



Sector 35 Orientation

Introduction

Welcome to The Dynamic Compression Sector (DCS)! This is the first step in completing your sector orientation. The following slides will provide insight on protocol and safety requirements when conducting experiments at the DCS. Please read through the following information carefully, as you will need to be aware of all the rules and safety precautions at Sector 35.

The DCS Sector Orientation is split into two Parts.

- Part One consists of this online training course and your review of the DCS Conduct of Operations Manual.
- Part Two is conducted onsite at DCS upon your arrival. You will receive a tour of the DCS Facilities, led by one of the DCS staff. The tour will correspond with the information you will read in the following slides.



Advanced Photon Source



Sector 35 Orientation

Safe Conduct of Experimental Work

Experiment Safety Guidelines

All experimenters onsite must read and abide by the rules in your Experimental Safety Approval Form (ESAF). These can be found in the subsection “APS Experiment Review Board Comments” which will be posted on the experimental hutch door. Your ESAF must be posted by an APS floor coordinator before you are permitted to start any work at the APS.

Conduct of Operations Manual

The Conduct of Operations Manual defines the process and policy for the conduct of operations for work activities conducted at the DCS. Conduct of Operations is a philosophy of working in a formalized, disciplined manner to achieve operational excellence that requires a commitment to maintain the highest standards of quality.

Review the Conduct of Operations Manual on the DCS Website: <https://dcs-aps.wsu.edu/dcs-safety-training-information/>. You will be asked to confirm your understanding of the Conduct of Operations during Part Two of the DCS Sector Orientation.



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Safe Conduct of Experimental Work

Stop Work Authority

All DCS staff, visitors, facility users, and contractors are empowered and obligated to stop any activity they deem to pose an immediate danger to themselves; other workers, visitors, users, or contractors; the public; or the environment. This authority is referred to as the “stop work authority.” Individuals who exercise stop-work authority also are obligated to immediately report their action to the DCS Manager. The DCS Manager will then report the stop work to the DCS PI and APS Management, as appropriate.

Work may not resume until the DCS Manager has verified that appropriate hazard control measures are in place and that the individual who stopped the work has had the opportunity to concur with the corrective action.





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Emergency Phone Numbers

Dial 911 from any ANL landline for ALL emergencies. You will then be connected to an Argonne dispatcher.

Mention any type of emergency (chemical spill, heart attack, fire, riot) and a dispatcher will send Hazmat, Paramedics, Fire or Police as appropriate.

If using a cell phone, please dial (630) 252-1911.

In the case of an emergency that requires an evacuation, proceed to the nearest exit and evacuate to the north side of Building 450 (the main APS Building; North is towards the Argonne Guest House) unless directed otherwise by a Building Monitor wearing a yellow “monitor” hat. Building Monitors will provide instructions to all personnel on where to proceed.



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Fire and Tornado Safety

Fire Extinguishers

You will see fire extinguishers in several locations throughout Sector 35. These are only to be used by the ANL fire department or those who have received an official ANL fire extinguisher training. If not certified in a fire emergency, call 911.

Fire Alarms

APS has a two-stage fire alarm system. If you hear a fire alarm in the Experiment Hall, proceed to the LOM (Lab Office Module) areas. If the fire alarms are also ringing in these areas, proceed to the nearest emergency exit, and collect at the north side of Building 450.

Tornado Alarms

For a tornado alarm, proceed directly to the nearest tornado shelter. The men's and women's restrooms serve as the closest tornado shelters for Sector 35.



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Electrical Safety

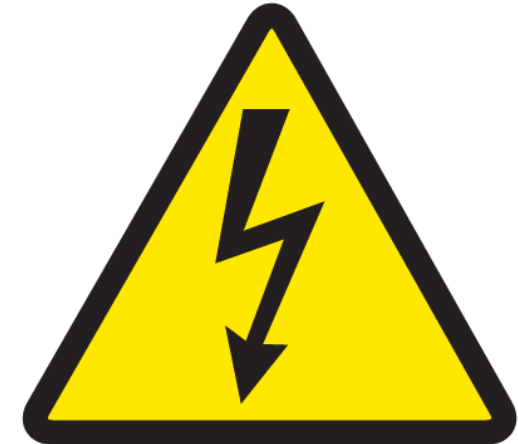
Device Inspection

All electrical devices brought onsite are subject to the ANL electrical safety and inspection policy. Please identify any equipment you plan to bring on your ESAF and request an inspection on the “Electrical Inspection” tab of the ESAF.

Power Strips and Extension Cords

Multiple, ganged power cords are not allowed, it is a fire and trip hazard.

