NRC INSPECTION MANUAL

INSPECTION PROCEDURE 71121

OCCUPATIONAL RADIATION SAFETY

71121-01 INSPECTION OBJECTIVE

01.01 The objective of this procedure is to gather information to determine whether a licensee is meeting the objectives of this cornerstone which are to ensure adequate protection of worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation.

71121-02 INSPECTION REQUIREMENTS

02.01 Baseline inspection requirements are identified in each of the attached inspectable areas of:

Access Control to Radiologically Significant Areas (Attachment 01)
ALARA Planning and Controls (Attachment 02)
Radiation Monitoring Instrumentation (Attachment 03)
Radiation Worker Performance (included as part of other inspectable areas)
Problem Identification and Resolution (included as part of each inspectable area)

02.02 These requirements represent the minimum inspection activity to be conducted at each reactor site at the frequencies shown in each inspectable area.

02.03 The effectiveness of each licensee to identify and resolve problems in this cornerstone area will also be inspected biannualy using the baseline inspection program procedure for evaluating licensee Problem Identification and Resolution programs.

71121-03 INSPECTION GUIDANCE

03.01 The Performance Indicator in this cornerstone either directly measures the occurrence of unanticipated and unintended dose exceeding an established percentage of regulatory limits or identifies non-compliances with the access requirements established to prevent unauthorized entry into those areas having dose rates exceeding 1000 mrem/hour. This Performance Indicator may also identify declining performance in procedural guidance, training, radiological monitoring, and in exposure and contamination control prior to exceeding a regulatory dose limit.

71121-04 INSPECTION RESOURCES

04.01 Estimates of inspection resources are identified within each inspectable area.

INSPECTABLE AREA: ACCESS CONTROL TO RADIOLOGICALLY SIGNIFICANT AREAS

CORNERSTONE: Occupational Radiation Safety

INSPECTION BASIS: This inspectable area verifies aspects of the Occupational Radiation Safety cornerstone not measured by performance indicators. The Occupational Radiation Safety performance indicator measures non-conformances with high radiation areas greater than 1 R/hr and unplanned personnel exposures greater than 100 mrem TEDE, 5 rem SDE, 1.5 rem LDE, or 100 mrem to the unborn child. Controls for high radiation areas below 1 R/hr and airborne radioactivity areas are not covered by the PI and are included in the baseline inspection program.

LEVEL OF EFFORT: Inspect Annually
(Estimated Hours - 13)
Radiation Worker Performance
(Estimated Hours - 10)

-01 INSPECTION OBJECTIVES

01.01 The objective of this procedure is to review licensee's performance in implementing physical and administrative controls for airborne radioactivity areas, radiation areas, high radiation areas (HRAs), and worker adherence to these controls.

01.02 Observe access controls to radiation and high radiation areas <1000 mrem/hr and areas that are subject to transient dose rates. Review the controls that have been established and that workers follow established rules. Review the high radiation area incidents found in the performance indicators (PIs) and in the licensee's corrective action program during the current assessment period.

-02 INSPECTION REQUIREMENTS:

02.01 Inspection Planning

Review licensee performance indicators (PIs) for the Occupational Exposure Cornerstone for followup.

02.02 Plant walk downs and RWP reviews

Determine exposure significant work areas in radiation areas, high radiation areas (<1 R/hr), or airborne radioactivity areas in the plant (about 5) and review associated licensee controls and surveys of these areas to determine if controls (surveys, postings, barricades) are acceptable.

Check out a survey instrument or obtain the services of an RP technician with a survey instrument and walk down these areas or perimeter of these areas to determine: whether prescribed RWP,

procedure, and engineering controls are in place, whether licensee surveys and postings are complete and accurate, and that air samplers are properly located.

Review radiation work permits (RWPs) used to access these and other high radiation areas and identify what work control instructions or control barriers have been specified. Use Technical Specification HRA requirements as the standard for the minimum barriers necessary. Review electronic pocket dosimeter (EPD) alarm set points (both dose and dose rate) for conformity with survey indications. Set points which are more than twice the highest general area dose rate for the dose rate alarm and eight times the dose rate for the dose alarm set point should be adequately justified through additional discussions with licensee management. Determine whether management and administrative controls are designed to maintain exposures ALARA.

Review RWPs for airborne radioactivity areas with the potential for individual worker internal exposures of >30 mrem CEDE (12 DAC-hrs). For these high risk airborne areas, verify barrier integrity and HEPA ventilation system performance.

