be in a low dose rate area.

2. Dosimeters in use that are stored in racks on-site during non-wear periods should be in a low dose rate area with control dosimeters.

3. For issued dosimeters not stored on-site during the wear period, guidance should be provided to workers on acceptable storage conditions (e.g., to avoid hanging from rear view mirrors, excessive heat (cars/trucks), and storage on granite countertops).

c. Active Dosimeters (Electronic Alarming Dosimeters)

Note that if used for underwater diving, EADs may be subject to different (lower) energy levels due to scattering in the water medium. This may also impact dosimetry of record (e.g., TLDs).

1. A bias is normally established for EADs to adjust readings to account for a geometric bias and a conservative factor. These two correction factors are normally a geometry correction and a conservative factor (conservative with respect to TLD/OSL measurements).

   The geometry correction factor is typically a 5-10% positive bias to account for the fact that the EAD physical size and geometry is larger than the passive dosimeter. The EAD batteries and electronics provides some self-shielding, since the instrument response is directionally dependent (i.e., when the exposure angle is not perpendicular to the face of the EAD).

   The second factor is a conservative factor (~5%) commonly used to ensure the real-time dose tracking used for worker exposure control is conservative (i.e., the EAD measurements will be higher than the TLD/OSL dose measurements normally used for dose of legal record).

   These two factors of a conservative bias and a geometry bias may be better understood if field comparisons of RO-2 surveys, electronic dosimeter and TLD/OSL evaluations are performed.

2. Potential discrepancies may indicate that the assigned deep-dose equivalent was not measured for the part of the body receiving the highest exposure.

   The evaluations of discrepancies between active and passive dosimeters may identify the cause of differences in measured values, such as due to passive dosimeter handling, storage, or processing errors, or due to electronic dosimeter misuse or other causes. Justifiable differences can occur even for the same exposure conditions, even if the active and passive dosimeters were co-located

on the monitored individual. For example, the active dosimeter may have been calibrated with a positive bias to compensate for its inherent geometric under-response in field conditions (e.g., geometry factors such as its larger size and electrical components that can shield the internal detector). In addition, an additional positive bias may have been applied to the active dosimeter to ensure conservative exposure measurement for dose control purposes. Investigations may indicate that that one or both of the dosimeters were not used correctly, or were not working correctly, or that one or both of the dosimeters may have been subject to unexpected radiation exposure, or that the required dosimeter was not appropriately placed at the highest exposed part of the whole body.

03.08 Internal Exposure Dosimetry

a. Routine Bioassay (in vivo)

1. Methods of assessing internal dose are provided in Regulatory Guide 8.34. "Monitoring Criteria and Methods to Calculate Occupational Radiation Doses." Also see guidance in Regulatory Guide 8.9, "Acceptable Concepts, Models, Equations, and Assumptions for a Bioassay Program," and ANSI N13.30-1996, "Performance Criteria for Radiobioassay."

   A common method for determining the location of personnel contamination is identifying the contaminated area via a hand-held frisker and identifying the zone where beta contamination monitor alarms. Prompt whole body counts, as well as follow-up whole body counts can be used to determine if the residual contamination level follows the retention functions in NUREG/CR-4484 inhalation or ingestion models, and contamination removal from skin via showering and dead skin layer sluffing off.

2. Be especially mindful of instances following personnel entry into a high airborne radioactivity area or following the use of respiratory protection equipment.

3. Some licensees have procedures for the use of personnel contamination monitors in lieu of routine WBCs. Review licensee evaluations to determine if the passive monitoring can identify intakes exceeding the evaluation level defined in Regulatory Guide 8.9 of 2 percent of an ALI, or 100 mrem CEDE. This review should include any potential HTD contribution to CEDE as this will not be detected by passive monitoring.

4. WBC systems and gamma spectroscopy systems commonly have different radionuclide libraries for different exposure conditions and / or analytical needs. Selectively review the radionuclide libraries to verify that the licensee has analytical capabilities for fission products, natural occurring radioactive materials, and failed fuel conditions.

5. No inspection guidance.

b. Special Bioassay (in vitro)

1. In addition to the references cited above in section 03.03.a, Regulatory Guide 8.26, “Applications of Bioassay for Fission and Activation Products,” and Regulatory Guide 8.32, “Criteria for Establishing a Tritium Bioassay Program,” provide relevant guidance for in vitro monitoring programs.

