

ARCS Instrument Orientation Guide

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NEUTRON SCIENCES



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Objective

The objective of this document is to familiarize users with policies and procedures governing research activities at the SNS and the wide Angular-Range Chopper Spectrometer (ARCS or BL18), and to review features of the target building and beam line. This document contains the material covered during the instrument/target building site-specific training, which is conducted in person by a member of the BL18 staff.

This document is provided by the ARCS instrument staff as an introduction to beamline operations, and does not venture into specific details about subsystems. Where appropriate, links and reference material to cover specific situations (i.e. emergency response, data acquisition, data analysis) are provided.

Users are encouraged to contact members of the instrument staff with any questions that arise during the course of this introduction, and to avail themselves of the beamline staff, Instrument Hall Coordinators and other support personnel when on site.

Training

To ensure that all work is completed safely, all ORNL staff, and SNS/HFIR instrument users are required to be trained on laboratory policies, and instrument specific requirements.

The User Office will present you with your general ORNL training requirements. In order to maximize your time on site working at the instrument, **please** complete as much of this training as possible prior to the start of the experiment. The User Office training requirements must be completed for unescorted access to the instrument. Please see <http://neutrons.ornl.gov/users/step2.shtml#access> for more information regarding the User Office required training.

When you arrive at the instrument, a member of the instrument staff will provide training on instrument specific safety concerns, policies and procedures for users. There will be a checklist outlining the required training, and the ARCS instrument staff member will fill out a record of the training and return it to the training/user office. Instrument specific training is valid for two years.

About the ARCS Instrument

The wide Angular-Range Chopper Spectrometer (ARCS), located at beamline 18 of the Spallation Neutron Source, is a high intensity, direct geometry Fermi-chopper inelastic spectrometer designed to provide flexibility in the choice of energy resolution and to perform over a large range of incident energies (25-2000 meV). A cross-section of the instrument is shown in Figure 1.

Beamline 18 is located in the north-west corner of the SNS Target Building. Figure 2 indicates the location of the target building relative to the SNS site and the location of the ARCS instrument

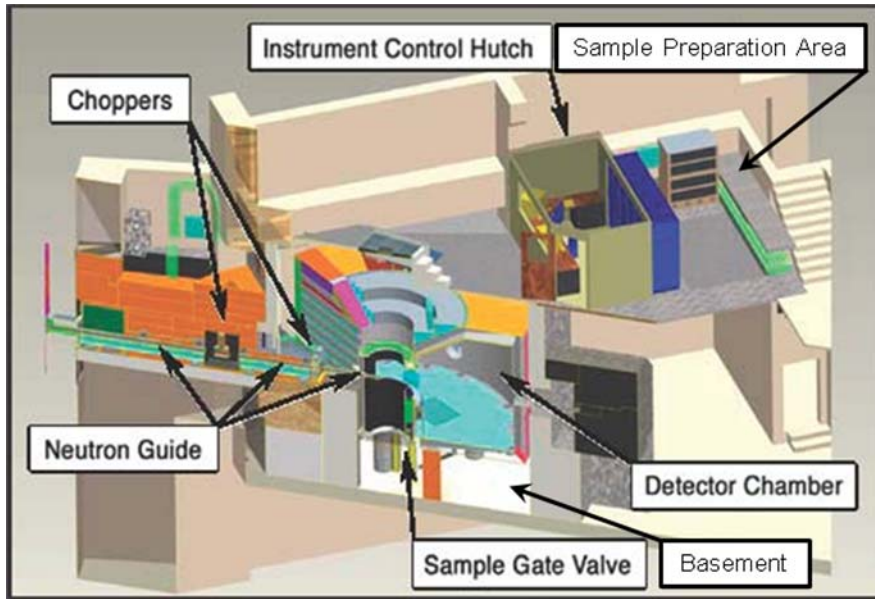


Figure 1 – Cross-section of the ARCS instrument.



Figure 2 – Aerial photograph of the SNS site indicating the location of the central laboratory office building (CLO), the SNS Target Building and the location of the ARCS instrument.

