BROOKHAVEN NATIONAL LABORATORY PHYSICS DEPARTMENT	Number: PO-ESH-06	Revision: 3.2
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Subject: Radiological Control – ALARA Program		
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RADIOLOGICAL CONTROL

ALARA PROGRAM

This Policy is to be implemented in conjunction with the Laboratory Radiological Control (BNL-RCM) Manual. ALARA (As Low As Reasonably Achievable) is an operating principle for radiation protection by which personnel and environmental radiation exposures are limited to the lowest levels commensurate with sound economic and social considerations.

In the Physics Department, the most common sources of exposure to ionizing radiation of concern to the ALARA program will arise from the use of non-dispersible radionuclides and from laboratory-scale radiation generating equipment, such as X-ray machines.

This policy includes the elements of the ALARA Program, Administrative Control Levels (ACLs), and the Collective Dose Limits as given below.

I. ELEMENTS OF THE ALARA PROGRAM

A. Scope

The ALARA program of the Physics Department consists of the BNL Radiological Control Manual (BNL-RCM), and Department Policies. The goal of the Physics Department ALARA Program is to increase staff awareness of the importance of applying ALARA principles to their work, with the intention that this increased awareness will lead to safer conditions and lower radiation exposures.

B. Management

Physics Department management is committed to maintaining exposure to ionizing radiation as low as reasonably achievable. The Department Chair has appointed the ESH Coordinator as the ALARA Coordinator for the Physics Department.

C. Responsibility

Official copies of these procedures are maintained at the following website; http://www.bnl.gov/physics/safety/policies.asp.
Before using a printed copy, verify that it is the most current version by checking the document effective date on the website.
Signed copies of these official procedures are maintained at the Training Office.

Occupational workers know and apply reasonable exposure reducing techniques in the planning stages, as part of Work Planning and Control for Experiments and Operations.

Supervisory personnel support the implementation of ALARA and work to ensure that the workers under their supervision comply with and apply the principles of ALARA in their work assignments. Supervisors ensure that workers receive appropriate training and that the workers are aware of current ALARA guidelines. They ensure that adequate equipment and facilities are available for employees to perform the work safely in accordance with ALARA principles.

The Physics Department is a low hazard radiological facility and is not required to have a formal ALARA Committee. Radiological work is reviewed, and ALARA principles applied, as part of the Experimental Safety Review, or as part of Work Planning.

The ALARA Coordinator is responsible for implementing this program.

D. **Administrative Review**

The ALARA program will be assessed/audited as required in the RCD ALARA program description.

E. **Job Planning/Review**

Written procedures, such as Radiation Work Permits or Work Control Permits may be required for certain levels of radiological work, as determined by Experiment Safety Reviews or Work Planning.

F. **Training**

ALARA training is part of the facility specific training and is required of all employees, guests and visitors and shall be maintained as required in the RCD ALARA program description.

II. INDIVIDUAL RADIATION DOSE

A. The Physics Department establishes an ACL of 100 mrem per calendar year for those trained individuals who work exclusively in the Physics Department and non-research facilities and an ACL of 250 mrem per calendar year for those individuals who work at other research facilities. The individuals covered by these ACLs are those who are members, work in, are a guest, or visitor of the Physics Department and whose Personnel Monitoring is charged to a Physics Department account. Training requirements are those set by the Laboratory's Radiological Control Division. Approvals to exceed these amounts are given in the table below.

B. These ACLs will be evaluated annually by the Department Environmental Safety Security and Health Committee and ALARA Coordinator who report to the Department Chair.

III. COLLECTIVE RADIATION DOSE GOALS

A. The Collective Dose Goal for all Physics Department personnel is 1 person-rem for a calendar year. This is specifically for all those who have their Thermo Luminescent Dosimeter (TLD) service through a Physics Department account.

B. Reporting - The ESH Coordinator obtains exposure data from Radiological Control Division (RCD) Personnel Monitoring in a timely manner so that progress of the collective dose can be monitored and reported to the Department's ESSH Committee at least annually. The status of the collective dose goal shall be used as a performance indicator. Collective dose includes the doses received from external and internal sources.

SUMMARY OF PHYSICS DEPARTMENT ADMINISTRATIVE LEVELS

Period of Interest	Maximum Individual Dose Level (mrem)	Individual Dose Level With Line Authority Approvals (mrem)
Calendar Year	25 Those without training, -i.e. members of the public, employees, guests, visitors	up to 100 (Chair Approval)
	25 Minors including minor students - *with parental permission* (trained and untrained)	
	50 Declared pregnant workers and embryo/fetus per gestation	up to 350 (Chair Approval)
	100 Trained, working exclusively in the Physics Department	up to 1250 (Chair Approval) 1250 to 2000 (Lab Director Approval)
	250 Trained, working in other research facilities	above 2000 (DOE Secretarial Office or designee)
Day	100 Trained only - excluding minors	100 to 200 (Approval authority will be on the Radiation Work Permit)
Lifetime	N rem	Where N Is Age of Person in Years Laboratory Director Approval To Exceed N rem