



Short summary of ODIN and General Safety

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Agenda



1 ODIN Overview

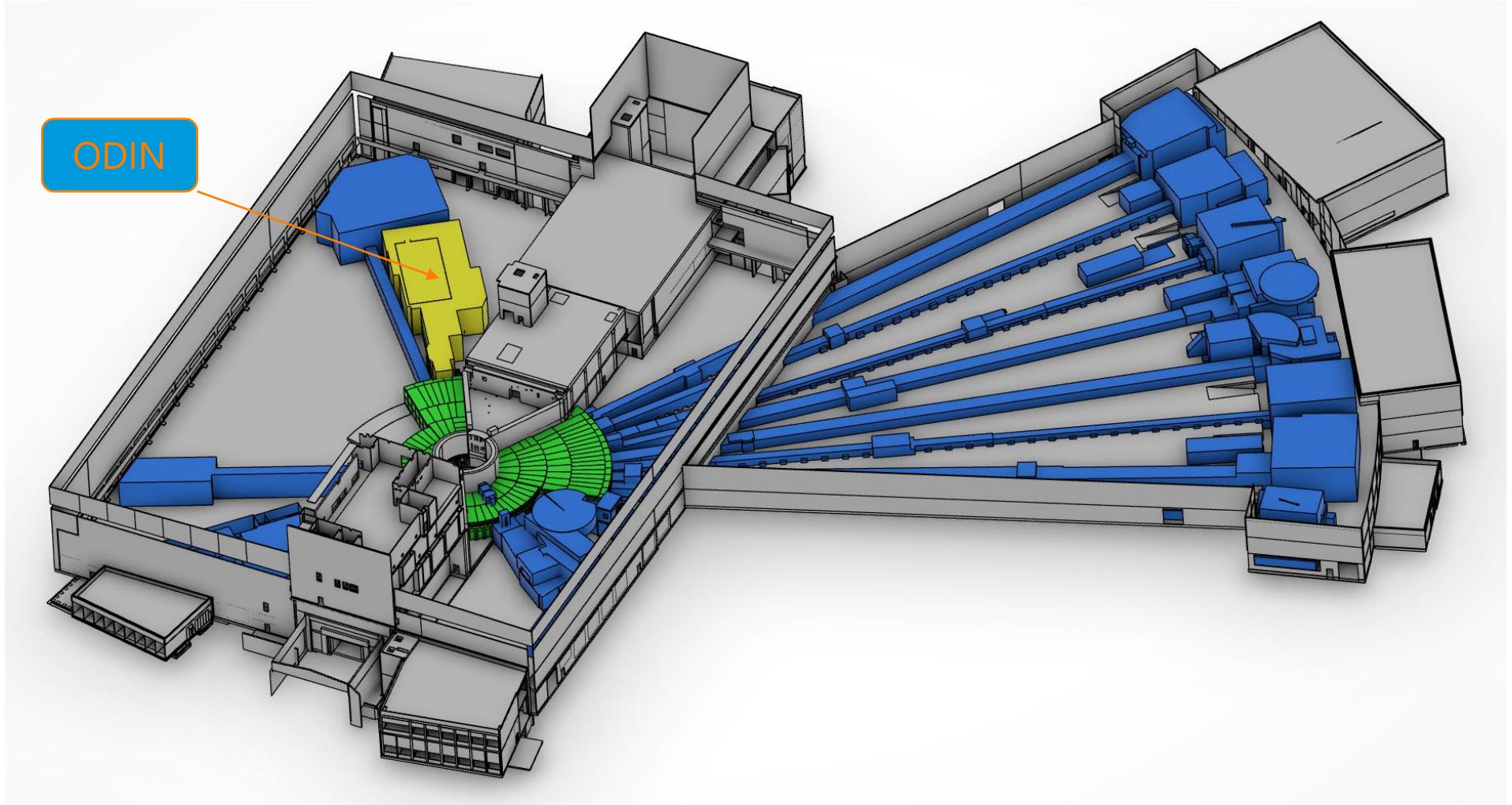
2 Safety Overview

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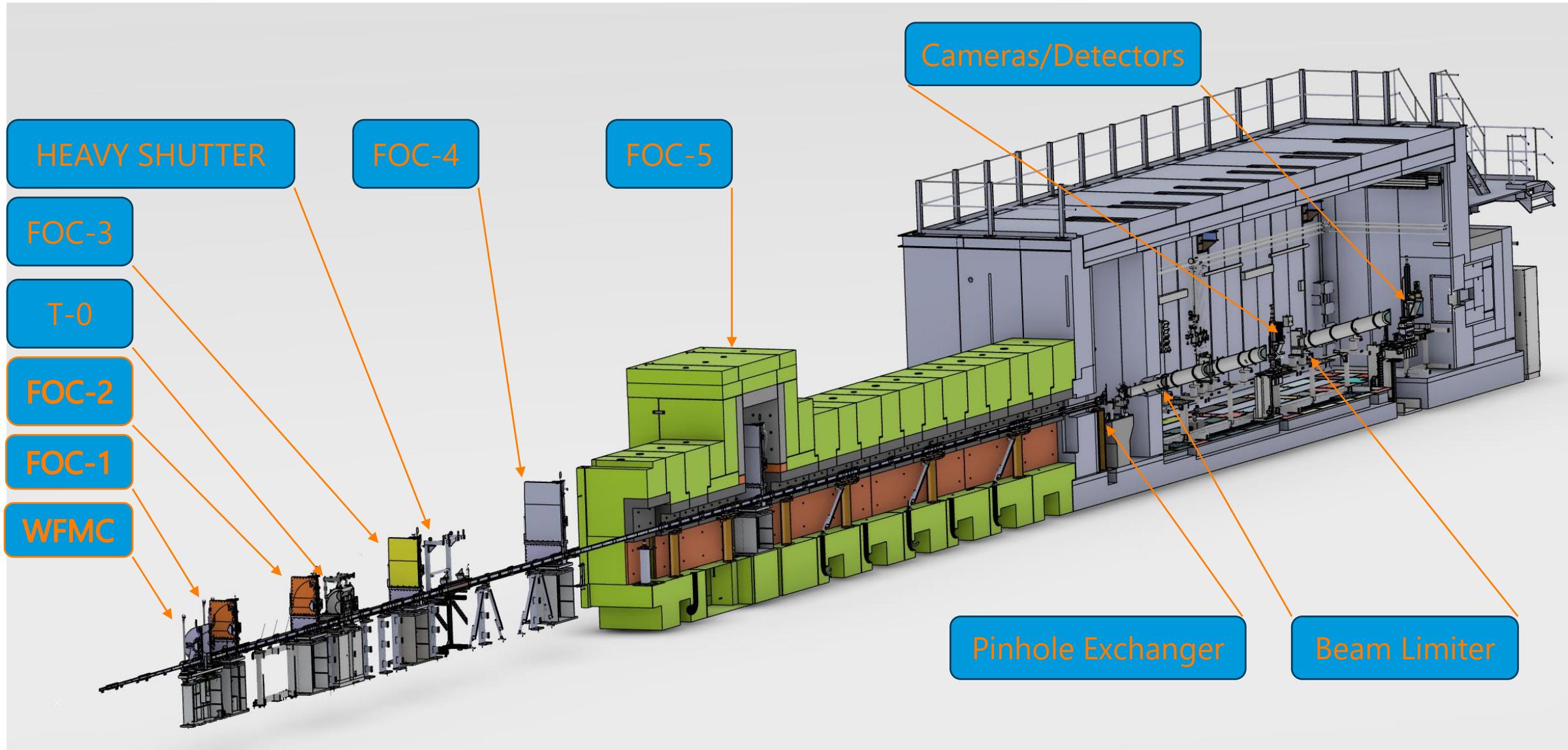
ODIN Overview

Overview

Location in Facility: DO-1



Layout ODIN overview



Optical & Diffraction Imaging with Neutrons



Neutron Instrument States (ESS-0005817)

Maintenance	Instrument not operational, in an unconfirmed state, or otherwise unsafe to receive neutrons.
Access	The instrument is radiologically safe, and access is granted into the controlled space within the shielding.
Halt	The instrument is radiologically safe, and that the neutron beam has been intentionally stopped upstream of the sample position.
Run	This state indicates that the instrument is radiologically safe, and that the neutron beam is delivered to the sample position.

ODIN

Run States



CHOPPER	HEAVY SHUTTER	BEAM MONITORS	Filter Station	BEAM LIMITERS
WFMC	Open	BM 1	Filter 1-4	BL-1
FOC 1-5	Closed	BM 2		BL-2
(T-0)				

ODIN

Safe State

1. Shutter closed
2. Motion stopped
3. Gas off
4. Main key removed (after cool down timer)



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Safety Overview



Industrial and Occupational Safety



Summary of Risks

Slips, Trips, Falls



Electrical Safety



Fire Safety



Pressurized Systems



ODH



Overhead Lifting (area cranes)



Manual Lifting/Positioning



Motion Safety (primarily in-bunker)



Toxic Substances (Pb, Cd, Be)



ESS-4751819 - Area Risk Assessment

D01+D03 bunker

ESS-5919282 - **ODIN** Area Risk Assessment

