



EUROPEAN
SPALLATION
SOURCE



Bunker Personnel Safety System

Shielding & Safety Systems SAR

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1. The Bunker PSS Overview

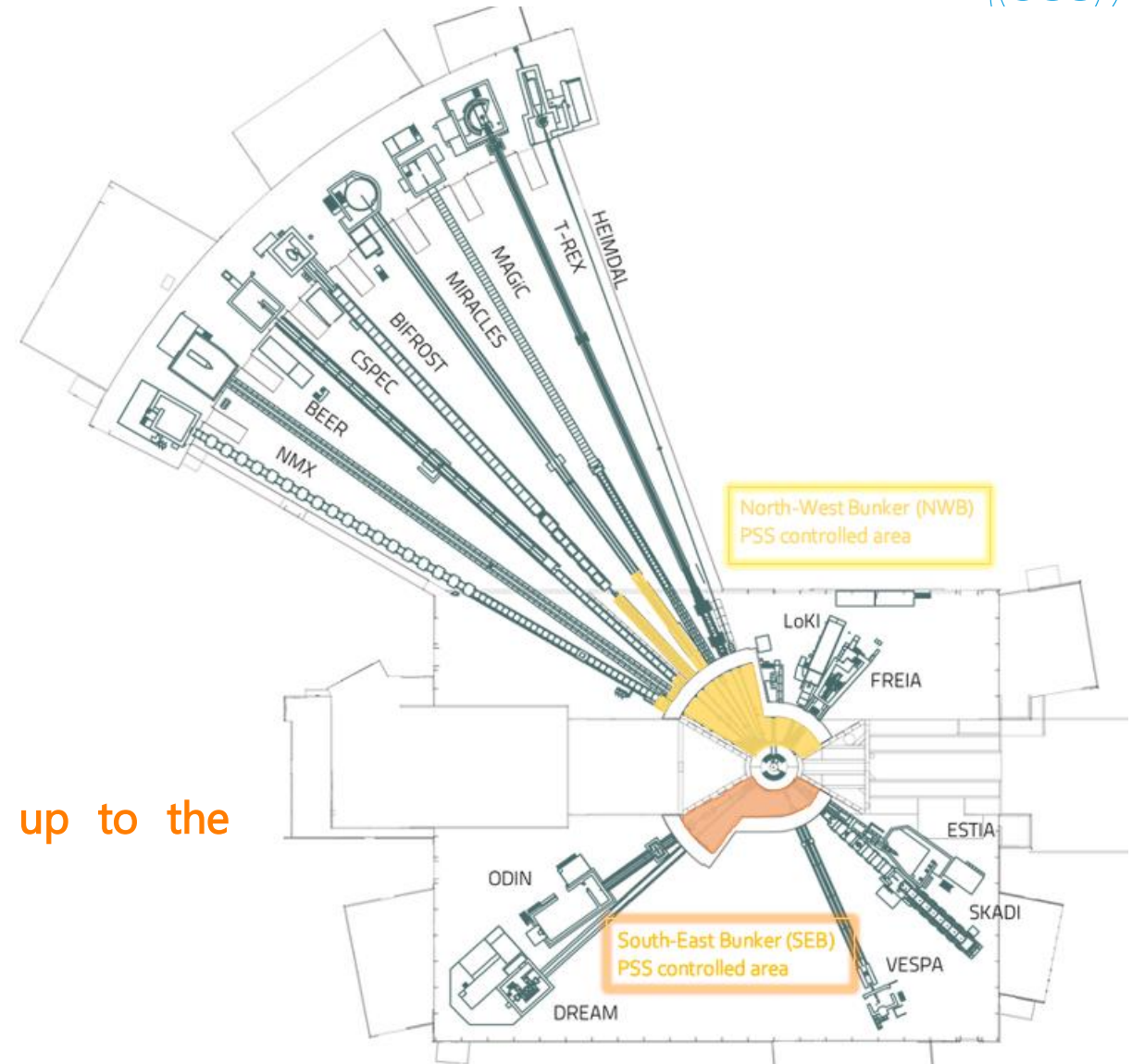
Bunker PSS Controlled Area

Bunker PSS is composed of two independent systems:

- North-West Bunker (NWB) PSS
(=ESS.NSS.F01.F01.F03.F01)
- South-East Bunker (SEB) PSS
(=ESS.NSS.F01.F01.F03.F02)

Bunker PSS controlled area

- Bunker Roof
- Area inside of the Bunker
- Some parts of the instrument beamlines up to the instrument shutter



