

PHYSICS DIVISION PROCEDURE

LAB SPACE MANAGEMENT

1. SCOPE

1.1 This procedure applies to all Lab Spaces in Physics Division facilities.

2. PURPOSE

2.1 The purpose of this procedure is to define requirements for maintaining Integrated Safety Management (ISM) in Physics Division Lab Spaces.

3. REFERENCES

3.1 SBMS Procedure Maintaining ISM in Laboratory Space

3.2 SBMS Chemical Hygiene Plan

3.3 General Safety Expectations for All Physical Sciences Directorate Laboratories (included as Appendix A)

4. DEFINITIONS

4.1 Access, Active: Conducting hands-on experimental work or operations in support of experimental work.

4.2 Access, Passive: Passing through the Lab Space without conducting hands-on work.

4.3 Equipment Mentor: An individual assigned oversight responsibility for major experimental apparatus. Equipment Mentors or their designees serve as liaison between users of the equipment and the resources and services available in the Physics Division.

4.4 Experiment Mentor: An individual assigned oversight responsibility for user experiments. Experiment Mentors or their designees serve as liaison between users of the experimental apparatus and the resources and services available in the Physics Division.

4.5 Experiment Spokesperson (or Principal Investigator): The individual who has direct responsibility for an experiment or a class or experiments, including the ability to direct or recommend changes in the parameters of the experiment.

4.6 Graded Approach: A process through which the level of evaluation and control necessary to comply with a safety requirement is made commensurate with: (1) the relative risk to safety or security, (2) the

magnitude of any hazard involved, (3) the life-cycle stage of an experiment or project, (4) the programmatic mission of the experiment/project, (5) the particular characteristics of the experiment/project; and (6) any other relevant factors.

- 4.7 Imminent Danger: Conditions or practices which could reasonably be expected to cause an accident that will result in death or serious physical harm, significant property damage, or environmental impairment.
- 4.8 Lab Space: Lab Space includes all lab or experimental rooms and spaces covered by a Research Safety Summary, either active or inactive. The following spaces are exempt:
- Institutional spaces, utility areas, and common areas
 - Areas where work is performed that is covered by the Operations, Maintenance & Services work control process
 - Rooms or space where only office-type work is performed

Lab spaces are further classified as spaces (small), areas (large), or laboratories:

- 4.8.1 Spaces include offices (where other than office-type work is performed), control rooms, computer rooms, detector labs, data acquisition rooms (counting rooms), and space used for storage.
- 4.8.2 Areas include accelerator areas, accelerator related utility areas, and areas used for storage.
- 4.8.3 Laboratories: For the purposes of this procedure, the designation "laboratory" refers to a place routinely used *or intended to be used* for scientific or technical work which may be hazardous; including, but not limited to: research, quality control, testing, teaching, or analysis. Such work may involve the use (not just storage) of chemicals, harmful radiation, or processes including electrical or mechanical work which could be hazardous. A properly designed laboratory will have the following features: general ventilation system, cabinets and storage areas for chemicals, laboratory hoods (local exhaust ventilation), sinks, proper arrangements for waste disposal, and ready access to emergency eye wash and shower units (SBMS Chemical Hygiene Plan). Laboratories in the Physics Division are designated by the Physics Division Research Support Group Leader (refer to Appendix B for a list of Physics Division laboratories) on the basis of hazard analyses.

- 4.9 Lab Space Manager (LSM): A UT-Battelle employee acting on behalf of the Group Leader to oversee activities and operations in assigned Lab Spaces to help assure that hazards are identified and controlled and that the space is maintained in a clean and orderly manner. Persons in this role provide leadership in these areas of responsibility and act as a role model for workers in their assigned spaces.
- 4.10 Lab Space Posting: The SBMS-required posting that indicates hazards and access requirements for Lab Spaces, (e.g. PPE required for work with chemicals, soldering, power tools, on or near electrical work).
- 4.11 Laboratory Operations: For the purposes of this procedure, laboratory operations requiring PPE refers to periodic (1) handling or use of chemicals or radioactive materials -- including soldering, using liquid nitrogen and/or compressed gases, (2) using power tools such as saws, grinders, lathes, etc., and (3) electrical or mechanical work with the potential for significant injury or exposure.
- 4.12 Line Management: The Division Director and Group Leaders are Line Managers.
- 4.13 Standard Industrial Hazards/Practices: Hazards similar to those routinely encountered in industry and accepted by the general public that are adequately controlled by OSHA regulations or one or more national consensus standards (e.g., ASME, ANSI, NFPA, NEC).