02.03 Problem Identification and Resolution

a. Review licensee documentation packages for all PI events occurring since the last inspection. Determine if any involved dose rates >25 R/hr at 30 centimeters or >500 R/hr at 1 meter. If so, determine what barriers had failed and if there were any barriers left to prevent personnel access. For uncontrolled exposures >100 mrem TEDE (or >5 rem SDE or >1.5 rem LDE), were there any over exposures or substantial potential for overexposure? If any of the above conditions were met, then document the PI as a significant inspection finding.

b. Review about five high radiation area radiological incidents (non-PIs), in high radiation areas <1R/hr, that have occurred since the last inspection in this area. Interview staff and review documents to determine if the following activities are being conducted in an effective and timely manner commensurate with their importance to safety and risk:

1. Initial problem identification, characterization, and tracking.
2. Disposition of operability/reportability issues.
3. Evaluation of safety significance/risk and priority for resolution.
4. Identification of repetitive problems.
5. Identification of contributing causes.
6. Identification and implementation of corrective actions which will achieve lasting results.
7. Resolution of non-cited violations (NCVs) tracked in corrective action system(s).
8. Implementation/consideration of risk significant operational experience feedback.

Emphasis should be placed on ensuring problems are identified, characterized, prioritized, entered into a corrective action, and resolved.

c. For repetitive deficiencies or significant individual deficiencies in problem identification and resolution identified above, determine if

the licensee's self-assessment activities are also identifying and addressing these deficiencies.

02.04 Job-In-Progress Reviews

NOTE

Job-in-progress inspection activities may be combined with Section 02.02 of the ALARA Planning and Controls procedure.

a. Based on licensee schedule of work activities, select about five jobs being performed in radiation areas or high radiation areas (<1 R/hr) that are estimated to result in significant exposures (>1 person-rem).

b. Review all radiological job requirements (RWP/ALARA requirements and work procedure requirements). When practical, attend RWP and ALARA job briefings.

c. Observe job performance with respect to these requirements. Determine if radiological conditions in the work area were adequately communicated to workers through briefings and postings.

d. During job performance observations, verify radiological controls such as: required surveys, including system breach radiation, contamination, and airborne surveys are adequately performed; radiation protection job coverage is proper; and contamination controls are adequate.

e. Verify accuracy of surveys and applicable posting and barricade requirements.

f. For high radiation work areas with significant dose rate gradients (factor of 5), review the application of dosimetry to effectively monitor exposure to personnel.

02.05 Radiation Worker Performance

During job performance observations, observe radiation worker performance with respect to all radiation protection work requirements. Are they aware of the significant radiological conditions in their workplace, the RWP controls/limits, and do they perform consistent with their training and qualifications with respect to the radiological hazards and work activities?

Review all radiological problem reports since the last inspection that lists the cause due to radiation worker errors. Determine if there is an observable pattern traceable to a similar cause. Does this perspective match the corrective action approach taken by the licensee to resolve the reported problems?

02.06 Radiation Protection Technician Proficiency

During job performance observations, observe radiation protection technician performance with respect to all radiation protection work requirements. Are they aware of the radiological conditions in their workplace, the RWP controls/limits, and do they perform consistent with their training and qualifications with respect to the radiological hazards and work activities?

Review all radiological problem reports since the last inspection that lists the cause due to radiation protection technician errors. Determine if there is an observable pattern traceable to a similar cause. Does this perspective match the corrective action approach taken by the licensee to resolve the reported problems?

-03 INSPECTION GUIDANCE

03.02 Plant Walkdowns and RWP Reviews

Continuous air monitors positioned throughout the power plant may not be exposure significant, as they are often used as initial indicators of deteriorating air quality. The exception may be power plants with known transuranics. Inadequate control of high levels of airborne radioactivity can reach exposure significance. For example, at BWRs during outages, turbine components are routinely sandblasted inside a containment structure. If not protected adequately, workers inside of this structure may encounter exposure significant conditions.

ATTACHMENT 02

INSPECTABLE AREA: ALARA PLANNING AND CONTROLS

CORNERSTONE: Occupational Radiation Safety

INSPECTION BASIS: This inspectable area verifies aspects of the Occupational Radiation Safety cornerstone for which there are no indicators to measure performance. The stochastic risk effect of exposure is based on the linear non-threshold exposure model. Increasing individual or collective exposures equates to increased risk of cancer or genetic effects.