Bunker PSS Main Functions



The Bunker PSS provides the following main functions:

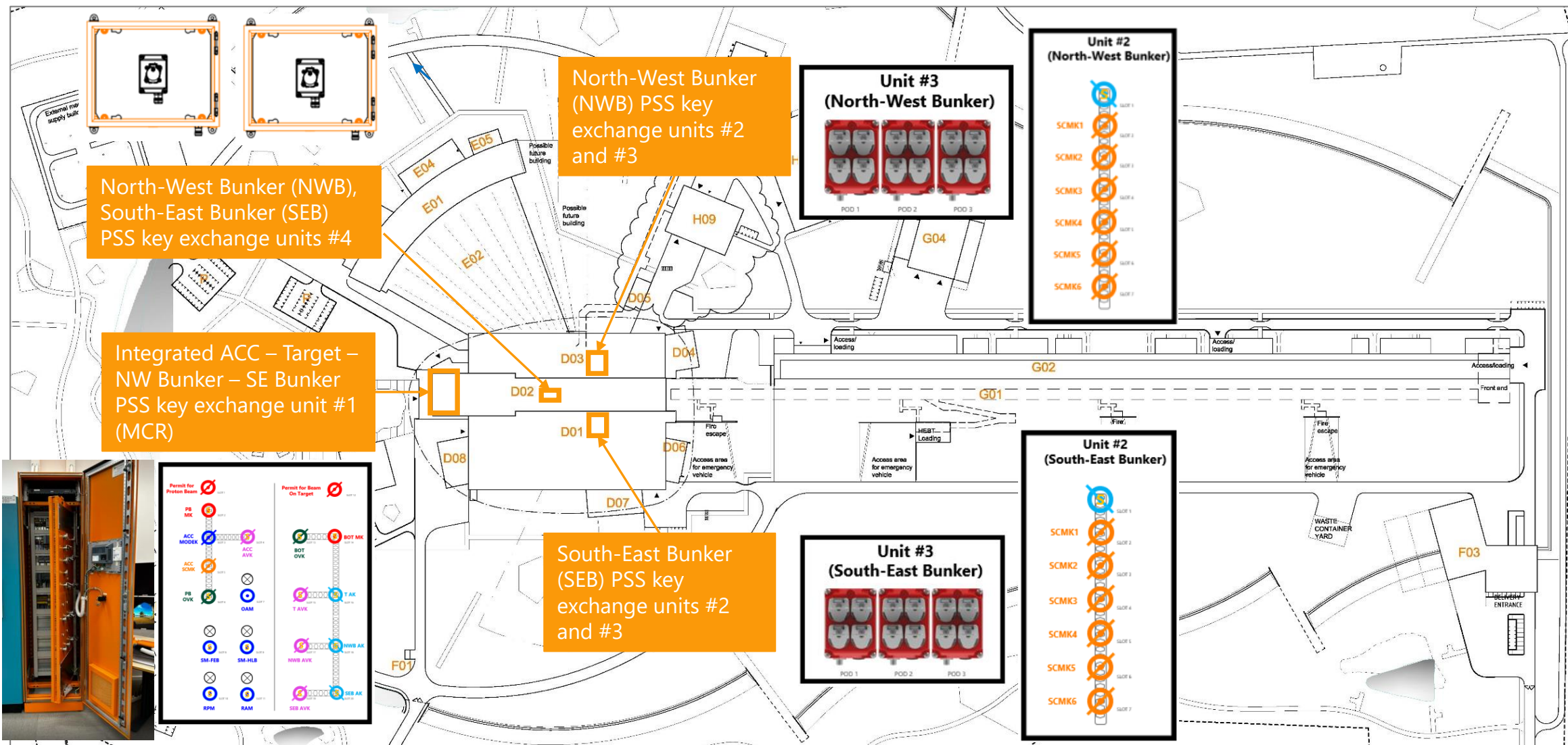
Prevent and mitigate prompt ionizing radiation from proton beam to Target

- a) The Bunker PSS prevents access to the Bunker PSS controlled area, if there is Proton Beam to Target.
- b) The Bunker PSS prevents inadvertent energization of the bending magnets, if the Bunker PSS controlled area is not closed and locked.

Mitigate gamma radiation hazard from the monolith.