5. REQUIREMENTS

- 5.1 Passive access to Physics Division Lab Spaces is authorized upon completion of facility access training (if applicable) linked to prox card readers at facility entrances.
- 5.2 If facility access training does not provide sufficient control for passive access to a Physics Division Lab Space, then the Lab Space Manager shall implement additional access controls such as locks, signs, postings, etc. Additional administrative access controls, such as training, shall be indicated on Lab Space postings.
- 5.3 Active access to Physics Division Lab Spaces requires the completion of all training required for hands-on work in accordance with the Physics Division Training Procedure and ORNL SBMS requirements. Line Management is responsible for ensuring that training is completed.
- 5.4 Appropriate personal protective equipment (PPE) (safety glasses with side shields, long pants, and closed shoes) is required for passive or active

access to laboratories when laboratory operations are being conducted. The Lab Space Manager has the option to (1) require PPE at all times in the laboratory or (2) require PPE only when laboratory operations are being conducted. If the Lab Space Manager chooses to require PPE only when laboratory operations are being conducted, the Lab Space Manager must prominently post all laboratory entrances "laboratory operations in progress, PPE required" or words to this effect. The Lab Space posting alone is not sufficient to meet this requirement; e.g., an additional sign or posting on a stand, flag, or rope is acceptable.

- 5.5 Site-specific training shall address unique hazards and corresponding controls in Physics Division Lab Spaces. Line Management is responsible for developing site-specific training, using the graded approach, for Lab Spaces under their control.

Note: Standard industrial hazards/practices (such as use of compressed gas cylinders) will be addressed in Division-level training. Site-specific training only needs to address those hazards unique to the Lab Space that are not already addressed in Division-level training.

- 5.6 All individuals shall adhere to access requirements and safety controls indicated on Lab Space postings and any other postings at the entrance to the Lab Space.
- 5.7 Lab Space Managers shall routinely monitor their spaces to ensure that appropriate access controls and safe working conditions are maintained.
- 5.8 Lab Space Managers shall conduct an assessment of their Lab Spaces at least once a year, verifying the status of the Lab Space (active or inactive).
- 5.9 Lab Space Managers shall update Lab Space postings at least once each year or when access requirements, hazards, or safety controls change.
- 5.10 The Physics Division Research Support Group Leader shall review the list of Physics Division-designated laboratories and their associated hazard analyses (e.g., Lab Space Certifications, Research Safety Summaries, associated procedures, etc.) annually, updating the list of laboratories as needed.
- 5.11 Work shall cease if unsafe acts or conditions are discovered. Staff should immediately take action to mitigate the issues resulting in unsafe acts or conditions.

Note: All personnel have stop-work authority for imminent danger situations.

Appendix A

**General Safety Expectations for All
Physical Sciences Directorate Laboratories**

The following general laboratory safety expectations have been developed by the Physics Sciences Directorate (PSD) Operations Team, which consists of the Division Operations Managers and the Directorate Operations Manager. These standards were compiled in an attempt to provide uniform interpretations for issues that we see across the directorate. In short, we want those of you who work in multiple divisions to have some assurance that expectations will be the same regardless of which laboratory you are working in at the moment. Your Division Operations Manager is your point of contact for these types of issues. When necessary, he or she will consult with other members of the Directorate Operations Team to ensure our interpretations remain consistent.

Because we want all of you to go home safely, we expect you to:

1. **Make it a personal habit to wear eye protection.** The minimum eye protection required to enter PSD laboratories is normally safety glasses with side shields. This is the standard for all areas where chemicals are in use or grinding, soldering, drilling, etc. are taking place. It is not the intention to require safety glasses in hallways, common-corridors, etc., where chemical cabinets are housed or in control rooms that are maintained as chemical-free rooms.
2. **Set a good example by using your personal protective equipment.** Do not establish "Safety glass free zones" within laboratories.
3. **Protect yourself by wearing clothing that will protect you from hazards in the laboratory.** Cover your arms, legs and feet to protect yourself from dermal exposures. Confine long hair and loose clothing.
4. **Protect yourself from accidentally ingesting the materials you work with.** Do not eat, drink, chew or store food in laboratories. Do not apply cosmetics while in laboratories.
5. **Minimize unnecessary exposures to hazardous materials.** Do not use desk areas in laboratories as your only office space.
6. **Challenge unsafe behaviors and communicate issues to the Laboratory Space Manager or Laboratory Space Group Leader.** Laboratory workers are also expected to receive these challenges in the spirit of self-improvement and consideration for our fellow workers.

Because we want all of you to go home safely, we will:

1. **Listen to your concerns.**
2. **Act on them.**
3. **Actively seek continuous improvement in our respective roles.**

Appendix B

Physics Division-Designated Laboratories

Building 6000 room 107 Target Fab Lab
Building 6000 room 111 Rad Lab
Building 6000 room 218 Electrical Lab
Building 6000 room C115 UNIRIB Target Room (loading target ion source)
Building 6000 room C117 (includes C117a and C117b) Material Test Stand
Building 6000 room T201 Stable Injector (probe preparation or glovebox operations)
Building 6000B room 102 (during glovebox operations)
Building 6010 room 126 (during glovebox operations)
Building 6010 room 226 EBIL and clean room hood
Building 6010 basement hoods