Power strips must not be attached to a surface that requires a tool to remove them such as zip ties, but they may be attached with items such as Velcro.





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Lab Safety

Chemical Eye Wash and Shower

A chemical shower and eye wash station is located in the F030 Chemistry Lab and an eye wash station is located in the F020 Sample Preparation Lab.

Personal Protective Equipment (PPE)

Protective eyewear with side shields must always be worn when working in F030 Chemistry Lab, F020 Sample Preparation Lab and the Machine Shop. Bring personal safety glasses with you to the DCS or purchase from the APS Stock Room using your valid [user account](#).





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Lab Safety

Sharp Items

When working with sharp items (razor blades, syringes, etc.) do not leave the item on the counter when no longer in use. Make sure sharp objects are closed and safely stored away. Any broken shards or used razor blades/syringes must be placed in the designated sharps disposal container.

First Aid Kit

For access to a first aid kit, please see a member of the Administrative Team for assistance.





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Lab Safety

Disposal of Waste/Storage of Chemicals

Absolutely nothing should be disposed in common trash cans or the sink except “kitchen chemicals”, common soap, or general waste. All other waste must be appropriately packaged, labeled, and logged by staff into proper disposal containers.

Please contact a staff member to properly dispose of hazardous waste.

If you plan to leave any samples/chemicals at the DCS, for whatever reason, the container must be labeled and dated. Please obtain permission from the DCS Manager before leaving samples/chemicals the DCS.

Storage of Gas Cylinders

Gas cylinders must be inspected and always tied down. When the cylinder is transported, the cylinder must be capped and the person transporting the cylinder must use a gas cylinder cart. Proper safety shoes and safety glasses must be worn while transporting the cylinder.



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Lab Safety

Safety Documentation

All hazardous chemicals left at the DCS for longer than seven days must be logged using the Argonne Chemical Ordering, Reporting, and Attributes Library (CORAL).

Please ask the DCS Chemical Safety Coordinator to obtain a chemical tag and to have the material stored.

Any large quantities of flammables, or reagents must be stored in the properly marked and designated location.

All resident and off-site users have access to the CORAL SDS Database. The link below will direct you to the PSC Safety Resource page which you can access the CORAL SDS Database.

[PSC Safety Resources](#)



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APS Radiation Safety

Radiation dosimeters

Must be worn by **All** personnel on the Experiment Hall Floor to measure radiation exposure. You will be prompted by the DCS to complete forms to be issued a dosimeter. It must be worn at all times by users and staff who go beyond the office area to the main aisle and beamline area. Additional steps may be required.

If you have not yet completed GERT training and submitted online forms, please contact dc.admin@wsu.edu for assistance.

Additional dosimeter details can be found on the APS website: <https://www.aps.anl.gov/Users-Information/APS-Dosimetry-Information>



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Restricted Access

Laser Control Area

Users are not allowed into the Laser Control Area (LCA) unless authorized. Authorized personnel must have the Laser Control Area supervisor approval, understand the Laser Safety Operating Procedures (SOP) and have completed the APS **Training Course ESH120**.

DCS Machine Shop

Users are not permitted to use the machines in the DCS Machine Shop.



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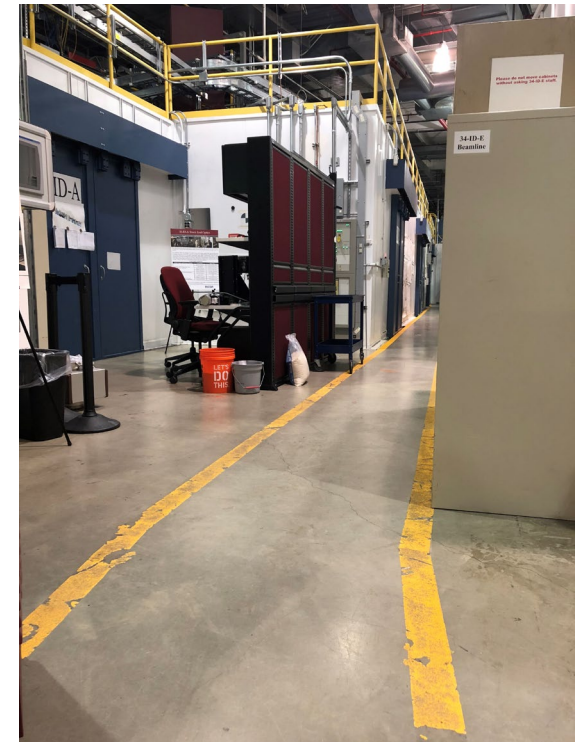
Work Area

Working Alone

Users are *NOT* allowed to work alone if the work has a potential risk associated with it. In this instance, you must contact an APS Floor Coordinator or the APS Control Room both available 24hrs (Only one APS Floor Coordinator is available for the whole ring from midnight to 8am).

