

BROOKHAVEN NATIONAL LABORATORY		Number: PO-P-ATF-0002	Revision: 1
PHYSICS DEPARTMENT		Effective: 08/12/2004	Page 1 of 3
Subject: ATF Operating Procedures		Prepared by: Vitaly Yakimenko	
Reviewed by ES&H Coordinator: 	Approved by ATF Head: 	Approved by Department Chair: 	

ATF Operating Procedure

The Accelerator Test Facility (ATF) is a laser linac complex. Most ATF experiments require both high-brightness electron beam and high power laser beams. The safe and efficient operation of the ATF is the responsibility of every ATF staff member and user. This procedure details the responsibility of all personnel involved in the ATF operation. ATF operation involves three phases: planning and scheduling, ATF machine operation, and experiment execution.

I. Responsibility

1. **Planning:** ATF Operations Coordinator (or ATF Head, or designee) is solely responsible for the ATF schedule. The lead Experimenter submits an Experiment Safety Review (ESR) to the Physics Department Experiment Review Coordinator at least 60 days prior to the expected start of the experiment. After the Physics Department ES&H Committee has reviewed and approved the experiment, the Lead Experimenter (or physicist in charge) should submit a written request to the ATF Operations Coordinator for beam time normally 3 weeks before the experiment time. The ATF schedule will be finalized at weekly engineering meetings, and distributed by e-mail. Late requests, with an approved ESR, will be considered on a first-come first-serve basis depending on beam time availability.
2. **ATF Linac Operator:** The ATF Linac Operator is responsible for the safety, operation and maintenance of all ATF elements related to the electron beam delivery to the experiment. The ATF Linac Operator is responsible for proper functioning of radiation protection and other safety systems. The ATF Linac Operator is responsible for enforcing safety and adherence to all ATF procedures by all present in the facility. The ATF Linac Operator is responsible for detailed record keeping of the ATF Operations Logbooks (ATF Operations Log and associated binders with checklists and computer generated printouts), and starting ATF operation. The ATF Laser Operator is responsible for the safety, operation and maintenance of all ATF elements related to laser beam delivery to the machine and experiment.
3. **Experiment:** It is the Lead Experimenter's responsibility to plan and execute the experiment safely, keep the Experiment Logbook, and follow all BNL, Physics Department, ATF safety and operation procedures during the experiment. The Lead Experimenter is responsible for the safety, operation and maintenance of all elements related to the experiment and its associated optical transport. The Lead Experimenter is responsible for coordinating with the ATF for personnel support and other resources for the experiment.

Number: PO-P-ATF-0002	Revision: 1	Effective: 08/12/2004	Page 2 of 3
------------------------------	--------------------	------------------------------	--------------------

1. ATF Duty Operator: To facilitate the experiment, some ATF users can be qualified as an ATF Duty Operator. The requirements are listed in the ATF Handbook Section 4.00.

The ATF operations coordinator will be responsible for duty operator training and record keeping. The main responsibilities of the ATF duty operator are:

- a. Safely maintain the operation of the ATF without ATF Linac operator present.
- b. Maintain the operator logbooks.
- c. Shutdown the ATF machine.

II. ATF Machine Operation

1. ATF normal operational time is 9:00 AM – 5:00 PM, four days/week, usually Monday – Thursday.
2. ATF machine operation requires at least two people present, of which one must be a trained linac operator or duty operator.
3. The ATF Linac Operator or Duty Operator is the ATF emergency coordinator. If no machine operations are in progress, the ATF Safety Officer is the default ATF emergency coordinator.
4. The ATF Linac Operator or Duty Operator has authority over the whole facility.
5. The ATF Linac Operator shall ensure the safety systems are functioning properly, follow the ATF startup procedure and start the ATF machine when required.
6. The ATF Linac Operator or Duty Operator shall keep in his control the ATF operation key and the control room mobile phone.
7. The ATF Linac Operator or duty operator shall enter records in the ATF Operations Logbooks.

The following items shall be routinely recorded in the ATF Operations Logbooks:

- a. The first operation of a new or modified beam line shall be done in conjunction with a radiation fault studies. The radiation survey results shall be documented in the logbook and a copy maintained by the ATF Safety Officer.
- b. Machine start up and shut down times.
- c. Experiment name.
- d. Any unusual event before or during operation, such as equipment malfunction, unusual behavior, or the need for extended adjustment or maintenance of equipment. If any event has safety implications, Operations Coordinator and/or the ATF Safety Officer shall be promptly notified.
- e. Beam energy, Snap/Restore file name, laser energy, gun charge vs. phase curve, selected phase, charge, emittance and pulse width at selected phase.
- f. Record any major beam condition variation.
- g. Shift change information.

At the end of operations, the ATF Linac Operator or Duty Operator shall complete, sign and date the operator's checklist; return all operation keys to the key box, turn off control room equipment. ATF Laser Operator shall start the laser system according to the approved Laser

Number: PO-P-ATF-0002	Revision: 1	Effective: 08/12/2004	Page 3 of 3
------------------------------	--------------------	------------------------------	--------------------

Procedures. The Laser Operator shall perform laser operations record keeping, and shall provide the Lead Experimenter with basic laser parameters requested for the experiment logbook.

III. Experiment

1. Each experiment must designate a Lead Experimenter, who is responsible for the safety and operation of the experiment.
2. Lead experimenter should keep an Experiment Logbook that includes the following items:
 - a. Beam parameters.
 - b. Experimental procedures and results.
 - c. Summary of the experiment's results.
3. Lead experimenter is responsible for safe shutdown of the experiment and logout of the ATF control system.