

### Collider-Accelerator Department Shielding Policy

The main features of the shielding policy for C-AD facilities are currently delineated in the Collider-Accelerator Department Operations Procedure Manual.<sup>1, 2</sup> The principal components of this policy are reviewed here for completeness. The primary purpose of the shielding policy is to assure that all radiation related requirements and administrative control levels are satisfied. Specifically, the Collider-Accelerator Department's Radiation Safety Committee reviews facility-shielding configurations to assure:

1. Annual site-boundary dose equivalent is less than 5 mrem.
2. Annual on-site dose equivalent to inadvertently exposed people in non-Collider-Accelerator Department facilities is less than 25 mrem.
3. Maximum dose equivalent to any area where access is not controlled is limited to less than 20 mrem during a fault condition.
4. For continuously occupied locations, the dose equivalent rate is ALARA but in no case greater than 0.5 mrem in one hour or 20 mrem in one week.
5. Dose equivalent rates where occupancy is not continuous is ALARA, but in no case exceeds 1 rem in one year for whole body radiation, or 3 rem in one year for the lens of the eye, or 10 rem in one year for any organ.

In addition to review and approval by the Radiation Safety Committee, final shield drawings must be approved by the Radiation Safety Committee Chair or the ESHQ Associate Chair. Shield drawings are verified by comparing the drawing to the actual configuration. Radiation surveys and fault studies are conducted to verify the adequacy of any new or modified shield configuration. The fault study methodology that is used to verify the adequacy of shielding is proscribed by additional Collider-Accelerator Department procedures, which are not elaborated here.<sup>3</sup> Any modifications to shielding configurations are likewise closely proscribed. Each facility and experiment is assigned a Liaison Physicist and Liaison Engineer. The Liaison Physicist is responsible, in consultation with the Radiation Safety Committee where appropriate, for determining safe conditions for any shielding modifications. The Liaison Engineer is responsible for ensuring that the safe conditions are met, for effecting any modification, and for notifying other responsible Collider-Accelerator Department personnel, including the Operations Coordinator, as well as experimenters both prior to and on completion of the modifications. Additional procedures exist to ensure that policy with respect to control of radioactive shielding is implemented, which are not elaborated here.

---

<sup>1</sup> <http://www.agsrhichome.bnl.gov/AGS/Accel/SND/OPM/Ch09/09-01-12.PDF> Procedure for Review of Collider-Accelerator Department Shielding Design

<sup>2</sup> <http://www.rhichome.bnl.gov/AGS/Accel/SND/OPM/Ch08/08-13.PDF> Collider-Accelerator Department Procedure for Shielding/Barrier Removal, Removal of Primary Area Beam Line Components, or Modifications

<sup>3</sup> <http://www.rhichome.bnl.gov/AGS/Accel/SND/OPM/Ch09/09-01-09.PDF> Fault Study Procedure for Primary and Secondary Areas