   The licensee’s sample collection procedures should ensure the following:

   (a) Collection and preservation of samples in a manner such that the loss of activity on the walls of the container is minimal and sample contamination is prevented,

   (b) A sample of adequate size for each type of analysis requested, including adequate amounts to allow verification or additional analysis if needed,

   (c) Containers that are free of external and internal contamination,

   (d) Precautions to ensure the integrity of the container and prevent leakage from the container and/or cross-contamination of samples during the shipment and storage of samples, and

   (e) Accurate and unambiguous identification of samples. In addition, the licensee should specify the required LLDs and the reporting requirements, including standard error or confidence interval estimates, and alert the service laboratory of potentially “highly contaminated” samples, samples that may contain additives and/or preservatives, or samples that may contain extremely insoluble material.

2. Labs should participate in an analysis cross-check program and out-of-tolerance results should be evaluated and resolved appropriately.

c. Dose Assessments Based on Airborne Monitoring

   Note that requirements in this section may overlap requirements in IP 71124.01 and 71124.03. Avoid duplication of effort to the extent possible.

1. No inspection guidance.

2. No inspection guidance.

3. No inspection guidance.

4. No inspection guidance.

d. Limit these assessments to no more than two intake events with similar radionuclide mixes. Determine if the affected personnel were properly monitored with calibrated equipment, and if the data were analyzed and internal exposures properly assessed in accordance with licensee procedures.

03.09 Planned Special Exposures (PSEs)

a. As defined in 10 CFR 20.1003, a PSE "means an infrequent exposure to radiation, separate from and in addition to the annual dose limits." The relevant requirements for PSEs are in sections 20.1201(b), 20.1206, 20.2104(b), 20.2104(e)(2), 20.2105, 20.2106, 20.2202(e), and 20.2204.

b. Regulatory Guide 8.35, "Planned Special Exposure," provides guidance on the conditions and prerequisites for permitting PSEs.

c. NUREG/CR-6204, "Questions and Answers Based on Revised 10 CFR Part 20," (ML12166A179) provides further guidance on PSEs in Q&A #8, #24, #63, #112, #135. #136, and #137. For additional information, see the discussion of PSEs in the statement of considerations for the Part 20 (56 FR 23371-23372).

03.10 Special Dosimetric Situations

a. Declared Pregnant Workers

See the guidance in Regulatory Guide 8.36, "Radiation Dose to the Embryo/Fetus," Regulatory Guide 8.13, "Instruction Concerning Prenatal Radiation Exposure," and Regulatory Guide 8.34, "Monitoring Criteria and Methods to Calculate Occupational Radiation Doses.

b. Dosimeter Placement and Assessment of Effective Dose Equivalent for External Exposures (EDEX)

See the guidance on several NRC-approved methods for assessing EDEX contained in Regulatory Issue Summary (RIS) 2003-04, "Use of the Effective Dose Equivalent in Place of the Deep Dose Equivalent in Dose Assessments," dated February 13, 2003; RIS 2004-01, "Method for Estimating Effective Dose Equivalent from External Radiation Sources Using Two Dosimeters," dated February 17, 2004; RIS 2009-09, "Use of Multiple Dosimetry and Compartment Factors in Determining Effective Dose Equivalent From External Radiation Exposures," dated July 13, 2009; and Regulatory Guide 8.40, "Methods for Measuring Effective Dose Equivalent from External Exposure.", dated July 2010.

1. No inspection guidance.

2. No inspection guidance.

3. No inspection guidance.

c. Shallow Dose Equivalent (SDE)

SDE is the dose averaged over the 10 square centimeters of skin receiving the highest exposure. This should combine contributions from distributed skin contamination, gamma contributions from clothing contamination (if significant), as well as Discrete Radioactive Particles (DRPs), into one dosimetric quantity. If licensees are keeping track of DRP dose separately from SDE, then they are not meeting the intent of the

2002 rule change to SDE evaluation. See the Federal Register notice dated April 5, 2002 (67 FR 16304), for a more detailed discussion.

Consider if the licensee has established procedures for wound monitoring, and dose assessment from imbedded sources. Clear criteria should be established for releasing from the site personnel with imbedded radioactive particles.

d. Neutron Dose Assessment

Situations to consider include independent spent fuel storage installation operations or at-power containment entries.

