



**EUROPEAN  
SPALLATION  
SOURCE**



# ESTIA Personnel Safety System

ESTIA Instrument Safety Readiness Review  
(2026-06-17)

PRESENTED BY YASER TAKZARE ON BEHALF OF *THE PSS TEAM*

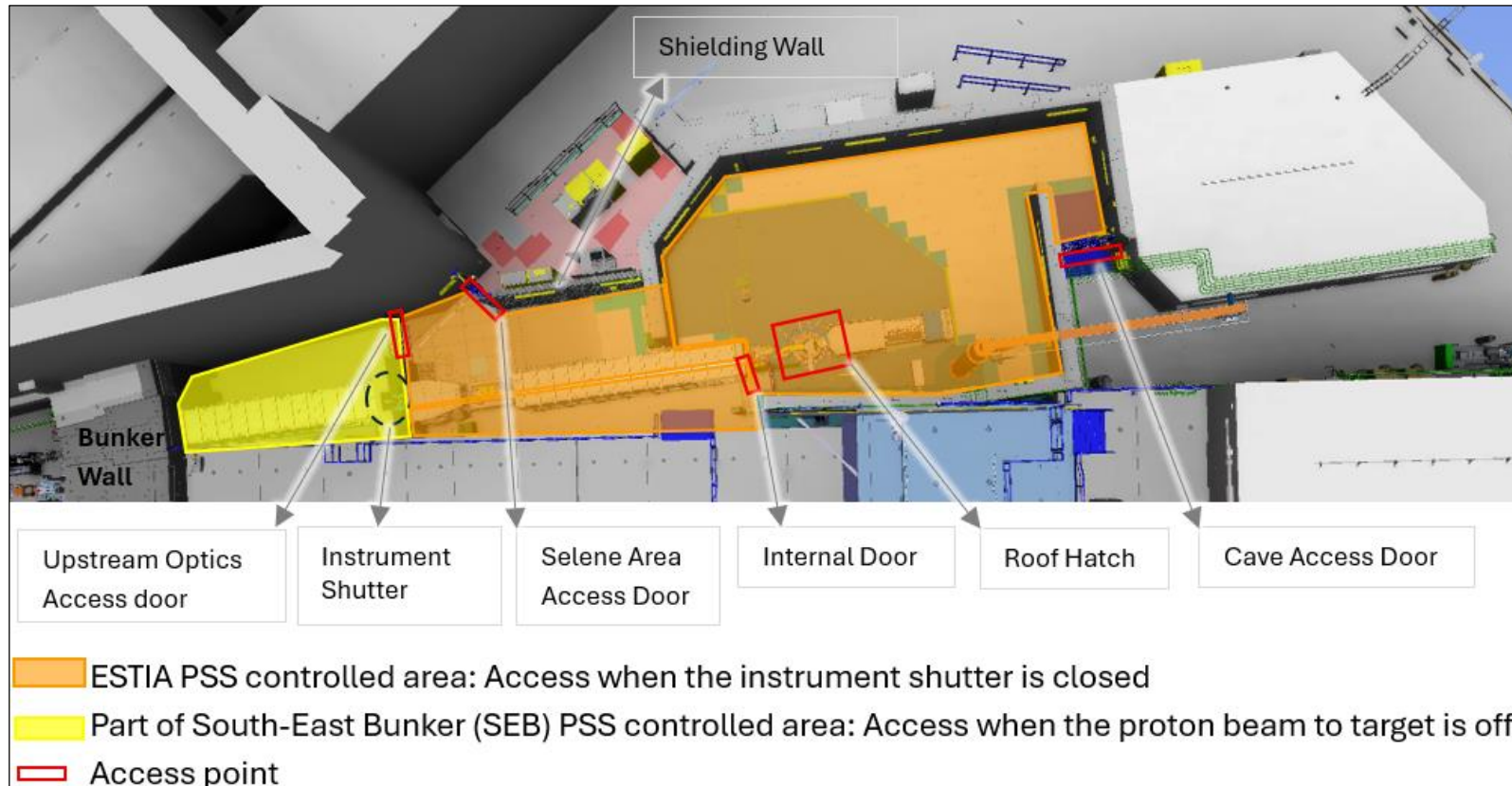
2026-06-12

# ESTIA PSS: Overview



The **ESTIA PSS** is the safety interlock system that ensures safe access for personnel to the ESTIA PSS controlled area.