- a) Preventing access to the Bunker PSS controlled area if any of the light shutters detected not closed.
- b) Preventing inadvertent opening of the light shutters, if the Bunker PSS controlled area is not closed and locked

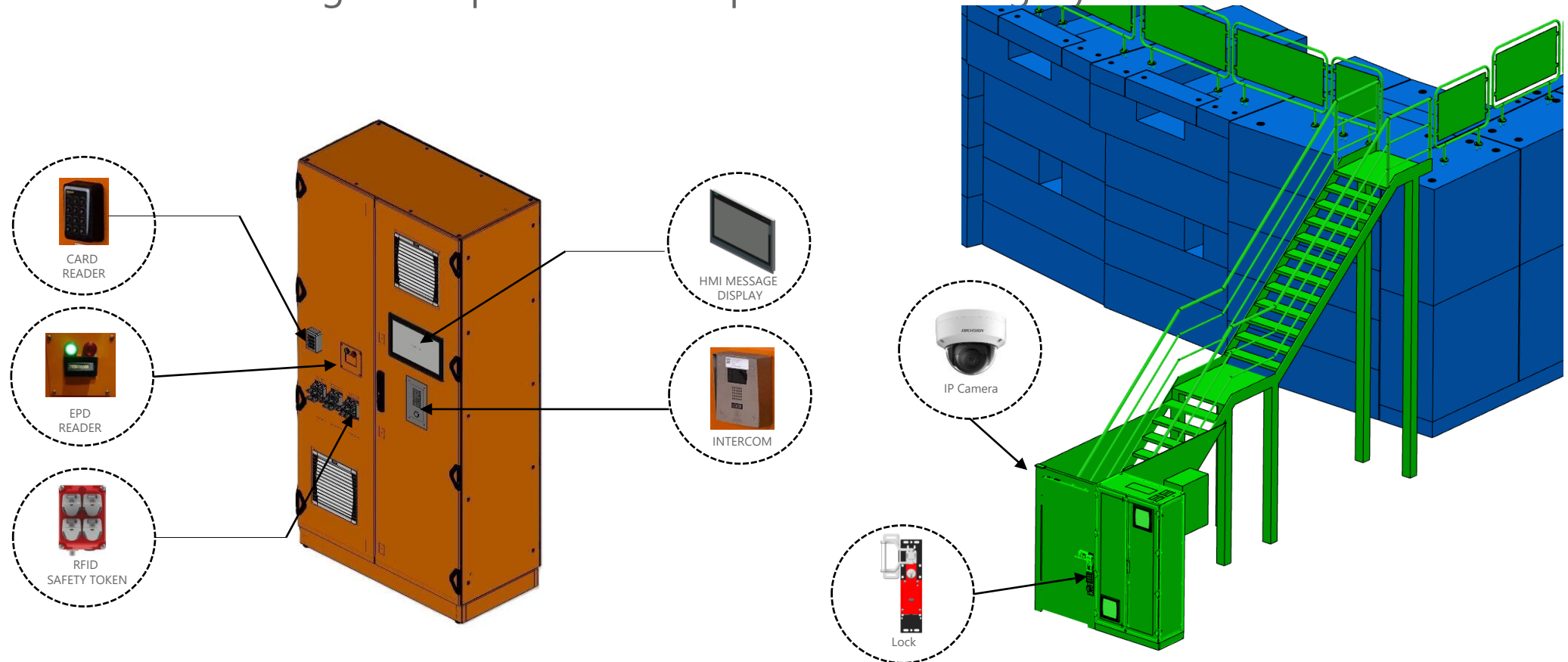
PSS key exchange system



Bunker PSS Main Functions

Access to the Bunker PSS controlled area is regulated by ESS Physical Access Control system (=ESS.INFR.R01.R02).

Bunker PSS interfaces the ESS Physical Access Control system via the access doors to the Bunkers roof to ensure access management procedures required for a category 4 area.



PSS Bunker System Interfaces



Bunker PSS interfaces

ACC PSS (Interlock Proton Beam)

Light Shutters



Target PSS



Bending Magnets



Electronic Personal Dosimeter (EPD)