See guidance on neutron dosimeters in ANSI N13.52-1999 (Reaffirmed August 2010), "Personnel Neutron Dosimeters (Neutron Energies Less Than 20 MeV)."

e. Dose of Record (DLR) - This evaluation should include assessment of external and internal monitoring results, supplementary information on individual exposures (e.g., radiation incident investigation reports and skin contamination reports), and radiation surveys and/or air monitoring results when dosimetry is based on these techniques.

See guidance in Regulatory Guide 8.7, "Instructions for Recording and Reporting Occupational Radiation Exposure Data" and ANSI N13.6-2010, "Practice for Occupational Radiation Exposure Records Systems."

03.11 Contamination and Radioactive Material Control Sample

a. 10 CFR Part 20 does not contain release limits for the release of contaminated material to unrestricted areas; thus, the licensee's criteria should be that no detectable licensed radioactive material (radioactive gaseous and liquid effluents excepted) is released for unrestricted use or as waste into an unrestricted area.

During plant tours, be aware of any openings in plant process buildings or structures (e.g., containment equipment hatches) that may provide a means for the inadvertent release of airborne radioactive material. The licensee's program should ensure that these openings maintain an inward airflow and are controlled to prevent inadvertent releases. If the airflow is outward verify that monitoring is being performed in accordance with Regulatory Guide 1.21, "Measuring, Evaluating, and Reporting Radioactive Material in Liquid and Gaseous Effluents and Solid Waste," as appropriate. Also, see IP 84750 and IP 71124.06 for additional guidance. When possible, observe health physics personnel surveying and releasing material for unrestricted use to ensure that the work is performed in accordance with plant procedures and the procedures are sufficient to control the spread of contamination and prevent the unintended release of radioactive materials from the site.

b. Review the licensee's criteria for the survey and release of personal items using small-article monitors (SAMs). Workers should be provided guidance on how to use the SAMs and they should be knowledgeable on how to respond to an alarm that indicates the presence of licensed radioactive material. If workers are permitted to self-frisk personal items, selectively consider observing one or two controls points to ensure that workers are complying with applicable guidance and training.

c. During plant walk-downs, consider background dose rates; they should not excessively interfere with the sensitivity of contamination monitoring equipment (e.g., friskers, personnel contamination monitors). Contamination monitoring equipment for free release of equipment and materials should be in a low background area. The licensee should not have established a de facto "release limit" by raising the instrument's detection sensitivity through such methods as raising the energy discriminator level or locating the instrument in a high-radiation background area.

Review the licensee's equipment to verify that the radiation detection sensitivities are consistent with the NRC guidance as follows:

1. IE Circular 81-07, "Control of Radioactively Contaminated Material,"

2. IN 85-92, "Surveys of Wastes Before Disposal from Nuclear Reactor Facilities," December 2, 1985, including surface contamination and final measurements of aggregated waste,

3. HPPOS #221 (NUREG/CR-5569, Rev. 1, "Health Physics Positions Data Base," May 1, 1992) for volumetrically contaminated material, and

4. HPPOS #250 for radionuclides that decay via electron capture.

d. Licensees are required under 20.1501(a)(2) to conduct surveys that are reasonable under the circumstances to evaluate the magnitude and extent of radiation levels; evaluate quantities of radioactivity; and evaluate potential radiological hazards.

Some plants have T.S. requirements to inventory and leak test sources greater than a certain activity (e.g., > 100 microcurie beta/gamma, and 5 microcurie alpha activity). Other plants may have moved this requirement to a licensee-controlled document. In cases where the specific requirements, as stated in a plant's license, are different than the applicable regulations, licensees are obligated to meet the specific requirements as stated in their license. Therefore, it is possible that a particular licensee would be obligated to leak test sources that are otherwise exempt from leak testing per NRC regulations because that licensee contains a provision in their T.S. that generically states that sources above a certain level require leak testing.

The focus of this specific inspection requirement is on sealed sources that present the greatest radiological risk in the event their leakage is not adequately monitored. Devices that only contain exempt concentrations (10 CFR 30.14) or exempt quantities (10 CFR 30.18); or certain devices that are exempt from NRC materials licensing requirements under 10 CFR 30.15, 10 CFR 30.19, 10 CFR 30.20 or 10 CFR 30.22; or devices that contain generally licensed byproduct materials that are exempt from leak testing as described in 10 CFR 31.5(c)(2)(i) or (ii) do not require leak testing per NRC regulations and do not fall within the scope of this inspection requirement. Performance deficiencies that result from licensees failing to leak test sources that require leak testing by a T.S. or a procedure, but are exempt per NRC regulations specifically listed in this paragraph should be dispositioned as minor violations.