Accessing the ARCS Instrument

From the Central Laboratory Office (CLO), there is a bridge connecting the CLO and the target building, which is accessible via the second floor of the CLO. In order to cross the bridge unescorted, a user must possess current target building training, as access to the bridge is controlled by a proximity card reader. The door to this bridge is located near the User Office, as shown in the map below (Figure 3). The route to the bridge is shown with arrows.

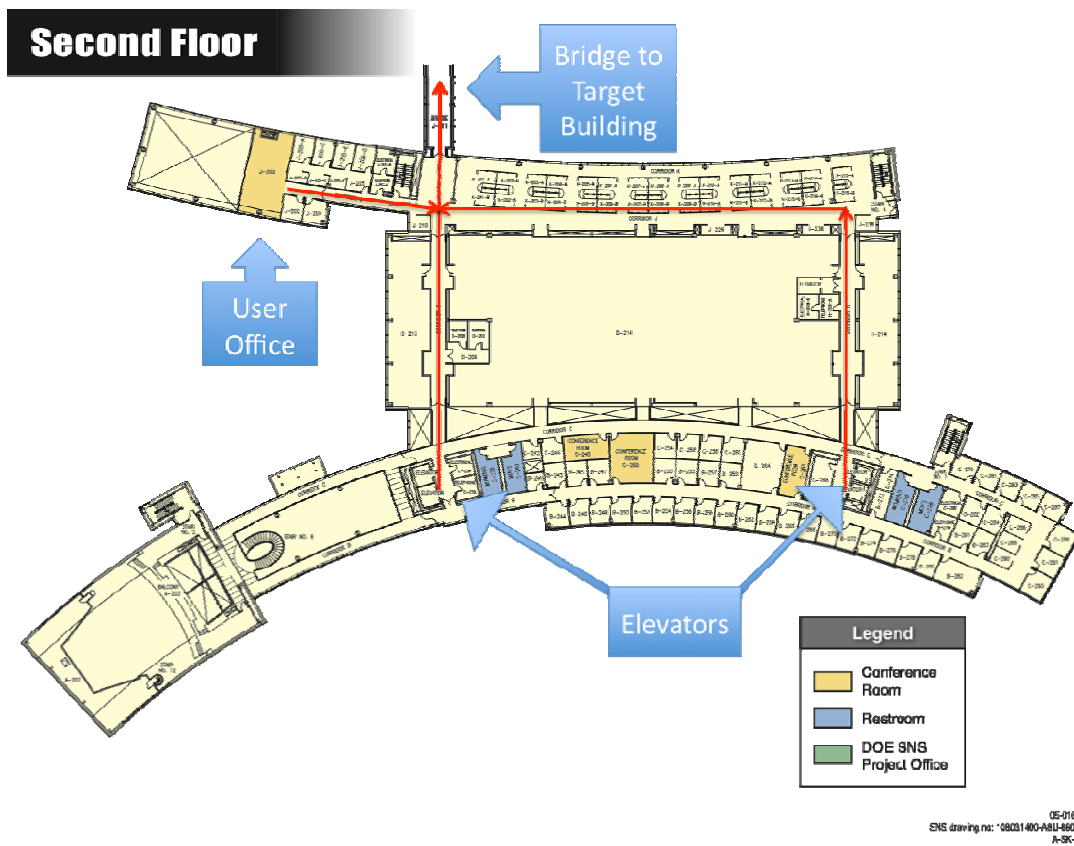


Figure 3 – Floor plan of the second floor of the SNS Central Laboratory Office (CLO). Red arrows illustrate path to the bridge to the Target Building.

After crossing the target building bridge, continue along the mezzanine on the north side of the target building. The map below (Figure 4) shows the route along the target building mezzanine to reach the ARCS instrument.