The ESTIA PSS mitigates the Radiation hazards (mainly prompt ionising radiation from the neutron beam)



# ESTIA PSS: WRSFs



ESTIA PSS is the safety interlock system that implements the following Worker Radiation Safety Functions (WRSFs):

WRSF/RSF	Description	SSCs that implement the WRSF
<b>WRSF-P-NSI-L2-021_Prevent flux</b>	Prevents inadvertent opening of the instrument shutter if the ESTIA PSS controlled area is not searched, and locked.	ESTIA PSS (=ESS.NSS.H01.ESTIA.F01)
<b>WRSF-P-NSI-L2- 022_Grant/prevent human presence</b>	<ul style="list-style-type: none"> <li>Prevent access to the ESTIA PSS controlled area by locking the access doors , interlocking the cave roof hatch drive system in a closed position</li> <li>Prior to permitting access to the ESTIA PSS controlled area, a radiation monitor verifies the shielding integrity of the instrument shutter, If the radiation monitor detects elevated dose levels, the ESTIA PSS prevents access</li> </ul>	ESTIA PSS (=ESS.NSS.H01.ESTIA.F01)
<b>WRSF-P-NSI-L3-024_Stop flux</b> <b>WRSF-P-NSI-L3-025_Stop flux</b>	Detect intrusion to the ESTIA PSS controlled area: <ul style="list-style-type: none"> <li>Interlocks the instrument shutter</li> <li>Requests the Accelerator PSS (=ESS.ACC.F01) to switch OFF the proton beam to Target, if the instrument shutter is not detected closed within the designated time</li> </ul>	ESTIA PSS (=ESS.NSS.H01.ESTIA.F01) Accelerator PSS (=ESS.ACC.F01)
<b>WRSF-P-NSI-L3-026_Stop flux</b> <b>WRSF-P-NSI-L3-027_Stop flux</b>	Detect the alarm and manually stop (ESOB) : <ul style="list-style-type: none"> <li>Interlocks the instrument shutter</li> <li>Requests the Accelerator PSS (=ESS.ACC.F01) to switch OFF the proton beam to Target, if the instrument shutter is not detected closed upon pressing the ESOB</li> </ul>	ESTIA PSS (=ESS.NSS.H01.ESTIA.F01) Accelerator PSS (=ESS.ACC.F01)
<b>WRSF-P-NSI-L2-021_Prevent flux</b>	If the ESTIA PSS receives a high radiation alarm from the designated radiation monitor downstream the instrument shutter when the ESTIA PSS controlled area is accessible, the ESTIA PSS requests the Accelerator PSS to switch OFF the proton beam to Target	ESTIA PSS (=ESS.NSS.H01.ESTIA.F01) Accelerator PSS (=ESS.ACC.F01)

# ESTIA PSS: HMI overview



**Personnel Safety System for ESTIA**

User: Admin      Date: 2026-06-01      Time: 15:49:49

Beam On Mode      Shutter: Open      Permit:       ESTIA PSS Bypass:       Ready for BoT:       SIF1 SIF2 SIF3 SIF5      Failure in Actuators:

Message Display 2  
ACCESS PROHIBITED  
SHUTTER OPEN  
SEARCHING

Zone 3      Zone 2      Zone 1

Roof Hatch      Permit:

