

## APPENDIX S

### **ALARA Component of the Radiation Protection Program**

ALARA is a philosophy of excellence used in one's day-to-day work with radioactive materials and radiation sources. It is when one strives to keep one's radiation exposure **As Low As Reasonably Achievable**.

Some changes in procedures can greatly reduce one's radiation exposure. The ALARA philosophy encourages one to actively seek out these methods of exposure reduction. Examples include the use of tongs to handle radioactive material vials containing large activities or high energy emitters. Carrying a vial of radioactive material in a secondary container to increase the source-to-hand distance is also a procedure that helps to keep radiation exposure ALARA.

1. Management Commitment
  - A. We, the management of the facility, are committed to keep individual and collective doses as low as is reasonably achievable (ALARA) as described herein. In accord with this commitment, we hereby describe an administrative organization for radiation safety and have established the necessary written policies, procedures, and instructions to foster the ALARA concept within our institution. The organization will include a radiation safety officer (RSO).
  - B. We will consider any modifications or changes as recommended by the RSO as a result of the annual review of the radiation safety program performed by the RSO.
  - C. Modifications to operating and maintenance procedures and to equipment and facilities will be made if they will reduce exposures unless the cost, in our judgment, is considered to be unjustified. We will be able to demonstrate, if necessary, that improvements have been sought, that modifications have been considered, and that they have been implemented when reasonable. If modifications have been recommended but not implemented, we will be prepared to describe the reasons for not implementing them.
  - D. In addition to maintaining doses to individuals as low as is reasonably achievable, the sum of the doses received by all exposed individuals will also be maintained at the lowest practicable level.
2. Delegation of Authority
  - (1) Management will delegate authority to the RSO for enforcement of the ALARA concept.
  - (2) Management will support the RSO when it is necessary for the RSO to assert authority.
3. Authorized Users
  - A. New Methods of Use Involving Potential Radiation Doses
    - (1) The authorized user will consult with the RSO during the planning stage before using radioactive materials for new uses.
    - (2) The authorized user will review each planned use of radioactive materials to ensure that doses will be kept ALARA.

3. B. Authorized User's Responsibility to Supervise Individuals
  - (1) The authorized user will explain the ALARA concept and the need to maintain exposures ALARA to all supervised individuals.
  - (2) The authorized user will ensure that supervised individuals who are subject to occupational radiation exposure are trained and educated in good health physics practices and in maintaining exposures ALARA.

## Investigational Levels

The RSO will review and initial the results of personnel monitoring not less than once in any calendar quarter. The following actions will be taken at the investigational levels as stated in the table of Investigational Levels.

- A. Personnel dose less than Investigational Level I.  
 Except when deemed appropriate by the RSO, no further action will be taken in those cases where an individual's dose is less than values for the Investigational Level I.
- B. Personnel dose equal to or greater than Investigational Level I but less than Investigational Level II.  
 The RSO will review the dose of each individual whose quarterly dose equals or exceeds Investigational Level I. If the dose does not equal or exceed Investigational Level II, no action related specifically to the exposure is required unless deemed appropriate. However, review each such dose in comparison with those of others performing similar tasks as an index of ALARA program quality and record this review.
- C. Personnel dose equal to or greater than Investigational Level II.  
 The RSO will investigate the causes of all personnel doses equaling or exceeding Investigational Level II and, if warranted, will take action. A report of the investigation and any actions taken will be recorded.

	<b>Bimonthly(mrem)</b>		<b>Quarterly(mrem)</b>	
	<b>Level I</b>	<b>Level II</b>	<b>Level I</b>	<b>Level II</b>
Total effective dose equivalent (sum of deep dose equivalent and committed effective dose equivalent)	84	250	125	375
Lens of the eye(eye dose equivalent)	250	750	375	1125
Skin or any extremity (shallow dose equivalent)	840	2500	1250	3750
Individual organ or tissue(sum of deep dose equivalent and committed dose equivalent)	840	2500	1250	3750