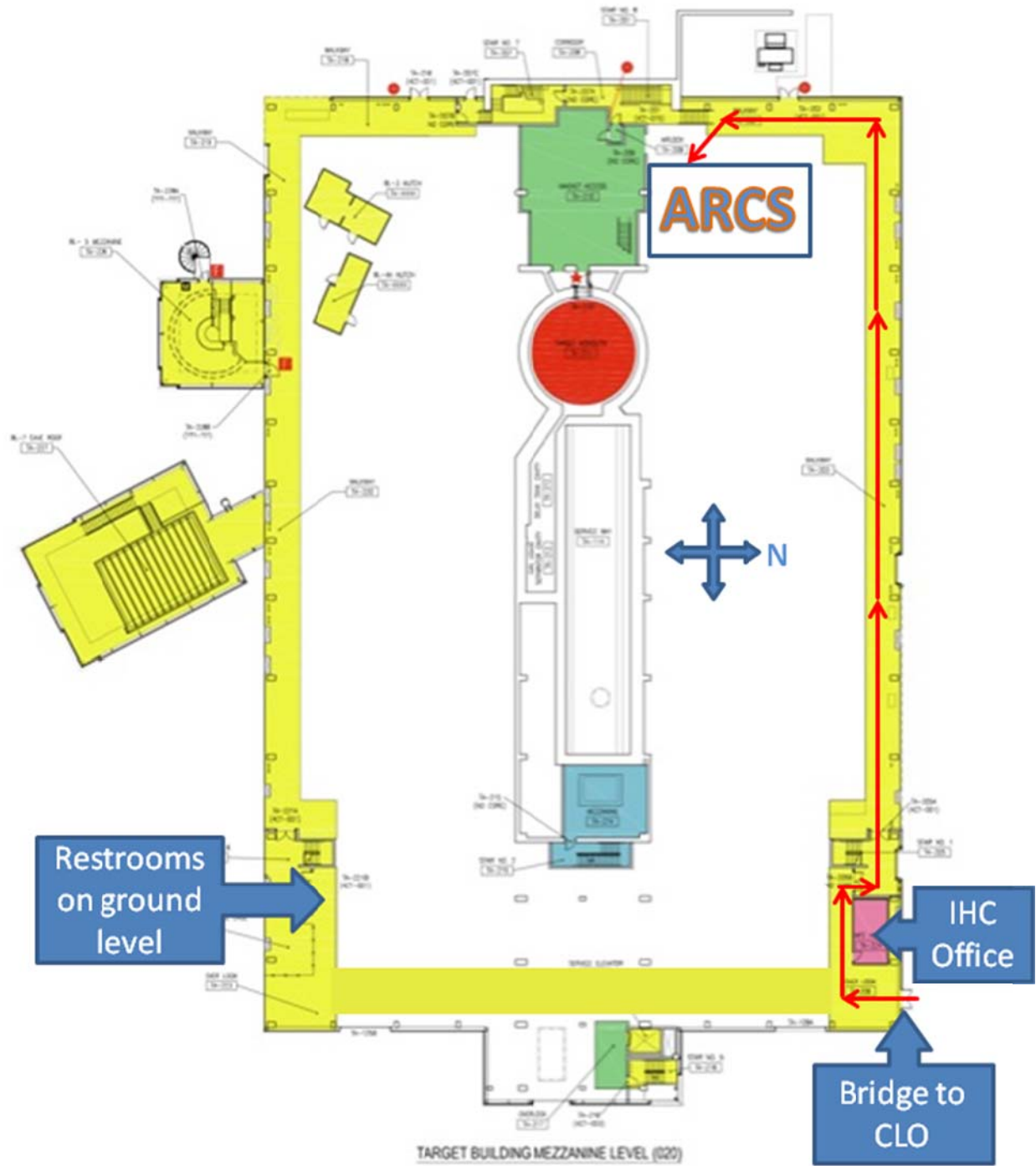


Figure 4 – Floor plan of the Target Building mezzanine level of the SNS. Red arrows illustrate path from the bridge to the ARCS instrument. The location of the Instrument Hall Coordinator (IHC) office and the restrooms are also indicated.

At ARCS

Instrument Control Hutch

The ARCS instrument control hutch is located on the north-west portion of the mezzanine of the Target Building. Figure 1 illustrates its location relative to the instrument and beamline. Access to this room is gained from the target building mezzanine.

This room contains all the control computers associated with operation of ARCS, the ARCS data analysis computer, and control racks for the data acquisition and detector systems. Both ORNL visitor wireless (see <http://www.ornl.gov/ornlhome/wireless.shtml> for more information) and WPA wireless network access is available in this area.