Sealed sources in calibrators may contain levels of radioactivity that require additional security measures in accordance with 10 CFR Part 37. Most calibrators are located

inside the protected area where adequate security is maintained per the station's security plans. However, some licensees have irradiators/calibrators that are located outside the protected area. Control of these radioactive sources may need review. For additional information, see RIS 2015-15, "Information Regarding A Specific Exemption in the Requirements for the Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material."

High activity irradiators/calibrators are required to be registered in the NRC Sealed Source and Device Registry (SSDR). The SSDR lists which sources can be used in a particular device, the frequency for leak tests, the ANSI Category (ANSI CAT I is a self-shielded irradiator whereas a CAT II would fall under 10 CFR Part 36, "Licenses and Radiation Safety Requirements for Irradiators"), the conditions of normal use, and other information related to the use of the device.

Routine maintenance can be performed by licensee personnel, but non-routine maintenance must be performed by the device manufacturer (or distributor) or a person specifically authorized by NRC or an Agreement State. Source installations and source reloads/exchanges (e.g., non-routine maintenance) can result in overexposures if not done safely.

e. No guidance provided.

03.12 Source Term Characterization

a. Source Term

Licensees are required under 20.1501(a)(2) to conduct surveys that are reasonable under the circumstances to evaluate the magnitude and extent of radiation levels; evaluate quantities of radioactivity; and evaluate potential radiological hazards. During tours of the facility and during discussion with workers, evaluate aspects of surveys and monitoring

The licensee should have knowledge of the gamma (photon) spectrum, the beta spectrum and average beta energy of the beta spectrum, the hard-to-detect (HTD) component of beta/gamma activity, and the alpha transuranic component of the source term. In addition, verify that the neutron spectrum has been determined.

Knowledge of the types and energies of radiation being monitored are critical to the correct selection and use (calibration and/or dose assessment) of dosimeters. Additionally, the source term may have changed over the years as plants are in various stages of decommissioning. A review of the licensee's characterization of the current source term (radionuclide mixture) throughout the plant should include a plan that establishes specific survey points on components and for general areas to allow determination of the decrease or increase in levels of alpha, beta, and gamma emitting radionuclides.

Information Notice 2014-05, "Verifying Appropriate Dosimetry Evaluation," (ADAMS Accession No. ML14028A513) reminds licensees of their responsibility for ensuring that all applicable factors that may affect the accuracy of a dosimetry evaluation have been considered, including the proper characterization of the radiation fields that are to be monitored.

b. Scaling Factors

Review the licensee's 10 CFR Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste," analyses to determine appropriate scaling factors for HTD and alpha-emitting radionuclides.

03.13 Plant Areas Unusable as a Result of Operational Occurrences

Licensee actions to control areas that are unusable as a result of an operational occurrence should be included in the licensee's decommissioning records, as required by 10 CFR 50.75(g). If such an event occurs during decommissioning of the facility, the inspector must review and discuss the situation, and the licensee's proposed corrective actions, with both licensee management and regional office management.

Licensee actions must be in accordance with the requirement of 10 CFR 20.1101(b) that the "licensee shall use, to the extent practicable, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and doses to members of the public that are ALARA."

Assess whether sufficient radiological surveys were performed to evaluate the extent of the contamination and the radiological source term. Verify that a survey/evaluation has been performed to include consideration of hard-to-detect radionuclides. Note that the use of scaling factors can be used in bounding calculations. 10 CFR 50.75(g) files (or corrective action program files referencing 50.75(g) files) should contain a description of the leak or spill (isotopes and quantities), location and size of the impacted area, cross reference to survey results, and results of any remediation performed. If undetected leakage has occurred or is suspected and insufficient monitoring/remediation actions have been taken by the licensee, discuss this issue with your supervisor. If assistance in assessing the adequacy of the licensee's onsite/offsite monitoring activities is needed and/or site hydrologic characteristics are not clearly defined, the program office should be consulted.

03.14 Problem Identification and Resolution

In accordance with IP 40801, the inspector's evaluation of licensee or contractor's self-assessment, auditing, and corrective actions should reflect a balanced safety perspective. Appropriate recognition during the inspection should be provided regarding the conduct of activities performed above and beyond that required by regulations. Similarly, credit for licensee identified deficiencies, programmatic weaknesses, and violations, when coupled with effective and timely corrective actions, should be reviewed and addressed accordingly.

