

# PHILIPPINE NUCLEAR RESEARCH INSTITUTE

## REGULATORY BULLETIN

STANDARDS DEVELOPMENT SECTION  
NUCLEAR REGULATIONS, LICENSING  
AND SAFEGUARDS DIVISION

### **BULLETIN 97-02 MAINTAINING OCCUPATIONAL RADIATION EXPOSURE AS LOW AS REASONABLY ACHIEVABLE (ALARA)**

#### **A. ADDRESSEES**

All PNRI licensees and applicants for radioactive materials license.

#### **B. PURPOSE**

This bulletin aims to describe a general operating philosophy that is acceptable to PNRI as a basis for a program of maintaining occupational exposures to radiation **“as low as reasonably achievable” or ALARA**. It will tell applicants for a license what information relevant to ALARA should be included in their license applications. On the part of licensees, they should be guided by this bulletin to make every reasonable effort to maintain exposures as far below the specified limits as practicable.

#### **C. DESCRIPTION OF CIRCUMSTANCES**

Current occupational exposure limits prescribed in CPR Part 3, “Standards for Protection Against Radiation”, already provide a very low risk of injury from radiation exposure, however, the practical approach is still to avoid unnecessary exposure to radiation and to reduce such exposure as far below the specified limits as reasonably achievable. This objective can be attained by means of good radiation protection planning and practice, as well as the firm commitment of management and facility operators to adopt operational policies and principles that emphasize vigilance against any departure from good practice.

#### **D. DISCUSSION**

The specific requirement that “each licensee shall develop and implement a written radiation protection program that includes provisions for keeping doses ALARA”, is a provision that is applied to all types of licenses. In any radiation safety program that addresses ALARA, a fundamental principle is to keep occupational exposures of radiation worker and public exposures as far below the specified limits as can be reasonably achieved.

**The specified limits prescribed in CPR Part 3 are as follows:**

- a. Annual dose limit for radiation workers =  
50 millisieverts per year (or 5 Rems/yr.)**
- b. Annual dose limit for each member of the public =  
5 millisieverts per year (or 0.5 Rems/yr.)**

The ALARA program should consider two basic conditions to accomplish its objective. The management of the licensed facility should be committed to maintain exposures ALARA, and the personnel responsible for implementing the radiation protection program should be continually alert and vigilant for measures to reduce exposures.

**1. Management Commitment .**

a. This commitment to maintain exposures ALARA should appear as management policy statements or instructions to personnel. Radiation workers and staff should be sufficiently made aware of this commitment to the extent that they can explain what the management commitment is, what ALARA means, why it is recommended and how they have been instructed to implement it in their jobs.

b. Management should periodically perform a review of the radiation protection program to determine how exposures could be lowered further. This will include reviews of operating procedures and exposure records, facility inspections and audits, and consultation with the radiation protection staff or outside consultants. In assessing these activities, management should be able to discuss which operating procedures were reviewed, in which location or areas where most exposures are being received, which person is receiving the highest exposures, what had been discussed with the radiation protection staff or outside consultants, and what steps had been taken to reduce exposure.

c. Management should assure that the personnel and staff who will be responsible for implementing the radiation protection program are properly selected such that their qualification should be commensurate with the anticipated or potential problems to be encountered in his licensed facility. The Radiological Health and Safety Officer (RSHO), as the lead individual responsible for this program should be properly selected and qualified.

d. Management should assure that its personnel and staff receive sufficient training and instructions on radiation protection and in the task assigned to them. A periodic review of training program should also be performed. When properly trained, the radiation worker should be able to correctly answer questions on radiation protection and safety as it relates to his job.

e. Management should give the RSHO sufficient authority to enforce and implement the radiation protection program. Such authority should allow the RSHO

to order an activity to stop if he deems it unsafe, and to communicate directly and promptly with the appropriate level of management about the stoppage. This authority should be manifested by written authorizations issued by management.

f. Management should encourage modifications of its operating and maintenance procedures, including the facility and equipment, if such modifications will substantially reduce exposures to reasonable cost.

## **2. Vigilance by the RSHO and the Radiation Protection Staff.**

a. The RSHO and the radiation protection staff should conduct surveillance and investigation activities to ensure that occupational exposures are ALARA. They should be able to describe which areas, activities and job categories are associated with the highest exposures and why exposures are increasing or decreasing.

b. The RSHO and the radiation protection staff should be vigilant in searching for new and better ways to perform all radiation -related jobs with less or reduced exposures. They should direct and participate in the investigation of abnormal exposure incidents to determine the cause and take steps to reduce the likelihood of similar occurrence in the future. They should also periodically review operating procedures that may affect radiation safety, and observe facility operations to identify situations in which exposures can be reduced. Indicated changes in the procedures that have been approved should be promptly implemented.

c. The RSHO should be responsible for ensuring that proper equipment and supplies for radiation protection work are available, are maintained in good working condition, and are properly used. The written procedures and instructions for the use of the equipment should be followed.

## **E. REQUIRED LICENSEE ACTION**

The method described in this bulletin will be used by PNRI in the review and evaluation of ALARA programs submitted in connection with an application for a license. If the applicant or licensee has a method that will satisfy the ALARA principle other than what is described in this bulletin, PNRI will review that submission and determine its acceptability against regulatory requirements. Licensees are therefore required to review their existing Radiation Safety Programs and determine whether the concept of ALARA, as described in this bulletin, is addressed in the program. Licensee management should coordinate with the staff and operating personnel in meeting the basic conditions necessary for keeping occupational exposures ALARA. If there are questions regarding this bulletin, please contact the undersigned at the indicated address.

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