

# NRC INSPECTION MANUAL

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## INSPECTION PROCEDURE 83728

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### MAINTAINING OCCUPATIONAL EXPOSURES ALARA

#### 83728-01 INSPECTION OBJECTIVE

To determine whether the licensee has established and is maintaining adequate programmatic controls and procedures that reasonably ensure compliance with the requirements of 10 CFR Part 20 to maintain exposures as-low-as-is-reasonably-achievable (ALARA).

#### 83728-02 INSPECTION REQUIREMENTS

If desired, this procedure may be performed concurrent with supplemental procedure IP 79703, "Control and Monitoring of Radiological Source Term."

Inspection procedure 71121.02, "ALARA Planning Controls," addresses routine implementation of the ALARA program. Therefore, it should be used concurrent with this program review.

02.01 Management Controls. Review the licensee's procedures that implement the ALARA program. Verify that there is sufficient management oversight and support station-wide to assure that program requirements are well understood and that radiologically significant activities receive the appropriate management review.

02.02 Audits and Appraisals. Review the results of audits and evaluations performed by or for the licensee since the last inspection of the licensee's ALARA program implementation and its effectiveness, and the adequacy of the licensee's commitments and corrective actions.

02.03 Worker Awareness and Involvement. Determine whether workers are aware of, and involved in, the ALARA program.

02.04 ALARA Goals and Objectives. Determine whether the licensee is establishing and tracking ALARA goals and objectives.

02.05 ALARA Results. Review measures of the effectiveness of the ALARA program and determine whether the program is effective.

02.06 Outage Preparation and Planning. Review and determine the adequacy of licensee ALARA planning and preparation for refueling and maintenance outages.

## 83728-03 INSPECTION GUIDANCE

### General Guidance

Additional guidance can also be obtained by reviewing the EPRI TR-107991, "Radiation-Field Control Manual - 1997 Revision and NCRP report no. 120, "Dose Control at Nuclear Power Plants," (issued December 30, 1994).

### Specific Guidance

#### 03.01 Management Controls

- a. Verify that the licensee has developed detailed, implementing instructions for all personnel involved in the ALARA program.
- b. Verify that individuals understand their authorities and responsibilities under the ALARA program. Interview several workers, first-line supervisors and managers in various plant crafts groups.
- c. Determine if licensee management has established an ALARA committee, or some other process or means to facilitate the station-wide implementation and support of the ALARA program. Review the ALARA committee charter, interview selected members and review selected meeting minutes to verify that the Committee is meeting its intended function.

#### 03.02 Audits and Appraisals

- a. Review reports of required audits, evaluations, ALARA committee (process) reviews, etc., performed since the last inspection, that examine the licensee's performance in meeting ALARA commitments and that recommend changes in the program. 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 deficiencies. Are corrective actions timely and technically acceptable?

Requirements for reviews and audits normally are contained in the technical specifications. Audit teams should include someone knowledgeable in ALARA programs (Regulatory Guide 1.146 and ANSI/ASME N45.2.23-1978, Section 2.2).

- b. Review reports of other audits, appraisals, assessments, and evaluations, that may provide information on program quality.

03.03 Worker Awareness and Involvement. Attachment 2 of the baseline inspection procedure IP 71121 for the Occupational Radiation Safety cornerstone addresses routine implementation of the ALARA program, including observations of work activities and discussions with workers. Therefore, the baseline procedure, with additional samples to determine extent of condition, should be used for this portion of the ALARA program review.

03.04 ALARA Goals and Objectives

- a. Attachment 2 of the baseline inspection procedure for the Occupational Radiation Safety cornerstone addresses routine implementation of the ALARA program, including establishing and managing dose goals.
- b. Goals and objectives may be qualitative and quantitative. Means should be provided to track progress toward the goals and to take action on the findings. Goals may be set for the facility as a whole and for different divisions or groups within the facility. Facility goals might include, for example, a total annual collective dose (person-rem) value, and a percentage reduction in preventive maintenance time in high radiation areas.

03.05 ALARA Results

- a. As a minimum, consider the total annual collective dose (person-rem) for the facility. Determine whether that collective dose is increasing or decreasing, and whether it is higher or lower than the collective dose for other facilities of the same type and generating capacity. Consider reasons for increases or higher than average doses and discuss licensee's plans in relation to relatively high collective doses, or upward dose trends.
- b. Successes in meeting ALARA goals and objectives (Sections 02.04 and 03.04) provide other measures of ALARA program effectiveness.

03.06 Planning and Preparation for Outages. Review representative records and discuss outage planning with licensee representatives, and observe activities to verify necessary planning and preparations. Examples of areas that may be examined include:

- a. Plans for integrating supplemental contract HP technicians for outage job coverage duties, including method of ensuring adequate supervisor control over the contractor's activities.
- b. Special training, including use of mockup training.
- c. Increased supplies, including clothing, temporary shielding materials, etc.

- d. ALARA considerations, including work package review by health physics personnel, dose reduction methods, and radwaste reduction.
- e. Adequacy of licensee controls and monitoring of contractor work standards, equipment, and practices.
- f. Early involvement of health physics group and knowledge of work to be performed. This involvement should include an examination of the adequacy of plant review of special (non-routine, seldom used) procedures and infrequent evolutions that have the potential for creating radiological hazards. Lessons learned from previous industry experiences/evolutions are utilized.
- g. Provisions for engineering controls, such as auxiliary ventilation systems to minimize the need to use respiratory protection equipment (Regulatory Guide 8.8, Section C.2.d).
- h. Examination of indicators of management support, or lack of support, for radiation protection planning such as:
  - 1. Approvals of activities needed for radiation protection during the outage.
  - 2. Inclusion of radiation protection staff in outage planning meetings.
- i. For plants planning significant tasks (e.g., 10-year in-service inspection) for the first time, determination of the extent to which the outage experience of other similar plants is being used in the planning process.
- j. Adequacy of licensee's ability to accurately project job doses. Accurate estimation of job doses requires good lines of communication with other departments (e.g, maintenance and engineering) who planned and will be performing the work, availability of up-to-date dose rate surveys, detailed documentation of lessons learned from similar evolutions performed at this or other facilities, preplanning of jobs done well in advance of actual work to permit thorough job dose analysis, and detailed scheduling of jobs to ensure that dose rates during job performance are not impacted by other jobs being performed nearby.

#### 83728-04 RESOURCE ESTIMATE

It is estimated that about 25-30 hours of onsite inspection hours will be needed to complete this procedure. No additional time is needed for multi-unit sites.

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