83750-04 RESOURCE ESTIMATE

For planning purposes, the initial completion of this IP is estimated to require, on average, approximately 75 hours of direct inspection on site, with subsequent annual inspections requiring 18-40 hours depending on the stage of decommissioning and level of activity at the site.

Note that for all decommissioning inspection activities, the frequency of performance, level of effort needed, and specific inspection requirements to be evaluated and verified vary based on the stage of decommissioning at the facility, the scope of licensee activities, and the overall decommissioning strategy chosen for the plant (i.e., SAFSTOR or DECON). IMC 2561 contains a discussion of the expected inspection frequency and resource estimates during each phase of decommissioning and should be used when planning resources to conduct this inspection.

83750-05 COMPLETION STATUS

Inspection findings, open items, follow-up items, and conclusions shall be documented in accordance with Inspection Manual Chapter 0610 and other relevant regional or headquarter instructions. Inspections resulting from allegations with be documented and dispositioned in accordance with Management Directive 8.8.

83750-06 REFERENCES

American National Standards Institute (ANSI)/American Nuclear Society (ANS) 3.1-1993, "Selection, Qualification and Training of Personnel for Nuclear Power Plants."

ANSI N13.1-1969 (R 1982), "Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities."

ANSI N323-1978, “Radiation Protection Instrumentation Test and Calibration.”

ANSI 323A-1997, “Radiation Protection Instrumentation, Test and Calibration, Portable Survey Instruments.”

ANSI N323D-2002, “American National Standard for Installed Radiation Protection Instrumentation.”

ANSI N42.14-1991, “Calibration and Use of Germanium Spectrometers for the Measurement of Gamma-Ray Emission Rates of Radionuclides.”

ANSI/ANS-HPSSC 6.8.1-1981, "Location and Design Criteria for Area Radiation Monitoring Systems for Light-Water-Nuclear Reactors.”

ANSI/ANS 8.3-1979, "Criticality Accident Alarm System."

ANSI/ASME N45.2.23-1978, "Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants.”"

Electric Power Research Institute; “Alpha Monitoring Guidelines for Operating Nuclear Power Stations” (ML14083A535).

INPO Report 82-001-EPN-01, "High Sensitivity Portal Monitors - A Review," January 1982.

INPO Good Practice 82-001-FDO-02, "Modular Contamination Enclosures," September 1982

INPO OEN-01, "Strippable Decontamination Coatings," November 1981.

INPO Good Practice 82-001-OEN-10, "Monitoring Personnel for Radioactive Contamination," September 1982.

IE Circular No. 79-21, "Prevention of Unplanned Releases of Radioactivity," October 19, 1979.

IE Bulletin 80-10; “Contamination of Nonradioactive System and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to the Environment,” May 2, 1980.

IE Circular No. 80-14, "Radioactive Contamination of Plant Demineralized Water System and Resultant Internal Contamination of Personnel," June 24, 1980.

IE Circular No. 81-07, “Control of Radioactively Contaminated Material,” May 8, 1981.

IE Information Notice No. 82-32, "Contamination of Reactor Coolant System by Organic Cleaning Solvents," August 19, 1982.

IE Information Notice No. 82-49, “Correction for Sample Conditions for Air and Gas Monitoring,” December 16, 1982.

IE Information Notice No. 83-05, "Obtaining Approval for Disposing of Very-Low-Level Radioactive Waste - 10 CFR 20.302," February 24, 1980.

IE Information Notice No. 83-33, “Nonrepresentative Sampling of Contaminated Oil,” May 26, 1983.

IE Information Notice 85-92 “Surveys of Wastes Before Disposal from Nuclear Reactor Facilities,” December 2, 1985.

IE Information Notice 86-90; Request to Dispose of Very Low-Level Radioactive Waste Pursuant to 10 CFR 20.302,” November 3, 1986.

Inspection Manual Chapter (IMC) 0306, “Planning, Scheduling, Tracking and Reporting of the Reactor Oversight Process (ROP).”

Inspection Procedure (IP) 711124 Attachment 02, “Occupational ALARA Planning and Control.”

IP 83726, “Control or Radioactive Materials and Contamination Surveys and Monitoring.”