IPPS Controlled Areas

All instruments at the SNS employ the use of an Instrument Personnel Protection System (IPPS). The IPPS is a credited engineering control that is designed to protect personnel from elevated levels of radiation. IPPS areas are not accessible when the ARCS instrument shutter is open.

There are three IPPS controlled areas at ARCS. These are the detector enclosure, the ARCS basement directly under the detector enclosure, and the ARCS sample room. Users only require access to the ARCS sample room. The IPPS controlled sample room area is accessible from the mezzanine of the target building. Users may enter this area only after appropriate training is completed.

The ARCS IPPS mezzanine panel controls entry into the sample room. This panel is located adjacent to the mezzanine level access door to the sample room. Users shall be trained on accessing this area via hands-on training with instrument staff, and reading and understanding of associated procedures.

Sample Preparation Area

A sample preparation area for ARCS is located on the mezzanine level of the target building immediately behind the ARCS control room (see Figure 1). Users are permitted use of these facilities for preparing approved samples for ARCS experiments after appropriate training. Use of these facilities must follow the sample handling procedures for the ARCS instrument.

ARCS Basement

A portion of the ARCS instrument, the so-called ARCS Basement, is accessible from the lower level of the Target Building (see Figure 1). This area is to be accessed by staff only. If access to this area is required, contact a member of the instrument staff for assistance.

Target Building Features

A Note about Construction

As you will notice, many of the instruments at the SNS are still under construction, and there are many construction areas. Please do not enter into any area that appears to be a construction area, and please do not enter into areas requiring personal protective equipment (PPE), unless you have an escort and the appropriate PPE. Areas requiring PPE are posted accordingly.

Breakroom

A breakroom with beverage and food vending machines is located on ground level directly below the instrument hall coordinator office.

Restrooms

Restrooms are located on the instrument floor near the south side roll-up door.

Wireless

Wireless access to the ORNL visitor wireless network is available throughout the target building. Visitors will be automatically redirected to the VisitorReg page upon their first attempt to access any web site via the visitor wireless network.

Target Building Evacuation Map

In the event of an emergency requiring evacuation of the target building, please proceed immediately to assembly point F, as shown on the following map (Figure 5). This assembly point is located in the parking lot underneath the bridge between the CLO and the Target Building

