ORNL PHYSICS DIVISION
MULTICHARGED ION RESEARCH FACILITY PROCEDURE

ESH REVIEW OF EXPERIMENTS

COPY

ACTION	DATE	SIGNATURE
REVIEWED (ORIGINATOR)	11/26/2007	Fred W. Meyer
REVIEWED(ESH OFFICER)	11/26/2007	Stephen P. Withrow
REVIEWED (DOM)	11/27/2007	Sandra B. Kennedy
APPROVED (LINE MGMT)	11/27/07	David P. Schultz

ACTION	DATE	SIGNATURE

1. APPLICABILITY

1.1 This procedure applies to all experiments performed at the ORNL Multicharged ion Research Facility (MIRF), which involve either the use of extracted beams from the electron cyclotron resonance (ECR) or other facility ion source, or runs to develop new beams, new charge states, or improved intensities, or off-line development or upgrading of particular experimental end-stations.

2. REVIEW PERIOD, RECORD COPIES, AND DISTRIBUTION LISTS

2.1 The Atomic Physics Group Leader or his designee shall review this procedure every five years, or earlier if warranted by major facility configuration changes

2.2 The record copy of this procedure and its distribution list shall be kept in the MIRF HV Platform and Caprice Floating Beamline Work Control Document notebooks in B101, 6000B.

3. REQUIREMENTS

3.1 The Atomic Physics Group Leader or his designee shall assign mentors for each major experimental device and end-station.

3.2 End-Station Safety Inspections

Each end station or experimental device in active use at the ORNL MIRF shall receive a safety inspection at intervals not to exceed 24 months by the Physics Division ESH Committee. The ESH officer is responsible for the 24-month inspection. In addition, a safety inspection shall be conducted following any major modification of an end station or anytime a new hazard is introduced. The end station mentor shall be responsible for notifying the ESH officer of the need for a new inspection. Beam shall not be directed to any end station until the subject inspection had been performed and documented. If significant safety problems are noted, these problems shall be satisfactorily resolved before beam is directed to the end station. Final approval authority shall be the Atomic Physics Group Leader.

3.3 Safety Review of Experiments

The following procedures shall be used at the ORNL MIRF for safety review of experiments

3.3.1 Those present during scheduling meetings held to allot beam time for experimental end-stations and/or to allocate time for source testing, maintenance, or development shall form a *de facto* safety committee. It is the responsibility of the designated mentor of any

experiment introducing a new hazard during a particular scheduled run, including but not restricted to the introduction of new hazardous materials, of new physical hazards such as high voltage, vacuum, rotating machinery, LN_2 usage, new lasers, new source conditions resulting in the potential for increased emission of x-radiation, or change in interlock configurations, to inform the safety committee of the new hazard. The particular experiment introducing the new hazard may only proceed subsequent to approval of the above safety committee, and, as appropriate, of the Division ESH, Electrical Safety, Laser Safety ,or Radiological Control officers. Final approval authority shall be the Atomic Physics Group Leader or his designee.

3.3.2 Identification and mitigation of possible new hazards during an experimental run are the responsibility of the designated mentor of the particular experiment or end-station. Such new hazards shall also be brought to the attention of the MIRF Task leader, facility contact, and, as appropriate, the Division ESH, Electrical Safety or Radiological Control officers.

3.4 Configuration change documentation

Any changes in the configuration of HV ECR/platform or Caprice ECR/beamline components, or of end-stations or experiments that directly impact operation of the ECR ion sources or common beamlines, made during a particular experimental or development run shall be noted in the appropriate log book. These changes include, but are not limited to, change of cabling of power supplies or the supplies themselves. Any changes in x-ray shielding on the either the HV ECR source/platform or on the Caprice ECR source/beam line are subject to the requirements of the MIRF x-ray Shielding Configuration Control Procedure.

3.5 Housekeeping

It is the responsibility of each designated mentor of particular experiments or end-stations to assure good housekeeping in their respective area at all times, as well as the common ECR source control areas during a particular experimental run. This includes minimizing floor clutter, such as cables and tools (possible trip hazards), keeping free access lanes, and returning tools and power supplies, and other equipment to their appropriate storage sites at the end of a run.

3.6 Emergency shut-down and isolation information

Each experiment and end-station that uses process water, high pressure air, and/or electrical power shall have a clearly visible and labeled diagram showing locations of vacuum isolation gate valve switches, water shut-off valves, and circuit breakers. This diagram shall also have critical notes

itemizing steps to be taken in the event of loss of any of the energy sources itemized above, to be used if the experiment mentor is not personally present or reachable. An annual walk-through shall be attended by all staff performing research at the ORNL MIRF in which emergency shut-off steps for each experiment and/or end-station shall be reviewed, and the location of relevant vacuum isolation and water shut-off valves and circuit breakers identified. Completion of the walk-through shall be documented in both MIRF logbooks.

DISTRIBUTION LIST

Official Copy:
MIRF HV platform and Caprice Work Control Document Notebooks, Bldg. 6000B Rm. B101
MIRF staff
Atomic Physics Group Leader
Research Support Group Leader
Division ESH Officer