LEVEL OF EFFORT: Inspect Annually
(Estimated Hours - 60)
Radiation Worker Performance
(Estimated Hours - 10)

-01 INSPECTION OBJECTIVE

01.01 The objective is to assess performance with respect to maintaining individual and collective radiation exposures as low as is reasonably achievable. This inspection will determine whether the licensee has an adequate program, including administrative, operational, and engineering controls to maintain occupational exposure ALARA.

-02 INSPECTION REQUIREMENTS:

NOTE

This inspection may be performed during plant operations with respect to on-line maintenance when the ALARA review time frame is compressed, or this inspection may be performed during outage conditions. A short ALARA planning inspection may also be considered approximately 2 months prior to a significant maintenance or refueling outage.

02.01 Inspection Planning

Review pertinent information regarding plant collective exposure history, current trends, and ongoing or planned activities in order to assess current performance and exposure challenges. The overall collective exposure performance may be utilized to provide a perspective of significance for inspection finding assessment.

a. Review outage or online maintenance work scheduled during the inspection period and associated exposure estimates or previous job history data. Select 5-10 work activities which are likely to have high exposures.

b. Review plant collective exposure data for the three year rolling average and the previous year as compared to the average BWRs or PWRs.[1]

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[1]NUREG-0713, "Occupational Radiation Exposure at Commercial Nuclear Power Reactors and Other Facilities". This data is available on the NRC

This will provide a sense of the significance of collective exposure at the facility.

c. Using available data on source-term (average contact dose rate with reactor coolant piping), obtain a sense of the significance of the source-term as compared to the average BWR or PWR source-term.[2]

d. Using available data, determine the site specific trends in collective exposure and source-term.

e. For information, review site specific procedures associated with maintaining occupational exposures ALARA. Include processes used to estimate and track job specific exposures.

The site specific and industry-wide bench-marking provides a relative perspective of "reasonableness" and should be considered when assessing and documenting most ALARA inspection findings.

02.02 Job Site Inspections and ALARA Control

NOTE

Job site inspection activities may be combined with Section 02.04 of the Access Control to Radiologically Significant Areas procedure.

a. Based on scheduled work activities and associated exposure estimates, select about 5 high exposure or high radiation area active job locations and independently measure the ALARA effectiveness of selected areas with a survey instrument (directly or utilizing the services of an RP technician).

1. Survey for dose rate gradients in the work area. Dose rate gradients (greater than a factor of 2) are often indicative of sources that are not effectively shielded. These areas may be further investigated to determine the basis for the as-found source configuration in applicable ALARA reviews.
2. Identify the source location(s) and low dose area(s).
3. Evaluate the use of engineering controls to achieve dose reductions. Utilize ALARA reviews as criteria for this evaluation.
4. Determine if workers are utilizing the low dose waiting areas and are effective in maintaining their doses ALARA (e.g., do they remain in the area when subjected to temporary work delays).
5. Determine if on-the-job performance involved appropriate supervision to ensure the ALARA requirements were met. Does the first-line job supervisor ensure the job is conducted in a dose

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external Web page.

[2]EPRI TR-108737 (Dec 1998), "BWR Iron Control Monitoring Interim Report" [average BWR source-term is currently 220 mrem/hr]. EPRI TR-107566 (Feb 1997), "Evaluation of PWR Radiation Fields: 1991-1996" [average PWR source-term is 100 mrem/hr. Source-term as defined by EPRI means average contact dose rate with reactor coolant piping.

efficient manner (tool delays resulting in excess dose, rework, etc.)? Is the work crew size minimized?

b. Review individual exposures of selected work groups. Determine if significant exposure variation exist among workers. Does the licensee have a program to minimize individual exposures? For example, does job supervision periodically review exposure reports and rotate workers to balance exposures among the work group and keep individual exposures ALARA?

02.03 Source-Term Reduction and Control

a. According to licensee records, determine the current status of tracked plant source term sources.