Neat/Organized Work Station

It is important to keep your work area neat and orderly. Make sure all aisles are free from obstruction for fast fire egress.





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Work Area

Laser Safety And Awareness

Users of Sector 35, DCS, typically use ultrafast, high-power lasers in the user operation mode, where the laser safety interlock system ensures the laser safety shutter opens only when all X-ray hutch doors are closed. Obey the laser signage before accessing areas.





Sector 35 Orientation

General Safety Guidelines

Liquid Nitrogen Safety

LN₂ may be dispensed into a 4-liter transfer dewars. Pour liquid nitrogen into the low-form dewar flasks from the 4-liter transfer dewar.

The following PPE is required when handling LN₂:

- Cryo gloves
- Face shields/Eyewear
- Apron
- Closed-toe, non-absorbent shoes
- Non-cuffed pants
- Cotton-fiber long sleeve shirt





Sector 35 Orientation

General Safety Guidelines

Cranes/Chain-Fall Hoists

Users are not permitted to operate cranes/chain-fall hoists at the DCS.

Please ask a member of the DCS staff if you will need to perform work involving the crane/chain-fall hoist.





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DCS Implementation of the APS Shielding Configuration Policy

Each station is checked for radiation tightness on a regular basis by APS Health Physics personnel.
NO MODIFICATIONS of the station walls, tagged station hardware, safety electronics, safety switches or safety cables are permitted.



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General Safety Guidelines

Search and Secure

Each hutch must be searched and secured before the x-ray beam can be introduced into the hutch.

This search and secure procedure must be conducted by a trained individual. Each user will be trained to safely conduct a search for the hutch they will be working in as part of the on-site portion of this orientation.

All personnel must exit the hutch before the search and secure procedure may begin.





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Experimental Hutches

Search and Secure Procedure

- Look at buttons
- Locate yellow blinking light
 - If light is not blinking, check doors and the Emergency Beam Stop button.
 - Inform all personnel to leave the hutch now.
 - After all personnel have left the hutch, press the green button in sequence.
- Leave area
- Hit 'Close Door' button
 - Watch to ensure no one enters the hutch
- When light turns green, it indicates it is ready, the area has been searched and secured, and the shutter can be opened.
- To open: hit red 'Open' button
- Emergency Beam Stop Button prohibits a search
 - If it is inadvertently pushed in, pull it out.





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Experimental Hutches

Emergency Beam Stop

Each experimental hutch is equipped with an emergency beam stop. These are used in the unlikely event that you should be locked in an experimental hutch. Pressing the red button while the shutter is open will dump the storage ring and stop the x-ray beam.





Sector 35 Orientation

General Policies

Tricycle Usage

Each tricycle at the APS belongs to a specific sector/group. Please do not use tricycles that belong to other sectors. If you need to use our tricycle, please ask a member of the Administrative Team for assistance.

Pedestrian Safety

Before entering the ring, please exercise caution and look both ways before entering the Experiment Hall. The walkway is shared with tricycle traffic and motorized/moving vehicles including forklifts and scissor lifts.



Sector 35 Orientation

General Policies

Before Leaving

- Clean up your work areas, including beamline, control area, lab space and any other areas your team used while at Argonne.
- Return all tools and equipment to the original locations.
- Take your samples and chemicals with you; arrange return shipments or disposal with Admin Team.
- Complete all return shipping and hazardous waste documentation before leaving.
- Dispose of food and take all belongings.
- Return your dosimeter to the Bldg. 438 Rack down the hall from the DCS.
- If unsure, ask the DCS Person-In-Charge for guidance.



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Public Acknowledgments

The APS and the DCS shall be acknowledged in any Accepted manuscripts that include experimental work conducted at the Dynamic Compression Sector. <https://dcs-aps.wsu.edu/publication-acknowledgements/>

Both the APS and the DCS require notification: Send a copyright-free version of each Accepted manuscript to the DCS at dcs.admin@wsu.edu.

- Enter each Accepted manuscript into the APS Publications Database through the [APS Publications](#) webpage.



Sector 35 Orientation

Conclusion

This concludes Part One of your orientation. Please click the **“Verification”** link below, where you must log in with your badge number, and confirm that you have completed your online orientation.

When you arrive on site, a member of the DCS staff will assist in completing Part 2 of your Sector Orientation.

[Verification](#)