

Program for Maintaining Occupational
Radiation Exposures at Medical Institutions ALARA

1043

VETERANS ADMINISTRATION MEDICAL CENTER
(Licensee's Name)

June 9, 1982
(Date)

I. Management Commitment

- a. We, the management of this medical facility are committed to the program described in this paper for keeping exposures (individual and collective) as low as reasonably achievable (ALARA). In accord with this commitment, we hereby establish an administrative organization for radiation safety and develop the necessary written policy procedures and instructions to foster the ALARA concept within our institution. The organization will include a Radiation Safety Committee (RSC), and a Radiation Safety Officer (RSO). We are also committed to following the guidance provided by U.S. Nuclear Regulatory Guides 8.10 and 8.18.
- b. We will perform a formal audit annually to determine how exposures might be lowered. This shall include reviews of operating procedures and past exposure records, inspections, etc., and consultations with the radiation protection staff or outside consultants. A brief summary of the audit will be prepared covering the scope of the review and the conclusions reached.
- c. Modification to operating and maintenance procedures and to equipment and facilities will be made where they will significantly reduce exposures at reasonable costs. We will be able to demonstrate that improvements have been sought, that modifications have been considered, and that they have been implemented where practicable. Where modifications have been considered but not implemented, we will be prepared to describe the reasons for not implementing them.
- d. In addition to maintaining doses to individuals as far below the limits as is reasonably achievable, the sum of the doses received by all exposed individuals will also be maintained at the lowest practicable level. It would not be desirable, for example, to hold the highest doses to individuals to some fraction of the applicable limit if this involved exposing additional people and significantly increasing the sum of radiation doses received by all involved individuals.

II. Radiation Safety Committee (RSC)

a. Review of Proposed Users and Uses

1. The RSC will thoroughly review the qualifications of each potential authorized user with respect to the types and quantities of materials and uses for which he has applied to assure that the user will be able to take appropriate measures to maintain exposure ALARA.
2. When considering a new use of byproduct material, the RSC will review the efforts of the authorized user to maintain exposure ALARA. The user should have systematized procedures to ensure ALARA, and should have considered the use of special equipment such as syringe shields, rubber gloves, etc., in his proposed use.
3. The RSC will ensure that the user justifies his procedures and that they will result in ALARA doses (individual and collective).

b. Delegation of Authority

1. The RSC will delegate sufficient authority to the RSO for enforcement of the ALARA concept.
2. The RSC will support the RSO in those instances where it is necessary for the RSO to assert his authority. Where the RSO has been overruled, the Committee will record the basis for its action.

c. Review of ALARA Program

The RSC of our medical facility will perform an annual review of all radiation safety programs. This review will be performed independently of that performed by management.

1. The RSC will encourage all users to review current procedures and develop new procedures as appropriate for ways to implement the ALARA concept.
2. The RSC will review all instances of deviations from the ALARA philosophy. Information in support of the review will normally be supplied by the RSO.
3. The RSC will evaluate our institution's overall efforts for maintaining exposures ALARA. This review will include the efforts of the RSO, authorized users, and workers as well as those of management.

d. Public Statement of Commitment by the RSC to ALARA

All elements of our institution will be informed of the RSC's commitment to the ALARA concept.

1. The RSC will ensure that employees are aware of the RSC's commitment to the ALARA philosophy.
2. The RSC will demonstrate its commitment to the ALARA concept through the methods employed in its review of proposed users and uses.

III. Radiation Safety Officer (RSO)

a. Annual and Quarterly Review

1. Annual review of the Radiation Safety Program. The RSO will perform an annual review of the Radiation Safety Program for adherence to ALARA concepts. Reviews of specific procedures may be conducted on a more frequent basis.
2. Quarterly review of Occupational Exposures. The RSO will review at least quarterly the external radiation exposures of authorized users and workers to determine that their exposures are ALARA in accordance with the provisions of paragraph VI of this program.
3. Quarterly review of records of Radiation Level Surveys. The RSO will review radiation levels in unrestricted and restricted areas to determine that they were at ALARA levels during the previous quarter.

b. Education Responsibilities for an ALARA Program

1. The RSO will schedule briefings and educational sessions to inform workers of ALARA program efforts.
2. The RSO will assure that authorized users, workers and ancillary personnel who may be exposed to radiation will be instructed in the ALARA philosophy and informed that management, the RSC and the RSO are committed to implementing the ALARA concept.

c. Cooperative Efforts for Development of ALARA Procedures

Radiation workers will be given opportunities to participate in formulation of the procedures that they will be required to follow.

1. The RSO will maintain close contact with all users and workers in order to develop ALARA procedures for working with radioactive materials.
 2. The RSO will establish procedures for encouraging, receiving, and evaluating the suggestions of individual workers for improving health physics practices.
- d. Reporting and Reviewing Instances of Deviation from Good ALARA Practices
1. The RSO will investigate all instances of deviation from good ALARA practices; and, if possible, determine the causes. When the cause is known, the RSO will propose changes in the program to maintain exposures ALARA.
 2. The RSO will report all significant instances of deviation from ALARA concepts to the RSC for review.

IV. Authorized Users

- a. New Procedures Involving Potential Radiation Exposures
1. The authorized user will consult the RSO and RSC before using radioactive materials for a new procedure.
 2. The authorized user will consider all procedures thoroughly before using radioactive materials to ensure that exposures will be kept ALARA. This may be enhanced through the application of trial runs.
- b. Responsibility of the Authorized User to Those He Supervises
1. The authorized user will thoroughly explain the ALARA concept and his commitment to maintain exposures ALARA to all of those he supervises.
 2. The authorized user will ensure that his occupational workers are trained and educated in good health physics practices and in maintaining exposures ALARA.