Consider utilizing a survey instrument to walk down selected accessible areas of the station and determine the accuracy, timeliness, and completeness of the licensee's source tracking program. During plant tours note any elevated dose rate readings with respect to personnel occupancy and investigate any sources that may affect collective exposures and are not tracked by the licensee.

b. Based on site-specific source-term measurements, determine whether the overall plant source-term is stable or declining. Determine if the licensee has developed an understanding of the plant source-term, to include knowledge of input mechanisms and whether there is a source-term control strategy in place. This should include a cobalt reduction strategy and shutdown ramping and operating chemistry plan (designed to minimize the source-term external to the core) as a minimum.

c. For plants with rolling 3-year average collective dose higher than the average BWR or PWR, determine what specific sources have been identified by the licensee for exposure reduction actions and what priorities have been established for their implementation. What results have been achieved against these priorities since the last refueling cycle. During the current 12 month assessment period, determine whether source reduction evaluations have been made and actions have been taken to reduce the overall source-term compared to the previous year.

d. For plants with rolling 3-year average collective dose higher than the average BWR or PWR and greater than average source-term, additional exposure reduction initiatives should have been evaluated by the licensee. Examples of tested and available industry technologies that could be considered include: chemical decon of major piping systems, component replacement, high-pressure water flushing of components, evaluations of various operating chemical remedies (e.g., zinc injection), and comprehensive temporary and permanent shielding plans. Evaluations of exposure reduction technologies should include full-scope exposure estimates (e.g., more than one job in the plant area of consideration and for the life of the plant). Look for complete follow through or reasonable justifications for not pursuing an exposure reduction initiative.

02.04 Radiation Worker Performance

During on-site inspection, observe radiation worker and RP technician performance during high dose rate or high exposure jobs and determine if workers demonstrate the ALARA philosophy in practice (e.g., utilizing ALARA low dose waiting areas), whether there are any procedure compliance issues or other behaviors that are not conducive to a safety conscious work environment. Also, observe radiation worker performance to determine whether the training/skill level is sufficient with respect to the radiological hazards and the work involved.

02.05 Radiological Work Planning

Review a list of jobs ranked by estimated exposure that are in progress or that have been previously completed (outage ALARA report). Evaluate the exposure estimates and exposure performance data based on plant job history or relevant industry performance data (as available). When possible, identify jobs where actual exposure was greater than estimated by 50% and greater than 1 person-rem. Identify performance deficiencies.

a. Select about 5 jobs of highest exposure significance where actual exposure was greater than estimated by 50%.

b. Review the ALARA job evaluations, exposure estimates, and exposure mitigation requirements. Compare these ALARA plans with results achieved (dose rate reductions, man-hours used). If results are significantly different, find out why.

c. Review the interfaces between operations, radiation protection, maintenance, maintenance planning, scheduling and engineering groups. Look for interface problems or missing program elements.

d. Review the integration of ALARA requirements into work procedure and RWP documents.

e. Evaluate the accuracy of person-hour estimating provided by maintenance planning to the radiation protection group and person-hour tracking provided by radiation protection.

f. Evaluate the radiation protection group generated shielding requests with respect to dose rate reduction problem definition and assigning value (dose savings or dollars). Evaluate engineering shielding responses for follow through from shield design to construction and installation.

g. Determine if jobs are scheduled to consider the benefits of dose rate reduction activities to include: water shielding from pipe filled conditions, and shielding installation and removal activities.

h. For jobs with higher actual exposure than estimated, determine if post-job reviews were conducted and that identified problems were entered into the licensee's corrective action program.

02.06 Verification of exposure estimate goal and exposure tracking systems.

NOTE

The significance of ALARA findings will often depend on reasonably accurate exposure estimates. Reasonable implies that they be based on good assumptions and correct calculations with some flexibility given with regard to expected variability due to the limits of forecasting.

a. Review the assumptions and basis for the current annual exposure estimate and annual exposure goal. Review applicable procedures to determine the methodology for estimating job-specific exposures. Consider both dose rate and man-hour estimates for accuracy. Look for bottom-up (aggregation of individual job estimates) exposure estimates corroborated by top-down (past outage/day times days) estimating methods. Use of past outage experience combined with additional industry experience can provide a reasonable exposure estimate approach. If exposure estimates appear questionable, use site-specific past experience as the primary standard of comparison and utilize industry data (as available) of actual job exposure data as a secondary standard of comparison to determine the reasonableness of licensee exposure estimates.

b. Review actual exposure results versus initial exposure estimates. For the same jobs, review the estimated and actual dose rates and man-hours expended. Determine if dose rate estimating and man-hour estimating are reasonably accurate when compared to actual results.

c. Review the licensee's exposure tracking system. Determine whether the level of exposure tracking detail, exposure report timeliness and exposure report distribution is sufficient to support control of collective exposures. For example, do RWPs cover too many jobs to allow job specific exposure trends to be detected and controlled? During the conduct of exposure significant maintenance work, look for evidence that licensee management was aware of the exposure status of the work and would intervene when exposure trends increase beyond exposure estimates.

