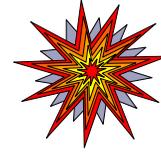




NSLS ES&H HIGHLIGHTS



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STATIC MAGNETIC FIELDS

Introduction

The NSLS Complex (NSLS and SDL) has many pieces of equipment that contain magnets. Examples include klystron permanent magnets, superconducting coils, accelerator magnets, insertion devices, detector magnets, DC magnets in radio frequency and microwave tubes, ion pumps, and electron microscopes. These magnets can produce static magnetic fields, which range in strength from fractions of a gauss to thousands of gauss. The fields can be contained within or next to the equipment or can extend up to several feet away.

BNL has a Subject Area entitled [Static Magnetic Fields](#) to provide guidance in characterizing and posting areas subject to these fields as well as guidance on training and medical evaluations for personnel exposed to these fields.

Characterization

Surveys characterize the various magnetic sources in our facilities to assist in work planning. When an Experimental Safety Approval Form lists a piece of equipment that generates a static magnetic field (e.g. superconducting magnet), that source is surveyed when it arrives on the experimental floor to determine potential whole body and extremity exposure. Typical fields are: Bldg. 725 klystrons - 1000 gauss @ contact & 5-100 gauss in corridor; Perkin Elmer ion pumps - 600-700 gauss @ contact & <5 gauss 5-9 inches away; insertion devices - many Tesla (1T=10,000g) inside gap & <5 gauss inches away from gap.

Posting

Once the magnetic field survey has been completed, the equipment and surrounding area (if necessary) are posted so that persons in the area are made aware of the local fields.

Medical Evaluations

Medical evaluations are required for personnel with electronic medical implants (pacemaker, defibrillator, electronic inner ear prosthesis, insulin pump) who may be exposed to greater than 5 gauss or for personnel who may be exposed to whole body fields of 600 gauss or more in an 8 hour period.

Training

Persons working with magnets will be evaluated and may be required to take a web-based course on [Static Magnetic Fields](#) (course #TQ-SMF).

Issues at the NSLS

Staff members with electronic medical implants should inform the Occupational Medicine Clinic (OMC) for a medical evaluation. Users should inform the NSLS ESH Coordinator before coming to the NSLS. If you have an electronic implant, you should not pass through the corridor opposite the klystrons in Bldg. 725 without OMC evaluation/approval as fields in this corridor range from 5-100 gauss. Based on surveys, we believe that there are no NSLS personnel whose whole body exposures are likely to exceed the whole body limit or extremity limits in an 8 hour period. Fields less than or equal to 600 gauss may attract metal objects such as tools, prosthetic devices, etc. so that they are uncontrollable and become flying hazards. See [Exposure Limits](#) for more details.

Need Help? Contact any member of the [NSLS ES&H staff](#) or Chris Weilandics (x2593).