ANMEST01      Details

ODH Alarm      Blue Lights

1 2 3 4 5

Message Display 1  
ACCESS PROHIBITED  
SHUTTER OPEN  
SEARCHING

# ESTIA PSS: OPI overview



## ESTIA PSS Overview

ESTIA PSS Mode of Operation: **Access**

Beam Imminent Timer: 00:30

Permit Shutter Shutter: **Closed**

Ready for BoT ESTIA PSS Bypassed

ODH EVACUATION ALARM

ESTIA PSS HMI In Use by: No user logged in

Acknowledgement Required

Failure in Actuators

### ESTIA Area Map

Message Display: ACCESS ALLOWED, SHUTTER CLOSED, SEARCHING

Selene Area Access Door

Zone 2

Roof Hatch PSS Permit Closed

Blue Lights

Cave Access Door

Message Display: ACCESS ALLOWED, SHUTTER CLOSED, SEARCHING

Zone 3

Internal Door

ANMEST01

Legend

ESTIA Access Status

Diagnostics

ESTIA PSS Key Exchange

PSS Overview

# ESTIA PSS: current status



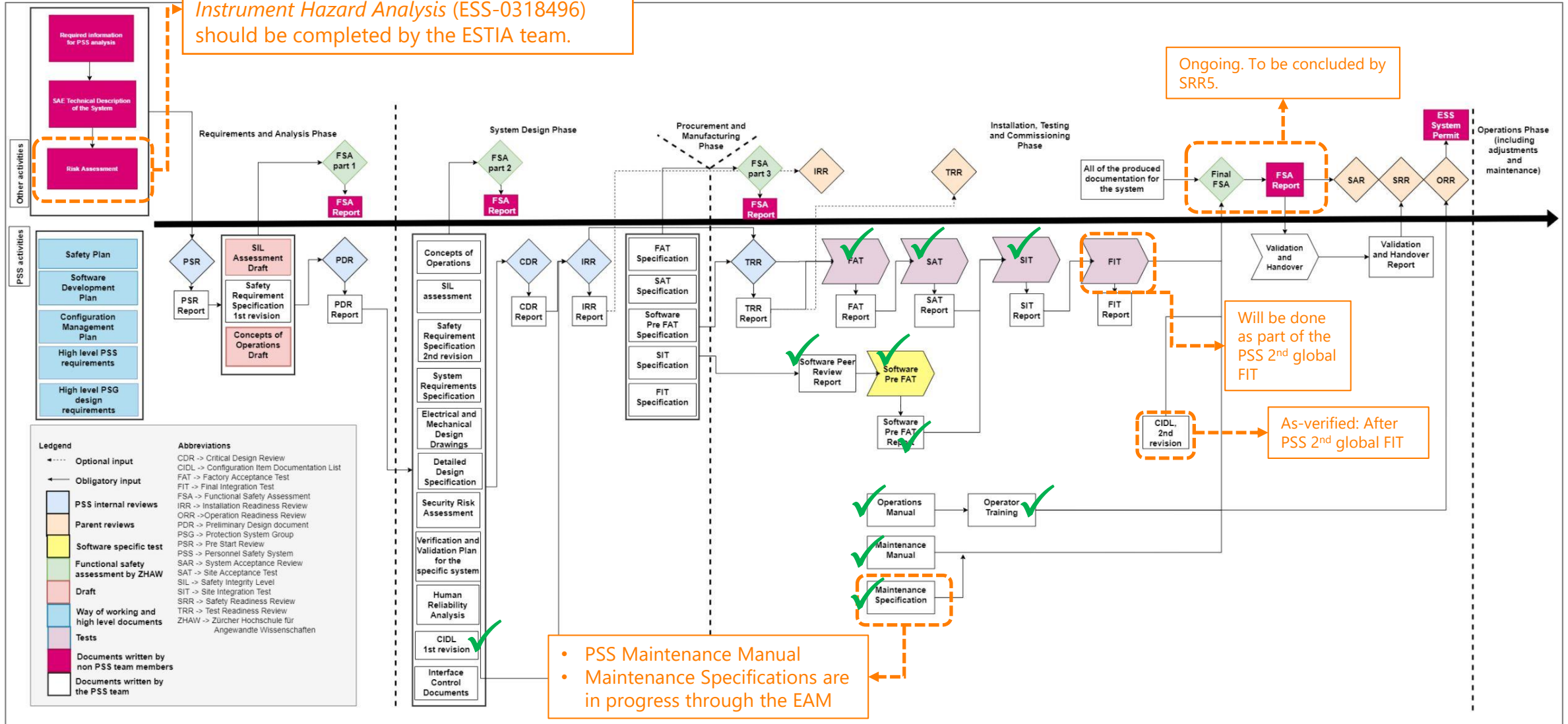
Post implementation review in the ESTIA Instrument Hazard Analysis (ESS-0318496) should be completed by the ESTIA team.

Ongoing. To be concluded by SRR5.

Will be done as part of the PSS 2nd global FIT

As-verified: After PSS 2nd global FIT

• PSS Maintenance Manual  
• Maintenance Specifications are in progress through the EAM



# ESTIA PSS: Remaining work



## ESS-6080802 - Non-compliance report for Estia PSS

Item	Comment
Internal Door	The internal door is not fixed in place when closed. This can cause the Zone 1 search to break.
Hidden area, behind the pillar in the Zone 1	The area must be block to stop easy access
Interface with D01 Gas Detection System	The Interface with the ODH monitor will be realized when the PLC-based GDS is operational.
Test ESTIA PSS with ACC PSS	Part of PSS 2 <sup>nd</sup> global FIT



Thank you!

Questions?

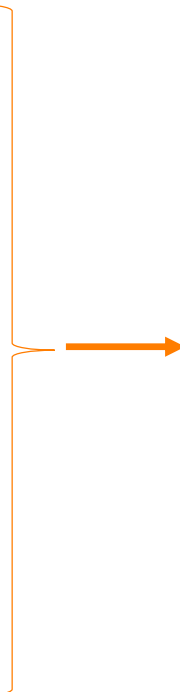


# Back-up slides

# PSS global FIT



PSS SITs
ACC PSS SIT
TS PSS SIT
NWB SIT
SEB PSS SIT
TBL PSS SIT (iSRR)
LoKI PSS SIT (iSRR)
ODIN PSS SIT (iSRR)
DREAM PSS SIT (iSRR)
ESTIA PSS SIT (iSRR)



PSS global FIT		
Nexus PSS HW SAT	Nexus PSS SIT	ESS PSS FIT (needed for SRR5)
Loop check from each PSS to Nexus	Integrated test between each PSS and Nexus	Integrated test from each PSS to Nexus and to ACC PSS
No access restrictions to PSS controlled areas is imposed by this test.	No access restriction and no impact on ACC PSS	<ul style="list-style-type: none"> <li>• Access restrictions to the tunnel as ACC PSS shall be in Beam On mode.</li> <li>• Only impacting the ISrc and Bending Magnets (no impact on RF systems)</li> </ul>
Potentially minimal disruptions to ACC PSS operation only during Nexus-ACC PSS loop check.	Access restrictions to TS PSS, Bunkers staircases, and instrument caves during parts of the test. (one area at a time)	Access restrictions to the areas listed in each of the following tests <ul style="list-style-type: none"> <li>• TS PSS to ACC PSS test</li> <li>• NWB PSS to ACC PSS test</li> <li>• SEB PSS to ACC PSS test</li> <li>• Instrument PSS, TS PSS, NWB PSS, SEB PSS to ACC PSS test (only one instrument at a time)</li> </ul>
Estimated time: 1 week	Estimated time: 2 weeks	Estimated time: 1 week