02.07 Declared Pregnant Workers

Determine if there have been any declared pregnant workers during the current assessment period. Review the exposure results and monitoring controls employed by the licensee with respect to requirements.

02.08 Problem Identification and Resolutions

a. Review audits and self-assessments for the ALARA program. Review dose significant post-job reviews and post-outage ALARA report critiques of exposure performance and determine if identified problems are entered into the corrective action program for resolution.

b. Identify those jobs that resulted in >5 rem and were >1.25 times the initial exposure estimate and develop an inspection finding based on

the causes and the licensee's response. Review about 5 of the most significant ALARA problem reports that have occurred since the last inspection in this area. Interview staff and review documents to determine if the following activities are being conducted in an effective and timely manner commensurate with their importance to safety and risk:

1. Initial problem identification, characterization, and tracking.
2. Disposition of operability/reportability issues.
3. Evaluation of safety significance/risk and priority for resolution.
4. Identification of repetitive problems.
5. Identification of contributing causes.
6. Identification and implementation of corrective actions which will achieve lasting results.
7. Resolution of non-cited violations (NCVs) tracked in corrective action system(s).
8. Implementation/consideration of risk significant operational experience feedback.

Emphasis should be placed on ensuring problems are identified, characterized, prioritized, entered into a corrective action, and resolved.

c. For repetitive deficiencies or significant individual deficiencies in problem identification and resolution identified above, determine if the licensee's self-assessment activities are also identifying and addressing these deficiencies.

02.09 Respiratory Protection

Based on FSAR and TS requirements, review the status and surveillance records of self contained breathing apparatus (SCBA) equipment in various locations in the plant. Determine the licensee's capability for refilling and transporting SCBA air bottles to and from the control room during emergency situations. Determine if control room operators and other emergency response personnel are trained and qualified in the use of SCBAs and for changing out bottles.

-03 INSPECTION GUIDANCE

03.03 Source Term Reduction and Control

If unidentified radiation sources have been identified, determine how long the condition has existed, if postings and radiation surveys have been deficient, whether any unplanned exposures had occurred or were likely to occur, and whether the licensee has entered this finding into their corrective action program.

If a licensee identified radiation source is old (greater than 1 year, or may have resulted in unnecessary exposures, such as during an outage), determine how long the condition has existed, how much exposure has been or was likely to have resulted from the source and compare those results with the licensee's exposure evaluation assessment to encompass the extended time period.

If actions taken have been ineffective, determine if follow up evaluations and additional actions have been planned. If not, look for

additional examples to establish whether there is a pattern. Has there been effective communication and evaluation by civil/structural and pipe system engineering?.

03.05 Radiological Work Planning

If exposure reduction performance deficiencies are identified, were there multiple examples and what were the exposure consequences? If entered in the licensee's corrective action program, were appropriate licensee organizations held accountable? Inspection findings should be assessed with respect to overall plant exposure and source-term standing in the industry. For example, for a plant with overall good exposure performance, examples of ALARA deficiencies with minor exposure consequences may not rise to the level of an inspection finding. The ALARA rule in 10CFR20 does not require every ALARA effort to demonstrate optimized exposure performance.

ATTACHMENT 03

INSPECTABLE AREA: RADIATION MONITORING INSTRUMENTATION

CORNERSTONES: Occupational Radiation Safety
Public Radiation Safety

INSPECTION BASIS: This inspectable area verifies aspects of the Occupational Radiation Safety cornerstone for which there are no indicators to measure performance. Protection of personnel involved in plant operations or work activities associated with transient high radiation areas, very high radiation areas, or airborne radioactivity areas depend on the accuracy, operability, and proper use of radiation monitoring instruments. In addition to controlling occupational exposures, radiation monitoring instruments are utilized for surveying for the unrestricted release of potentially contaminated materials originating from radiological areas of the plant. The proper calibration and use of these radiation monitors verifies aspects of the Public Radiation Safety cornerstone for which there are no indicators to measure performance.

LEVEL OF EFFORT: Inspect Annually
(Estimated Hours - 30)

-01 INSPECTION OBJECTIVES

01.01 The objective of this procedure is to determine the accuracy and operability of radiation monitoring instruments that are utilized for the protection of occupational workers.

