



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT  
Washington, D.C. 20555

# INSPECTION AND ENFORCEMENT MANUAL

DQASIP

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INSPECTION PROCEDURE 83528

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MAINTAINING OCCUPATIONAL EXPOSURES ALARA  
(PREOPERATIONAL)

PROGRAM APPLICABILITY: 2513

83528-01 INSPECTION OBJECTIVES

To determine whether the applicant has made, and will continue to make, reasonable efforts to ensure that occupational radiation exposures will be maintained as low as is reasonably achievable.

83528-02 INSPECTION REQUIREMENTS

02.01 Management Policy

Determine whether there is a strong, documented management policy on ALARA.

02.02 Assignment of Responsibilities and Authorities

Determine whether assigned responsibilities and authorities are adequate for ALARA implementation.

02.03 Procedures and Standards

Determine whether there are adequate written procedures for implementing the ALARA policy.

02.04 Indoctrination and Instruction

Determine whether there are adequate provisions for informing/instructing corporate and facility workers in the ALARA program.

02.05 Reviews of Design and Equipment Selection

Determine whether there are adequate provisions for review of design and equipment selection.

Issue Date: 01/01/84

## 83528-03 INSPECTION GUIDANCE

03.01 Management Policy

- a. The policy should be documented.
- b. The policy should be approved by a corporate officer.
- c. The policy should integrate the ALARA concept into all phases of the licensee's activities (including design, preoperational, and operational phases) that involve the utility, NSSS vendor, AE, and other contractors.
- d. The policy should embody the concept that ALARA is everyone's responsibility, from highest level managers to the most junior workers.

03.02 Assignment of Responsibilities and Authorities

- a. Examine specific responsibilities assigned to a corporate level manager. Are lines of authority clearly specified? Are there mechanisms for communication and feedback with the operating stations?
- b. An ALARA or radiation protection committee (or both plant and corporate committees) should be established to review health physics programs and ALARA practices and to review in advance any task that is predicted to result in a relatively high collective dose (e.g., 10 person-rems).
- c. Examine responsibilities of the Plant Manager. Consider the following:
  1. Participation in formulation of program goals and objectives.
  2. Support of plant personnel for ALARA.
  3. Support of the Radiation Protection Manager in ALARA functions.
  4. Provision of open channels of communication to corporate level on ALARA program.
  5. Review of the status of the plant's efforts to reduce exposure.
- d. Examine the responsibilities of the Radiation Protection Manager. Consider the following:
  1. Authority to "go up management chain" to resolve ALARA issues and concerns.

2. Participation in design and equipment reviews.
  3. Identification of conditions and operations that cause significant exposures.
  4. Implementation of exposure control program.
  5. Development of facility procedures and methods for implementation of ALARA.
  6. Providing input to jobs, operations, procedures, and plans.
  7. Implementation of initial ALARA indoctrination, and continuing input into plant's training program.
  8. Supervising the collection, analysis, and evaluation of exposure data.
- e. ALARA coordinators may be utilized at both plant and corporate levels.

At the corporate level, an ALARA coordinator may be assigned responsibilities that include:

1. Coordinating ALARA efforts among corporate functional groups.
2. Supporting the station RPM in administering and maintaining the station ALARA program.
3. Coordinating reviews of facility and equipment designs and modifications that involve radiation exposure.
4. Conducting audits of the effectiveness of station ALARA programs.

At the station level, the ALARA coordinator may contribute to and coordinate station ALARA efforts in support of operations that could result in substantial individual and collective doses.

- f. All station supervisors and workers should share responsibilities for ALARA efforts in their work areas. The ALARA program should stress that all station workers should be actively involved in seeking new and better ways to perform work with less exposure.

### 03.03 Procedures and Standards

Administrative procedures that implement the ALARA program should include:

- a. Setting of program goals and objectives; for example, requirement for establishment of collective dose objectives for the year, for outages, and for specific jobs.
- b. Methods for job planning; health physics review of other plant procedures and work practices; consideration of dose-saving methods (shielding, special tools); pre-work briefings; monitoring job progress; post-work debriefings and evaluations; methods to incorporate lessons learned into future jobs.
- c. Measurement of success of ALARA efforts; for example, a monitoring program that gives timely, periodic feedback (at least quarterly) up and down the management chain on the status of meeting program goals and objectives.
- d. Measures to effect corrective action when feedback information indicates program failures and shortcomings; for example, problem identified, cause determined, corrective action taken, followup action executed or planned.
- e. Assurance that resources for ALARA program goals and objectives are available; for example, personnel are provided at both corporate and facility level for implementation and maintenance of the program and methods are provided for obtaining management approval of equipment and other items for the program.

#### 03.04 Indoctrination and Instruction

An indoctrination and instruction program for corporate and station workers should include:

- a. Indoctrination of corporate and plant management to ensure their understanding and support.
- b. Job-related ALARA training at the craftsman level that is integrated into on-the-job training.
- c. Incorporation of basic ALARA philosophy and management's support of ALARA into the basic radiation protection training, and ALARA "awareness training" for design, engineering, and construction supervisors.

#### 03.05 Reviews of Design and Equipment Selection

Plant design and equipment selection processes should include:

- a. Both corporate and facility organization review and oversight of the incorporation of ALARA considerations in the work of the AE and construction organization.

- b. ALARA reviews of, and input into, all plant modifications in design, construction, preoperational, and operating phases, and ALARA input into plant equipment reliability studies; for example, if radwaste pumps are frequently out of service, the ALARA program should provide input from the standpoint of expended exposures.

83528-04 BIBLIOGRAPHY

- a. Regulatory Guide 8.8, "Information Relevant to Ensuring That Occupational Radiation Exposures Will Be As Low As Is Reasonably Achievable."
- b. Regulatory Guide 8.10, "Operating Philosophy for Maintaining Radiation Exposures As Low As Is Reasonably Achievable."
- c. Regulatory Guide 8.19, "Occupational Radiation Dose Assessment in Light-Water Reactor Power Plants - Design Stage Man-Rem Estimates."
- d. NUREG-0761, "Radiation Protection Plans for Nuclear Power Reactor Licensees - Draft Report for Comment," March 1981.
- e. AIF/NESP-020, "Compendium of Design Features to Reduce Occupational Radiation Exposure at Nuclear Power Plants," April 1981.
- f. AIF Subcommittee on Engineering Techniques for Reducing Occupational Exposures, "An Assessment of Engineering Techniques for Reducing Occupational Radiation Exposure at Operating Nuclear Power Plants," February 1980.
- g. EPRI NP-332, "Evaluation of Operational Techniques That Can Reduce Radiation Fields in LWRs During Maintenance," EPRI Project 820-1, March 1979.
- h. INPO Good Practice 82-001-OEN-07, "Corporate Radiological Protection Committee," September 1982.
- i. INPO Good Practice 82-001-OEN-08A, "ALARA Planning for Station Work," September 1982.

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