ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY

Environment, Health, & Safety
Training Program

EHS ~ 402 Radiation Protection – Radiation Producing Machine Safety

Course Syllabus

Subject Category:	**Radiation Protection**	**Course Prerequisite:**	**EHS 400**
Course Length:	**1.5 hours**	**Medical Approval:**	**No**
Delivery Mode:	**Class**		
Schedule:	**By special request**		
Location/Time:	**Building 51, 0900-1030**		

Course Purpose: This course is designed to provide new employees with the radiation control measures employeed at LBNL, including the various programs used to authorized radiological work, and to enable them to work safely with radiation producing machines at Berkeley Lab. The advanced concepts presented in this course include ALARA, radiation monitoring and documentation, proper posting and labeling, and administrative and engineering controls.

Course Objectives: EHS 402 covers the following topics:

- Administrative methods used to control radiation exposure.
- The following terms:
  - Controlled Area for Radiation Protection,
  - Radiation Area,
  - High Radiation Area,
  - Very High Radiation Area,
  - X-Ray Machine Controlled Area
- ALARA principles appropriate for radiation producing machines.
- Engineering methods used to control radiation exposure.
- The responsibilities of a Principal Investigator.
- The responsibilities of an Authorized Radiation Worker.
- Four types of radiation monitoring.
- The actions necessary to perform pre-operational checks of a radiation meter.
- Factors which may affect radiation meter performance.
- The purpose of interlocked radiation monitors.
- The purpose of passive area radiation monitors
- The requirements for personnel dosimetry.
- Priorities and contact phone numbers during emergency response at LBNL.

Course Instructional Materials:

- LCD Projector
- Paper flip chart and white board
- Ion chamber survey meter
- Radiation safety signs and postings

Instructors:
Brian Fairchild (x6212)

Training Compliance Requirements: This course is designed to meet, in part, the requirements of 10CFR835 section 901 (b), which states that each individual shall demonstrate knowledge of radiation safety topics:

1. Before being permitted unescorted access to radiological areas, and
2. Before performing unescorted assignments as a radiological worker

Other radiation protection courses may be required and will be specified in the RWA or XA covering the work

Course Handouts:

- Study Guide
- Powerpoint presentation handout

Participant Evaluation: Written evaluations regarding the effectiveness of the trainer, the training, and the visual aids.

Written Exam: Yes. Students must score at least 80% on a multiple choice exam to pass the course.

Practical Exam: NO.

Retraining/Recertification: Every two years. Documented as EH&S 401.

WEB Resource: EH&S Training Program web page @ *http://www.lbl.gov/ehs/html/training.htm*.