V. Occupational Worker

- a. What the Occupational Worker Must Consider about ALARA
1. The worker will implement ALARA procedures developed by the authorized user and the RSO.

2. The occupational worker will know what recourses are available if he feels that ALARA is not being promoted on the job.
3. The occupational worker will understand that ALARA concept and will review his own working conditions and those of his fellow workers for the implementation of ALARA principles.

VI. Establishment of Action Levels in Order to Achieve Reductions in Individual Occupational Exposures

This institution hereby establishes exposure action levels for specific kinds or classes of operations which, when exceeded, will trigger investigation by the Radiation Safety Committee and/or the Radiation Safety Officer. The exposure action levels that we have established are listed in Section VII below. These levels apply to the exposure of individual workers. The exact levels have been determined based on our institution's radiation exposure history and a thorough analysis of our current program. We will maintain on file at our institution an account of the considerations used in establishing action levels.

Written justification is appended to this program for any exposure action levels that exceed 10% of MPD (10 CFR 20.201). This justification includes details of the past exposure history at this institution for the particular kind or class of operation, a summary of efforts taken to reduce this exposure, and an explanation of why further dose reductions are not feasible.

Table 1

		Investigational Levels - (mrems per calendar quarter)	
		<u>LEVEL I</u>	<u>LEVEL II</u>
1.	Whole body; head and trunk; active blood-forming organs; lens of eyes; or gonads	125	375
2.	Hands and forearms; feet and ankles	1875	5625
3.	Skin of whole body*	750	2250

- * Not normally applicable to nuclear medicine operations except those using significant quantities of beta emitting isotopes.

The Radiation Safety Officer will review and record on Form NRC-5, Current Occupational External Radiation Exposures, or an equivalent form (e.g. dosimeter processor's report), results of personnel monitoring, not less than once in any calendar quarter, as is required by 10 CFR 20, §20.401. The following actions will be taken at the Investigational Levels as stated in Table 1:

- a. Quarterly exposure of individuals to 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 exposure is less than Table I values for the Investigational Level I.

- b. Personnel exposures equal to or greater than Investigational Level I, but less than Investigational Level II.

The RSO will review the exposure of each individual whose quarterly exposures equal or exceed Investigational Level I. He will report the results of his reviews at the first RSC meeting following the quarter when the exposure was recorded. If the exposure does not equal or exceed Investigational Level II, no action related specifically to the exposure is required unless deemed appropriate by the Committee. The Committee will, however, consider each such exposure in comparison with those of others performing similar tasks as an index of ALARA program quality and will record the review in the Committee minutes.

- c. Exposure equal to or greater than Investigational Level II.

The RSO will investigate in a timely manner the cause(s) of all personnel exposures equaling or exceeding Investigational Level II and, if warranted, take action. A report of the investigation, actions taken, if any, and a copy of the individual's Form NRC-5 or its equivalent will be presented to the RSC at the first RSC meeting following completion of the investigation. The details of these reports will be recorded in the Committee minutes. Committee minutes will be sent to the management of this institution for review. The minutes, containing details of the investigation, will be made available to NRC inspectors for review at the time of the next inspection.

- d. Re-establishment of an individual occupational worker's Investigational Level II Above That Listed In Table I.

In cases where a worker's or a group of worker's exposures need to exceed Investigational Level II, a new, higher Investigational Level II may be established on the basis that it is consistent with good ALARA practices for that individual or group. Justification for a new Investigational Level II will be documented.

The Radiation Safety Committee will review the justification for, and will approve, all revisions of Investigational Levels II. In such cases, when the exposure equals or exceeds the newly established Investigational Level II, those actions listed in paragraph c above will be followed.

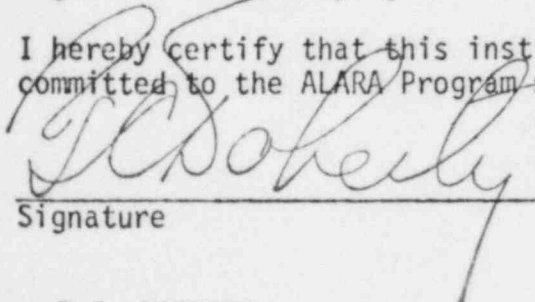
VII. Action Levels

The specific action levels established by this institution are as follows:

<u>Kind or Class of Operation</u>	<u>Action Level</u>
1. Diagnostic Nuclear Medicine	375 mrem
2. Radioimmunoassay Procedures	375 mrem
3. Research Procedures	375 mrem
4. Radiology Procedures	750 mrem
5. Dental Radiographic Procedures	375 mrem
6. Radiation Therapy Procedures	375 mrem
7. Cardiopulmonary Procedures	750 mrem

VIII Signature of Certifying Official

I hereby certify that this institution (or private practice), is committed to the ALARA Program set forth above.


Signature

T.C. DOHERTY
Name (print or type)

Director

Title

Institution: VETERANS ADMINISTRATION MEDICAL CENTER
1201 Northwest 16th Street
Miami, Florida 33125

12008

APPENDIX

VI. Establishment of Investigational Levels in Order to Monitor Individual Occupational External Radiation Exposures

- d. Re-establishment of an individual occupational worker's Investigational Level II above that listed in Table I.

Based on recorded exposure levels over the past 2 years at the Miami V.A. Medical Center for personnel in Radiology Service and Cardiopulmonary Laboratory Unit, a higher Investigative Level II (750 mrem/quarter) is established. It is consistent with good ALARA practice for these groups in view of their nature of work.