Physical Access Control System



Access Doors



Instrument Shielding Blocks

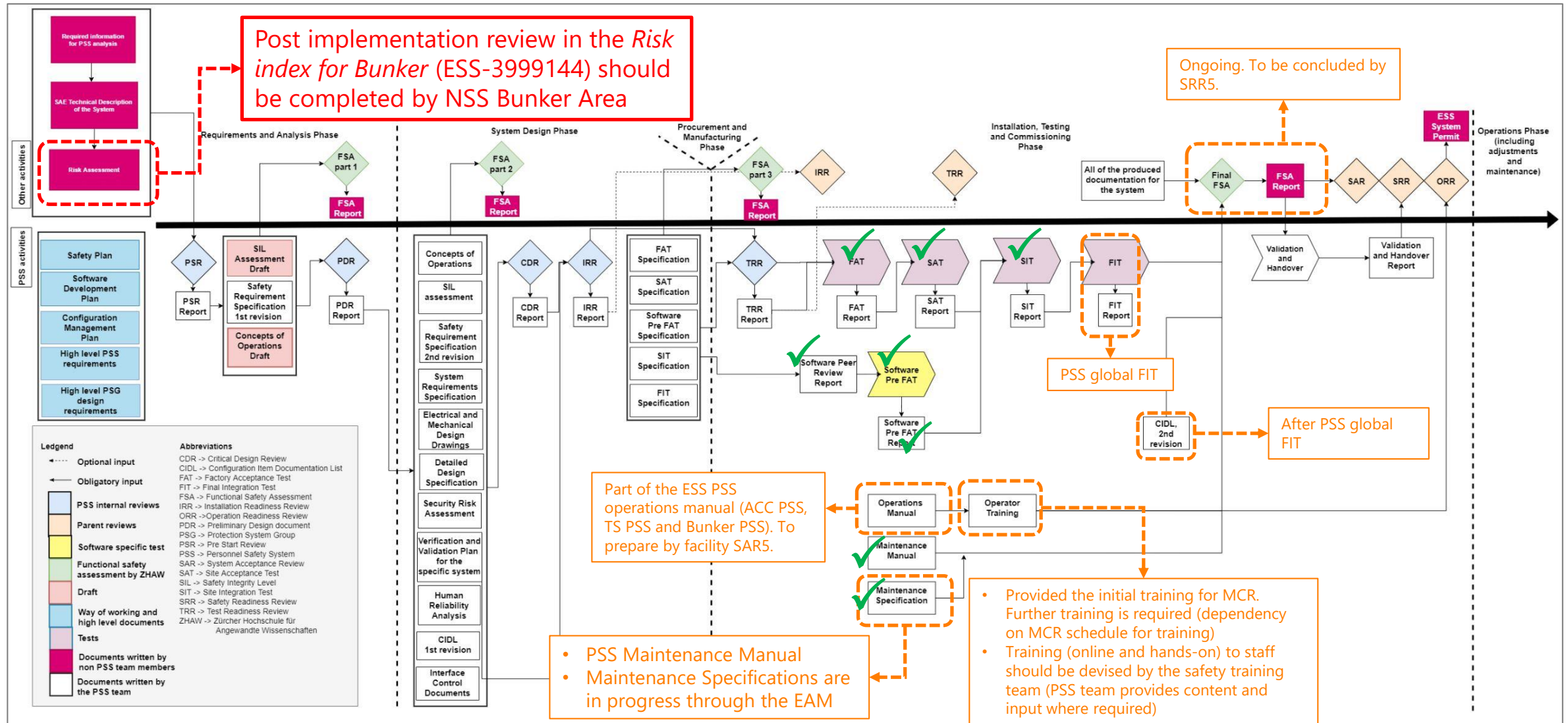
EPICS



It will be tested and verified during PSS global FIT.

Installation will be completed before the BoT.

Bunker PSS: current status



Bunker PSS: non-compliances



- Non-compliance report for NWB PSS (ESS-5722037)
- Non-compliance report for SEB PSS (ESS-5722136)

Item	Comment
Appendix A: non-compliances from the NWB/SEB PSS HWSAT reports	<ul style="list-style-type: none">• Override key inside a break glass unit is installed outside the Access Door and sign for that• Some function (FBS) labels
Appendix B: non-compliances from the NWB/SEB PSS SIT reports	<ul style="list-style-type: none">• Shielding configuration interlock modules for all shutter pits (5 sets)• MCR HMI must be configured for ACC ,TS , NWB, SEB and tested before PSS global FIT, some adjustment on the field HMIs when the MCR HMI is available.• Minor updates to the OPI and Alam tree.• Documentation updates as preparation for as-operated CIDL.

Bunker PSS: CCRs & further improvements



Item	Comment
<i>CCR - Bunker PSS (NWB and SEB) modifications during commissioning (ESS-5767996)</i>	<ul style="list-style-type: none">Includes all the NWB/SEB PSS modifications during commissioning (SIT)



Thank you

Questions/comments?