ESS-5919188 - **ODIN** Operations and Maintenance Task Risk Assessment

ESS-1075652 -**ODIN** Instrument Hazard Analysis (IHA)

ESS-5918878 - **ODIN** inventory for Bunker components -Fire safety

ESS-4965648 - **ODIN** ODH Analysis

ESS-5919347 - **ODIN** Risk Assessment for pressurized systems

Industrial and Occupational Safety



Non-Applicable Operational Risks

Working at Heights- Only applicable to cave roof, not a part of regular operations

Chemical- Not applicable, *may change in the future*

Noise- Not applicable

Heat/Cold- Not applicable

Confined Space- Not applicable

Biological Safety- Not applicable

Magnetic Safety- Not applicable

Vibrations- Not applicable

ATEX- Not applicable

Operational Safety

Summary of Mitigation

Fire monitoring and suppression system

4 motion emergency stops in cave

6 beam emergency stops in cave

PSS interlock system

ODH monitoring system

Roles and Responsibilities

Training and Certification

Emergency Procedures (in progress)

ESS-55456110 - Operations Manual for
ODIN Personnel Safety System

ESS-1075657 - **ODIN** Systems Operations
& Maintenance Manual



Radiation Safety



Summary of Mitigation Measures



Shielding analysis

Materials inventory

Gamma monitor -> Stand alone

Area neutron monitor -> PSS

PSS (permits, interlocks, cool down, Estops)

Personal Dosimetry

Survey Meters (TDB)

Storage (TBD)

Waste (TBD)

ESS-1803816 - **ODIN** Material inventory for activation analysis

ESS-1075652 - **ODIN** Instrument Hazard Analysis (IHA)

ESS-5765599 - Comprehensive radiation safety assessment of **ODIN**

ESS Radiation Protection Handbook



Questions?