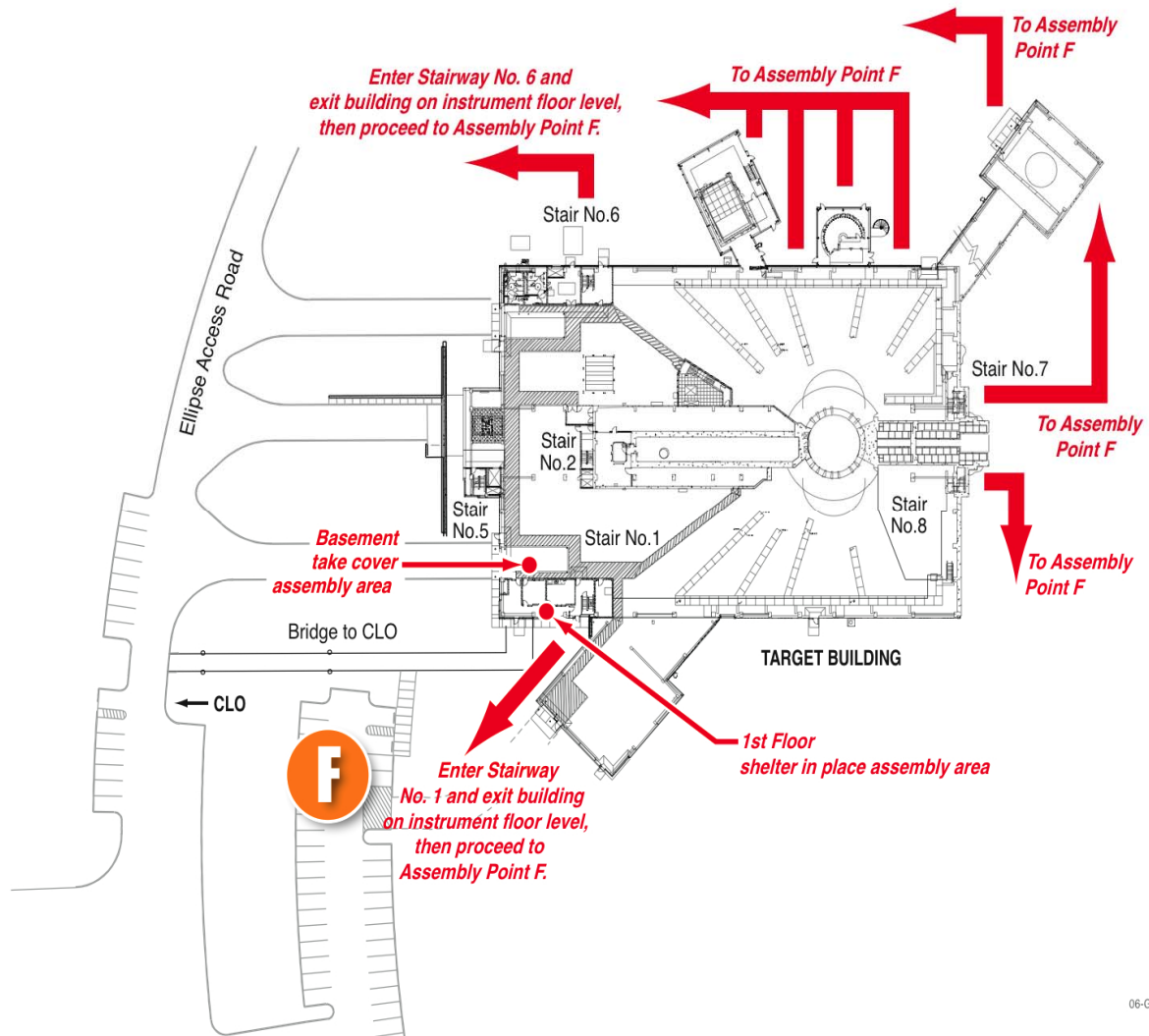


Figure 5 – Target Building evacuation map illustrating the various exits from the Target Building and the location of the Assembly Point ‘F’ beneath the bridge connecting the CLO and the Target Building.

Contact Information

Emergency Phone Numbers

Emergency Situation requiring ORNL Emergency Medical Technicians or Fire Protection Services	Laboratory Shift Superintendent (865)-574-6606
ORNL 911	911 from A LAND LINE PHONE 574-6606 from a CELL PHONE <i>IMPORTANT:</i> If you dial 911 from a cell phone, you will reach a nearby municipal or county agency, AND THEY WILL NOT BE ABLE TO RESPOND APPROPRIATELY
Instrument Hall Coordinator (IHC)	(865) – 241-4432
Radiological Protection (RCT)	(865) – 574-6588 (office) (865) – 274-8658 (mobile)
Central Control Room (CCR)	(865) – 576-1502
Personnel Protection Systems	(865) – 241-2727

Instrument Staff

ARCS Instrument Scientist - <i>Doug Abernathy</i>	(865) 576-5105 (office) (865) 617-5624 (mobile) abernathydl@ornl.gov
ARCS Instrument Scientist - <i>Matthew Stone</i>	(865) 241-0483 (office) (865) 202-6898 (mobile) stonemb@ornl.gov
ARCS Scientific Associate - <i>Mark Loguillo</i>	(865) 235-9000 (mobile) loguillomj@ornl.gov

Instrument Infrastructure

Data Acquisition Group (DAS)	(865) – 574-0753
Detector Group	(865) – 705-3650
Sample Environment Group*	(865) – 719-0656
Chopper Group*	(865) – 241-6351 (lab) (865) – 417-6352 (pager)

**Note – the Instrument Hall Coordinators maintain a list of on-call technicians.*

Contact IHC if problems are encountered during off-hours.

Other Contacts

User Office - <i>Judy Trimble</i>	(865) – 241-3675
NSSD Operations Manager - <i>Greg Rowland</i>	(865) – 806-5481
SNS Operations Manager - <i>Frank Kornegay</i>	(865) – 574-6688 (kornegayfc@ornl.gov)
NSSD Division Director - <i>Dean Myles</i>	(865) – 574-0548