01.02 Applicable instruments include area radiation monitors, continuous air monitors, criticality monitors, and portable radiation instruments that are used to identify changing radiological conditions such that actions to prevent an overexposure may be taken. Radiation monitors covered under the Maintenance Rule program are exempt from this inspection.

-02 INSPECTION REQUIREMENTS:

02.01 Inspection Planning

Review the plant FSAR to identify applicable radiation monitors associated with transient high radiation areas including those used in remote emergency assessment. Include area radiation monitors associated with in-core instrumentation, transverse in-core probes, radwaste resin transfer piping and polyethylene liner fill and cask loading areas. Emergency assessment instrumentation includes the high-range containment radiation monitor and the post-accident sample system (containment atmosphere, containment sump and reactor coolant sampling capability). Delete from the inspection scope any radiation monitor instrumentation that is included under the maintenance rule program.

02.02 Identify additional radiation monitoring instrumentation

Identify the types of portable radiation detection instrumentation used for job coverage of high radiation area work, other temporary area radiation monitors currently used in the plant, and continuous air monitors associated with the potential for 100 mrem CEDE (40 DAC-hrs). If the site is required to monitor for internal exposures, include whole body counter equipment in the review. Identify types of radiation detection instruments utilized for equipment and personnel release from the radiologically controlled area.

02.03 Verify calibration, operability, and alarm setpoint (if applicable) of one instrument from selected instrument types (ion chamber, G-M, underwater detector, CAM, electronic pocket dosimeters, teledosimetry, personnel contamination monitors, small article monitors, etc.).

Verification methods include: review of calibration documentation, observation of licensee source check or calibrator exposed readings, or compare source readings with an NRC survey instrument. When applicable, review the detector measurement geometry, calibration method and appropriate selection of calibration sources to closely represent the actual measurement conditions in the plant. Determine if the contamination monitor alarm setpoint sensitivity is consistent with Regulatory Guide 1.86, Circular 81-07, and IN 85-92 criteria. When possible, observe electronic and radiation calibration of these instruments if the calibration facility is onsite. Include a review of the alarm set point determinations. Observe in-field source checks. Determine what actions are taken when during calibration or source checks, an instrument is found significantly out of calibration (>50%). Determine possible consequences of instrument use since last successful calibration or source check. Was this entered in the corrective action program?

02.04 Problem identification and resolution

b. Review radiological incidents that involved personnel contamination monitor alarms due to personnel internal exposures. For internal exposures >100 mrem CEDE, determine whether the affected personnel were properly measured utilizing calibrated equipment, data analyzed and internal exposures properly assessed with respect to licensee procedures.

b. Select exposure significant radiological incidents that involved radiation monitoring instrument deficiencies since the last inspection in this area. Interview staff and review documents to determine if the following activities are being conducted in an effective and timely manner commensurate with their importance to safety and risk:

1. Initial problem identification, characterization, and tracking.
2. Disposition of operability/reportability issues.
3. Evaluation of safety significance/risk and priority for resolution.
4. Identification of repetitive problems.
5. Identification of contributing causes.
6. Identification and implementation of corrective actions which will achieve lasting results.
7. Resolution of non-cited violations (NCVs) tracked in corrective action system(s).

8. Implementation/consideration of risk significant operational experience feedback.

Emphasis should be placed on ensuring problems are identified, characterized, prioritized, entered into a corrective action, and resolved.

c. For repetitive deficiencies or significant individual deficiencies in problem identification and resolution identified above, determine if the licensee's self-assessment activities are also identifying and addressing these deficiencies.

02.05 Radiation protection technician instrument use

Verify the calibration expiration and source response check currency on radiation detection instruments staged for use. Observe radiation protection technicians for appropriate instrument selection and self-verification of instruments operability prior to use.

-03 INSPECTION GUIDANCE

03.03 Verify calibration, operability, and alarm setpoint (if applicable) of one instrument from selected instrument types

If an instrument is not calibrated correctly, determine generic applicability, actual and potential exposure impact, and assess the impact on licensee credibility with respect to control or emergency preparedness. Verify the deficiency was entered into the licensee corrective action program.

If an instrument is not operable, determine what backup instrumentation or other exposure control barriers exist (e.g., teledosimetry used with electronic pocket dosimeter, or RP technician with survey instrument providing additional coverage). If no backup exists and no other exposure control barriers, determine how long the condition has existed and what was the exposure consequence. Verify the deficiency was entered into the licensee corrective action program and evaluate the corrective actions taken.