
ESS Process for Safety Readiness Review

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1. PURPOSE

The purpose of this document is to define the process for Safety Readiness Review (SRR) and the establishment of the SSR process which is subordinated to the ESS policy for Safety, Health and Security [1] and has considered the Project Management Handbook [2], the Configuration Management Plan [3] and the Construction Phase Management Plan [4].

The purpose of the SRR Process is to review the readiness to safely commission and operate any system, which could constitute a part of the facility or the whole facility.

The scope is safety, both conventional safety, safety related to ionizing radiation and environmental safety aspects where applicable.

The SRR is a process by which hardware, personnel and procedures associated with commissioning and operation of the system are verified.

The SRR process is primarily intended for activities involving the proton beam, but could in specific cases also be applied for other systems.

The SRR is an independent review of the safety aspects, performed after the Test Readiness Review (TRR) as described in [2] or after a corresponding activity.

2. PROCESS APPLICABILITY

The process is applicable to the following steps as a minimum, but not limited to;

- Beam commissioning of Ion Source (IS) and Low Energy Beam Transport (LEBT).
- Beam commissioning of Normal conducting linac (NCL).
- Beam commissioning of Superconducting linac (SCL), with beam on beam dump.
- Beam commissioning of full linac, with beam on Tungsten target resulting in Neutron production.
- Commissioning of individual Scientific Neutron instruments.

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3. ESS PROCESS FOR SAFETY READINESS REVIEW

3.1. Process map



Appendix 1 describes the SRR in a context of a generic systems life cycle, together with the relationship of readiness for a system and corresponding readiness of its sub-systems.

3.2. Input

The process is initiated by a need to commission and operate a system involving establishment of the proton beam.

System owner performs a TRR or corresponding activity prior to the SRR. The TRR describes the verification activities, their resources, the associated requirements prior to commissioning and after parts have been built and installed. Specifying documents are “As-built” [2].

Necessary inputs for the SRR are described in more detail in [5] and may be based on, but not limited to the following descriptions of the system and belonging sub-system:

- Design descriptions
- Architecture description
- Concept of Operations
- Requirements Specification
- Interface descriptions
- Integration Plan
- Operation and maintenance documents
- Verification Plan
- Risk assessment
- CE marking and or Declaration of Conformity

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3.3. Process

The SRR process consists of the following activities:

1. Prepare the SRR
 - a. Schedule a time slot for the SRR
 - b. Identify needed competences (internal and external) for the specific SRR
 - c. Invite relevant individuals
 - d. Distribute required documentation
2. Perform the SRR
 - a. Review of documentation
 - b. Perform interviews with personnel
 - c. Inspect the system
 - d. If possible observe dry-runs of operating procedures
3. Present the main conclusion; To recommend commissioning, or not to recommend commissioning. There could also be actions specified, which needs to be taken care of prior to start of commissioning.
4. Finalize the SRR report, its main conclusion and underlying detailed findings.

3.4. Output

The output is the Safety Readiness Review report with the conclusion to either recommend commissioning of the system, or not to recommend commissioning.

The recommendation could also contain pre-start and post-start items. The pre-start items shall be completed before the start of beam commissioning/operation, while post-start items can be completed later but only if they are connected to a clear hold point/time where/when it shall be closed.

If subsequent commissioning itself results in substantial safety relevant changes or deviations, for which normal change control is not sufficient, operation of the system would require a new SRR. Such a statement shall be part of the executive summary of the SRR report.

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4. GLOSSARY

Term	Definition
IS	Ion Source
LEBT	Low Energy Beam Transport
NCL	Normal conducting linac
SCL	Superconducting linac
SRR	Safety Readiness Review
TRR	Test Readiness Review

5. REFERENCES

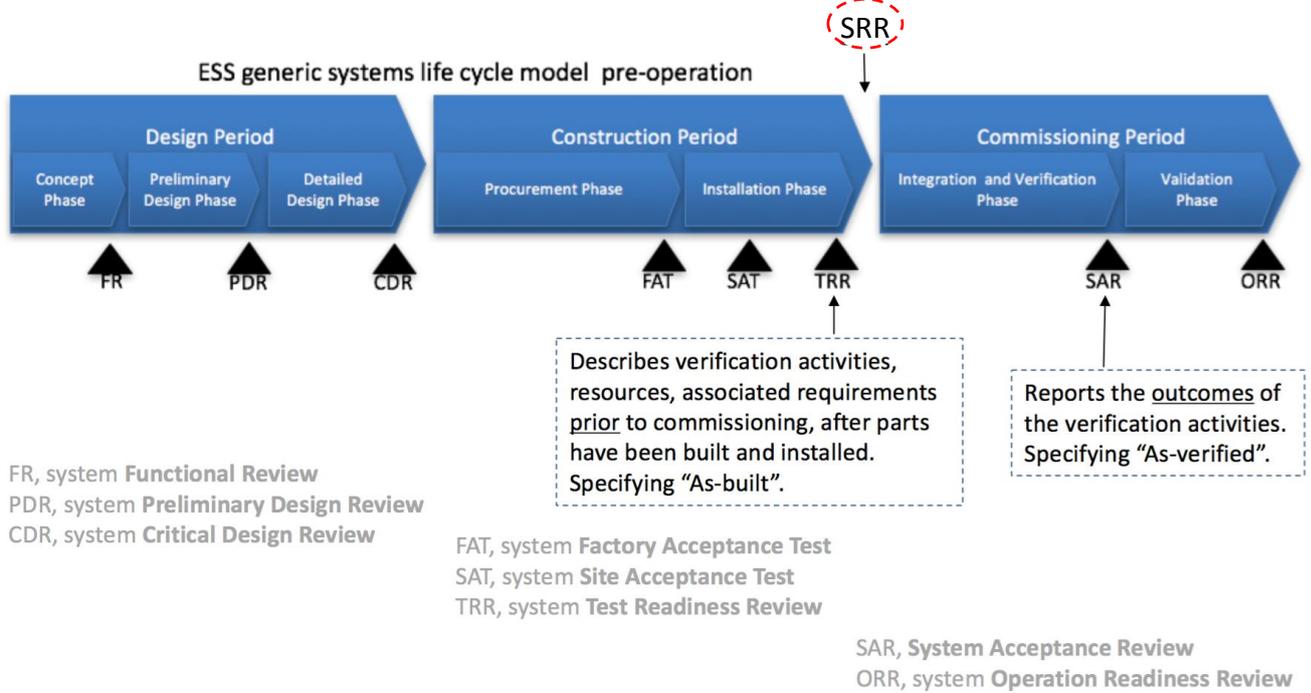
- [1] ESS-0019190, ESS Policy for Safety, Health and Security
- [2] ESS-0091812, Project Management Handbook
- [3] ESS-0003688, Configuration Management Plan
- [4] ESS-0005380, Construction Phase Management Plan
- [5] ESS-0177837, ESS System Documentation prior to a Safety Readiness Review

DOCUMENT REVISION HISTORY

Revision	Reason for and description of change	Author	Date
1	First issue	Thomas Hansson	2018-01-09

Appendix 1

Description based on [2] of the ESS generic systems life cycle model, prior to operation.



System Owners are responsible for

- lower level SAR for all concerned sub-systems
- the TRR for the specific system level

A Safety Readiness Review is an independent review of the safety aspects, after the corresponding TRR.