Nuclear Energy Institute (NEI) NEI 99-02, “Regulatory Assessment Performance Indicator Guideline” (ML13261A116)

NUREG-0737, “Clarification of TMI Action Plan Requirements.”

NUREG-1220, Rev. 1, “Training Review Criteria and Procedures.”

NUREG-1736, “Consolidated Guidance: 10 CFR Part 20 — Standards for Protection Against Radiation.”

NUREG/CR 5569, Rev. 1, “Health Physics Positions Data Base.”

NUREG/CR-6204, “Questions and Answers Based on Revised 10 CFR Part 20.”

Regulatory Guide 1.8, “Qualification and Training of Personnel for Nuclear Power Plants.”

Regulatory Guide 1.21, “Measuring, Evaluating, and Reporting Radioactive Material in Liquid and Gaseous Effluents and Solid Waste

Regulatory Guide 1.33, “Quality Assurance Program Requirements (Operation).”

Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident."

Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors."

Regulatory Guide 1.146, “Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants.”

Regulatory Guide 8.7, “Instructions for Recording and Reporting Occupational Radiation Exposure Data.”

Regulatory Guide 8.8, “Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Stations Will Be as Low as Is Reasonably Achievable.”

Regulatory Guide 8.9, " Interpretation of Bioassay Measurements For Estimates of Intake.”

Regulatory Guide 8.12, "Criticality Accident Alarm Systems.”

Regulatory Guide 8.13, Revision 3, “Instruction Concerning Prenatal Radiation Exposure.”

Regulatory Guide 8.15, "Acceptable Programs for Respiratory Protection."

Regulatory Guide 8.26, “Applications of Bioassay for Fission Products and Activation Products.”

Regulatory Guide 8.27, “Radiation Protection Training for Personnel at Light Water-Cooled Nuclear Power Plants.”

Regulatory Guide 8.29, Revision 1, "Instruction Concerning Risks From Occupational Radiation Exposure.”

Regulatory Guide 8.32; “Criteria for Establishing a Tritium Bioassay Program.”

Regulatory Guide 8.34; “Monitoring Criteria and Methods to Calculate Occupational Radiation Doses.”

Regulatory Guide 8.35, “Planned Special Exposure.”

Regulatory Guide 8.36, “Radiation Dose to the Embryo/Fetus.”

Regulatory Guide 8.40, “Methods for Measuring Effective Dose Equivalent from External Exposure.”

Regulatory Issues Summary (RIS) 2003-04, “Use of the Effective Dose Equivalent in Place of the Deep Dose Equivalent in Dose Assessments.”

RIS 2004-01, “Method for Estimating Effective Dose Equivalent from External Radiation Using Two Dosimeters.”

RIS 2009-09, “Use of Multiple Dosimetry and Compartment Factors in Determining Effective Dose Equivalent From External Radiation Exposures.”

RIS 2015-15, “Information Regarding A Specific Exemption in the Requirements for the Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material.”

END

ATTACHMENT 1

Revision History for IP 83750

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 Numbers (Pre-Decisional, Non-Public Information)
N/A	9/30/1988 CN 88-014	Initial issuance for use in the Systematic Assessment of Licensee Performance (SALP) inspection program.	None Required	None
N/A	12/18/1989 CN 89-016	Revised to add guidance relating to licensee actions to control and recover areas that have become unusable as a result of an operational occurrence.	None Required	None
N/A	10/4/1990 CN 90-011	Revised to remove requirements and guidance relating to transportation to new IP 86750. Extensive changes were made to the requirements and guidance relating to ALARA and the guidance relating to training and qualifications. Inspection resource hours were reduced from 68 hours to 60 hours per year for a singe unit site to reflect the reduced scope of the procedure.	None Required	None
N/A	3/15/1994 CN 94-006	Revised to reflect the requirements of the new 10 CFR Part 20 and to add a new section addressing the effectiveness of licensee controls.	None Required	None

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 Numbers (Pre-Decisional, Non-Public Information)
N/A	6/6/2002 CN 02-023	Deleted IP 83750 from IMC 2800, "Materials Inspection Program." The requirements of this procedure for that program have been incorporated into the IP 87100-series of procedures.	None Required	None
N/A	ML19270D454 11/14/19 CN 19-036	The procedure is a complete re-write, and was updated to address recent revisions to IMC 2561, overall content and format changes, and to reflect additional lessons learned from ongoing decommissioning activities.	None Required	ML19270D452