SECTOR ORIENTATION – SECTOR 33 & 34

Sector orientation checklist

Please check all items covered during the orientation and sign the form below. For more information on each item, please refer to the descriptions on the next pages.

Facility Safety Information

- □ "Safety first" principle & "stop work authority"
- □ Alarms & emergency phone numbers
- □ Emergency egress routes & procedures
- □ APS Registration
- □ Location of safety equipment (fire extinguisher, shower, eye wash)
- □ Waste disposal & Chemical Storage
- □ Safety Documentation (ES&H Plan, MSDS Access, Lab Binders etc.)
- □ Resources (Staff & APS Floor Coordinator)

Beamline Safety Information (*Beamline Specific*)

- □ Beamline Personnel Safety System (PSS) usage
- □ Shielding Configuration Control Policy
- □ Remote Motion Control Policy
- □ Utility Shutoffs
- □ LN2 usage & fill procedures
- □ Gas cylinder handling & usage
- □ Electrical Safety
- □ Good housekeeping

Beamline Operations Information

- □ Key cards for Lab and office access
- □ Experiment Safety Approval Procedures
- □ Procedure to use Lab Facilities
- □ Crane Operation Procedures (can have training)
- □ Location of Beamline Documentation
- □ Equipment Protection System (EPS)
- □ Computer use
- □ End of Run Survey
- □ Publications

Authorizations

User is permitted unescorted access to Sector 33 / Sector 34 / Both
(Please circle appropriate Sector)

User is permitted / not permitted to submit a Configuration Control Work Request.

User is permitted / not permitted to make beamline vacuum changes.

I hereby acknowledge that I have received sector orientation and that I understand the instructions given to me.

User's Signature: _____ Date:_____

Name (print): _____ Badge Number: _____

Instructor (print): _____ Signature:_____

Sector orientation notes – Sector 33 & 34

The following sector orientation notes for Sectors 33 and 34, which are operated by the Surface Scattering and Micro-diffraction Group (SSM), are intended as additional reference material. Personal sector orientation training administered by SSM personnel is required for all experimenters.

Facility Safety Information

"Safety first" principle & "Stop Work Authority"

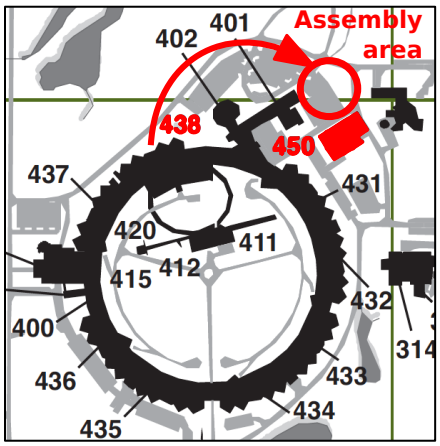
Work performed at Argonne must strictly follow the **safety first principle**: "No work we do is so important that it needs to be done without assuring the proper safety measures."
Users and Argonne personnel have "**stop work authority**": If you observe anyone doing work that is deemed unsafe or potentially unsafe, you have the authority and obligation to issue a "stop work" order. All activities must be suspended immediately until work conditions are confirmed to be safe, and the incident needs to be reported to a supervisor or safety official.

Alarms and emergency phone numbers

Dial 911 from any Argonne phone in case of any emergencies. From cell phones, dial (630) 252-1911 to reach Argonne's Protective Force directly.
In the Sector 33/34 area, the main alarm signal is the fire bell. Evacuate the building immediately in case of a fire alarm.
Tornado warnings and watches are announced over the intercom. In case of a tornado **warning**, seek shelter in any of the tornado shelters (restrooms, machine shop, floor coordinator office) immediately.
Note that non-compliance with any emergency procedures will result in the immediate suspension of the experiment.

Emergency egress routes and procedures

Upon arrival and during the sector orientation, identify all the nearby emergency exits. The assembly area in case of a building evacuation is on the north side of building 450 (north-east side of the 401 parking lot). If no alarms are active inside the LOM, it is OK to leave the experimental hall and stay inside the LOM (and vice-versa).



APS registration

All on-site users must be registered APS users, participate in the APS administered orientation, and need to receive all the required safety training through the user office or online prior to their experiment.

Location of safety equipment

Safety equipment is located in the following locations:

- **Fire alarm boxes:** Next to all emergency and building exits.
- **Fire extinguishers:**
  - Experimental floor: columns 161, 163, 165, 166, 167, 169
  - LOMs: hallway in each pentagon, all laboratories
- **Showers:**
  - Chemical Laboratory (438-D030)
  - Additional showers in restrooms
- **Eyewash:**
  - Chemical Laboratory (438-D030)
  - Near column 51 on the experimental floor (towards central machine shop in 401 building).

Note that any activities that may require emergency access to a shower or eyewash need to be carried out in the chemical lab.

Waste disposal and chemical storage
Note that SSM is not a chemical stockroom and cannot store materials for the user's chemical needs. Users should plan to have chemicals shipped in and out of ANL for their experiments. Any waste that is generated must be disposed of properly in coordination with the SSM Chemical Safety Officer. All chemical containers must be correctly labeled at all times.

Safety documentation
The SSM ESH Plan can be found on the SSM website:
http://www.aps.anl.gov/Sectors/33_34/admin/Unicat Safety Plan June2005.pdf
Material safety data sheets (MSDS) for all chemicals present at the beamlines and the chemical laboratories can be found in the MSDS folders or in the ANL MSDS database:
https://webapps.inside.anl.gov/cms/msds/
All activities in SSM laboratories require a written lab procedure, which needs to be submitted for approval through the ESAF system prior to the experiments. The approved procedures will be posted on the laboratory door.
General information about safety at Argonne can be obtained by visiting (intranet only):
http://inside.anl.gov/safety

Resources
Identify the SSM personnel responsible for comprehensive safety, electrical safety, chemical safety, laboratory safety, and the LOM shop. Contact information for the personnel responsible for each station or laboratory is posted on the corresponding door. Also note the APS on-duty floor coordinator can be contacted any time (dial 2-0101 and leave your contact number) and can direct you to the appropriate person to contact in case of any issues. The local floor coordinator's office (438-C001) is located at column 165 on the outside of the experimental hall. Also, please do not hesitate to contact any of the resident staff with any questions.

