ACCELERATOR SAFETY ENVELOPE

Accelerator Test Facility, Building 820

March 1, 2010

This ASE supercedes the ATF ASE dated October 31, 2004 and is used in conjunction with the ATF Safety Analysis Document dated March 1, 2010.

Approvals

Michael J. Zarcone, Preparer, Physics Dept. Manager of ESH&T Programs	3/3/10 Date
Vitaly Yakimenko, ATF Head	3/08/2010 Date
Brant Johnson for Physics Department ESSH Committee	3/5/2010 Date
Thomas Ludlam, Physics Department Chair	3/4/10 Date
Steven Vigdor, NPP Associate Lab Director	3/5/10 Date
Michael Bebon, Deputy Director of Operations	3/11/10 Date

1. Introduction

This Accelerator Safety Envelope (ASE) governs the operation of the Accelerator Test Facility (ATF), including the gun, linear accelerator, transport lines, beamlines and beam stops.

Violation of this ASE's Limits listed in Section 2 requires an immediate halt of accelerator operations and notification of Department of Energy-Brookhaven Site Office (DOE-BHSO), Brookhaven National Laboratory (BNL), and Physics Department line management. Reviews will be undertaken and corrective actions developed, scheduled and tracked until all actions have been completed. Notification of BNL and DOE management and the approval of the Physics Department Chair are required to return to accelerator operation.

Sections 3 and 4 require the existence of a number of programs that ensure that the hazard evaluations of the SAD are maintained intact and controlled. Violation of a programmatic requirement listed in Sections 3 and 4 requires an immediate halt of the specific program activity and notification of DOE-BHSO, Brookhaven Science Associates, and Physics Department line management. Reviews will be undertaken and corrective actions developed, scheduled and tracked until all actions have been completed. Notification of BNL and DOE management and the approval of the Physics Department Chair are required to restart the activity.

No activity or facility modification may compromise the Safety Analysis Document (SAD) or the ASE. Proposed changes are to be screened for hazards that lie outside the bounds of those considered in the SAD and in the development of the ASE, by implementing the Unreviewed Safety Issue Process. The USI process may result in rewriting portions of the SAD and modifying the ASE. Such revisions require applicable review and approval. Reportable events may also cause the USI process to be initiated.

This document, as well as the companion ATF Safety Assessment Document listed on the cover page, is subject to change control managed by the Physics Department according to the Internal Controlled Documents Subject Area.

2. Safety Envelope Limits

The operation of the ATF, including the linear accelerator, transport lines, beamlines and beam stops must be carried out in a manner that ensures that the following safety envelope limits are not exceeded:

2.1 The radiation dose equivalent to individual guests and staff members working in other BNL facilities adjacent to ATF Building 820 shall not exceed 25 mrem in one year as the result of ATF operations.

2.2 The collective radiation dose equivalent to ATF guests, users and staff members working at the ATF shall not exceed 1250 person-mrem in each calendar year as the result of ATF operations.

2.3 The ATF shall not exceed the Maximum Electron Beam Energy of 120 MeV.

2.4 The maximum average electron current during ATF operation shall be limited to 600 nA. The maximum average electron charge averaged over one hour during ATF operation is 2.16 milliCoulombs and this is controlled because this is the physical limit of the equipment.

3. Engineered Safety Systems Requiring Calibration, Testing, Maintenance, and Inspection

3.1 Facility interlocks providing radiation protection to accelerator vaults and beam lines shall be designed, tested and maintained in accordance with BNL's SBMS Subject Areas and the Radiation Control Manual. Facility interlocks during operations will be tested every six months or as approved by the Radiological Controls Division Head.

3.2 Radiation monitors will be calibrated annually and tracked through the ATF Notification System.

4. Administrative Controls

4.1 Two persons must be present at the facility during accelerator operation, at least one of whom must be a fully qualified operator or duty operator.

4.2 Configuration of the primary radiation shielding as described in the SAD shall be controlled via the "Authorization for work on ATF Acceleration Safety Systems" (ATF Shielding Permit - SAD Appendix VII).