

<b>BROOKHAVEN NATIONAL LABORATORY</b> <b>PHYSICS DEPARTMENT</b>	<b>Number:</b> 4.0.1	<b>Revision:</b> 1
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<b>Subject:</b> Accelerator Test Facility Safety Training Course Contents		
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## ACCELERATOR TEST FACILITY SAFETY TRAINING COURSE CONTENTS

### 1. **Introduction**

The training requirements and programs specific to Accelerator Test Facility (ATF) personnel are outlined in general form in Section 4.00 of this manual. This section gives more details of the course content and scope for each of the ATF specific training listed in Section 4.00. Details of training courses given by the Training and Qualifications (T & Q) Program Office are given on their website.

### 2. **Course Content for ATF Personnel Training Programs**

The various course contents are as follows:

#### 2.1 ATF Awareness (PO-ATF)

The safety areas covered by this training are:

2.1.1 General safety organization and responsibilities of all ATF personnel and the on-line link to ATF safety documentation.

2.1.2 Functions of the "Physics Department's ES&H Committee" and the requirements for the Experimental Safety Review (ESR)

2.1.3 A description of the Tier I Safety Inspection Program plus the system for correction of safety deficiencies.

2.1.4 Radiation hazards associated with operation of the electron gun and the total system including both prompt and residual radiation hazards. This includes a discussion of the controls provided to minimize or alleviate those hazards including lead and concrete shielding and electrical interlocks.

2.1.5 Microwave radiation hazard and containment thereof.

2.1.6 Magnetic field hazard, protective measures and warning signs.

2.1.7 Laser hazard, controls and required protective eyewear.

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2.1.8 Fire hazard with protection and detection systems provided.

2.1.9 Building egress provisions.

2.1.10 Electrical hazards, controls and protective interlocks, etc.

2.1.11 Lockout/Tagging Procedures.

2.1.12 ATF emergency plan for evacuating building including signals, alarms and responses.

2.1.13 Safety training programs provided by the T & Q Program Office and the training requirements for Accelerator Test Facility Personnel.

2.1.14 A description of hazardous waste disposal procedures.

2.1.15 Comprehensive walking tour of the entire facility.

## **2.2 Accelerator Test Facility Linac Operator Training**

This is designed to give trainees the opportunity to observe and practice operation of the linear accelerator. At the conclusion of the training, approved operators are added to the ATF Qualified Operator List. The topics covered by this course are as follows:

### **2.2.1 Operations Checklist**

Includes a detailed hands-on walk-through of the ATF operations checklist (document included in the Procedure for Turn-on and Turn-off the Accelerator). After this training, linac operators will be able to turn on, tune and shut down the major ATF accelerator systems. Duty (Experimental) Operators are trained to make small beam adjustments and turn off the accelerator. Duty Operators are not authorized to turn on major ATF accelerator systems.

### **2.2.2 Experimental Area Radiation Security Training**

### **2.2.3 Normal and Emergency Shut Down Training**

### **2.2.4 Computer Operations Training**

### **2.2.5 Laser Security Training**

This is on-the-job training for securing laser areas, as well as shut down of the YAG laser system.

## **2.3 Facility-specific Laser Training**

This course covers laser issues specific to the ATF, including:

- Training requirements for all laser operators
- Potential laser-related hazards encountered at ATF

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- Administrative protection measures, including postings and documentation
- Eye protection requirements
- Engineering controls & the ATF laser interlock system
- Facility tour, including hands-on demonstration of "search & secure" procedure

#### 2.4 System-specific Laser Training

Includes any ATF facility laser systems (YAG, CO2, etc) and/or experiment lasers covered by a Standard Operating Procedure (SOP) that the operator will conduct alignment and/or operations with. This is hands-on training and review of the SOP for each laser to be used, taught by the laser owner. Using the BNL "Laser Controlled Area Standard Operating Procedure (SOP)" document as a template, the review covers laser system characteristics, hazards, configuration & control, engineering & administrative controls, personal protective equipment, and training requirements. The hands-on training includes interlock operation (if applicable) and all phases of laser operation & alignment.

#### 3. ATF Personnel Training Records

Training records for programs provided by the ATF and the T & Q Program Office are entered into the BTMS, the Brookhaven Training Management System. They are generally available from the T & Q website. Some records are kept in the Physics Department's Safety and Training Office.