Beamline Safety Information

Beamline PSS usage
The Personal Safety System (PSS) is there to ensure that nobody is exposed to harmful radiation. The procedure and the search pattern for experimental hutches will be demonstrated during the sector orientation. One person conducts the search after all other experimenters have left the hutch. Note the location of the emergency stop button inside each hutch. It should be pushed immediately if you are locked inside a hutch. Also, the procedure to operate the beamline shutters will be explained by your beamline contact.

Shielding configuration control policy
Pink tags identify shielding elements that are under administrative control. Users may not move, modify, or alter controlled shielding in any way (this includes the labyrinths). If modifications are required, SSM staff or the floor coordinator must be contacted first.

Remote Motion Control Policy
When moving motors and equipment remotely, ensure that the motion range is clear, and especially that nobody is within a possible collision range of the equipment. Large diffractometer circles or similar parts may move very swiftly and quietly, creating severe striking or pinching hazards without audible warning. Notify anyone in the vicinity of the moving equipment before starting a motion. Monitor the moving equipment closely during operation, particularly while it is directly accessible to other experimenters.

Utility shutoffs
Each experimental station is equipped with emergency shutoff switches for the main electrical power, water, and compressed air supplies. Their location and operation will be explained during the sector orientation.

Liquid Nitrogen (LN2) usage and fill procedures
For experiments that require LN2, the location of the LN2 fill-station and the appropriate filling procedures will be explained during sector orientation. Proper PPE must be worn at all times when working with liquid nitrogen, including long pants and closed shoes.

Gas cylinder handling and usage
Storage locations for gas cylinders will be pointed out during the sector orientation. Gas cylinders must be safely secured at all times. Disconnect any regulators and secure the cylinder safety cap before transporting gas cylinders. Always use proper gas regulators (they are different for different gases!).

Electrical Safety
Users are only permitted to plug and unplug office equipment, appliances, scientific, and similar equipment to/from standard outlet and to replace batteries in calculators, flashlights, and similar equipment. Electrical equipment brought to the APS must be inspected and approved by APS before it can be used at the beamline. Users are not authorized to reset circuit breakers. If a circuit breaker trips, contact the floor coordinator, who will make sure that the equipment is inspected for safe operation before the power may be activated again. Also note that daisy chaining of extension cords is not allowed.

Good housekeeping
It is important to keep work areas neat and orderly, and safety egress routes and aisles free of obstructions. Observe the posted restrictions for food and chemical usage at the beamline.

Beamline Operations

Key cards for Lab and office access
The APS building doors and all SSM laboratories and offices are equipped with proxcard readers for access control. Hold your user badge in front of the readers to unlock doors that you are authorized to use. Access rights to the SSM facilities need to be granted for each user by the beamline staff. Laboratory access is only authorized once the corresponding safety training and ESAF documentation is complete.

Experimental Safety Approval Procedures
All experimental activities must be identified on the approved and posted safety form (ESAF). This includes identification of all samples. If the experimental procedures need to be changed during an experiment, the ESAF must to be modified accordingly by the user and then has to be reapproved by APS staff before the new procedures can be carried out.

Procedure to use SSM Lab facilities
Special training needs to be administered and all procedures need to be approved through the ESAF system before users are authorized to use the SSM Laboratory facilities. The SSM Laboratory Safety Officer will assign space in the lab to assure that activities are appropriate and compatible with other activities in the lab. Under no circumstances may the users carry out procedures that fall outside the scope of the approved protocols.

Procedure to use LOM shop
Users are not authorized to use the machine shop. If access is required, the SSM Shop Coordinator must give orientation and grant approval prior to shop usage. A practical safety demonstration and approval is required by APS.

Crane operation procedure
Users cannot operate cranes or hoists, unless they have passed the required safety training (needs to be organized well in advance of experiments). Contact your SSM staff if your experiment requires the use of a crane or hoist.

Location of Beamline documentation
The beamline documentation is located at the experimental control stations.

Equipment Protection System (EPS)
The equipment protection system is designed to protect beamline components from damage. Usually, the white beam shutter will be closed in case of any EPS faults. The fault will be displayed on the EPICS EPS status panel. If an EPS fault occurs, contact beamline personnel immediately. Users are not authorized to handle EPS faults in the absence of beamline personnel.

Computer usage
All APS computers are to be used only for official use and in accordance with the cyber-security guidelines. No software is to be loaded without prior approval. Note that all computing activities are monitored by APS.

End of Run survey
APS requires all users to complete an end of run survey; a link is located on the SSM website under *User information and forms*:
http://beam.aps.anl.gov/pls/apsweb/eef0001.start_page

Publications
Please remember that as an APS user, you are required to notify both the APS and your host beamline staff of all work published in the open literature related to research carried out wholly or in part at the APS. More information about the publication notification requirements can be found here:
http://www.aps.anl.gov/Sectors/33_34/admin/publications.html
http://aps.anl.gov/Science/Publications/

Note

Although this sector orientation document applies to both Sectors 33 and 34, your sector orientation includes many items that are station-specific (locations of shutoffs, PSS search pattern, etc.). It is therefore a good idea to retake the sector orientation when working at a new station in the SSM facilities to familiarize yourself with all of the station-specific details.