CHARGE FOR CRITICAL DESIGN REVIEW FOR THE CDS-SPK AUXILIARY LINES

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CDR meeting place and date

Meeting place: Remote meeting via Zoom
Meeting date: January ??, 2021

Purpose of this CDR

A CDR is scheduled as a milestone event for approving the transition from detailed design to manufacture (or to material or component procurement, to software coding, to construction etc.). The design is reviewed against all design inputs, including technical and interface requirements.

A successful CDR gives confidence that the proposed design will meet all technical requirements. The completion of a CDR fixes the baseline design of the component being reviewed.

The objective and purpose of this CDR is to confirm that the modified design of the auxiliary lines of the Cryogenic Distribution System for Spoke Linac is likely to meet all requirements and is specified in sufficient details to proceed to the repair of the failed line and later to restart the installation phases.

Deliverables for this CDR

The contents of the CDS-SPK auxiliary line repair and redesign data package shall be provided to the CDR review board by January ??, 2021. As a minimum the CDR data package shall contain all deliverables specified in Appendix 1. The review board includes the review committee members and other reviewers identified in Appendix 2.

Charge to the Committee

The Review Committee is composed of the Chairman and members as identified in Appendix 2. The Review Committee is asked to undertake the following tasks:

1. REVIEW: The Review Committee is asked to scrutinize and assess the deliverables listed in Appendix 1., presented via the talks at the CDR
2. ANSWER: The Review Committee is asked answer the questions listed in Appendix 3.
3. DECIDE: The Review Committee is asked to decide if the redesigned CDS-SPK auxiliary lines meet all requirements with acceptable risk and within the schedule constraints, and if the maturity of the design is appropriate to support proceeding with repair, assembly, integration, site acceptance test, and future operation. The decision should have one of the following forms:
   - Approved, without qualifying comments or further actions.
   - Approved, but with recommended actions.
   - Not approved, but with recommended further actions and inputs, and with a proposal for a follow-on review.
4. REPORT: The Review Committee is asked to document its decision and recommendations on any specific actions and inputs for the Work Unit in a short report to be delivered as soon as possible after the CDR.

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Appendix 1
Deliverables for Review

The deliverables for this CDR are:

1) CDS-SPK auxiliary line project schedule,
2) Requirements and specifications,
3) Detailed 3D model of the repaired CDS-SPK auxiliary lines,
4) Repair procedure for the failed line, including a list of components to be reused and criteria for qualifying components for reuse
5) Stress and flexibility analysis for all piping and supports,
6) Specifications of all flexible components (expansion joints and metal flexible hoses).

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Appendix 2

Review Committee and other Reviewers, Presenters and Observers

List to be finalized and names confirmed prior to the CDR

Name	Organisation	Appointment for CDR
Paolo Pierini	ESS, Machine Section Coordinator, SCL	Chairman of the Review Committee
Philipp Arnold	ESS, Cryogenic Section Leader	Review Committee Member
Björn Rundcrantz	ESS, Quality Officer	Review Committee Member
Nicolas Eke	ESS, Safety Officer	Review Committee Member
Jaroslaw Fydrych	ESS, ACCSYS Cryogenics Engineer	Reviewer
Nuno Elias	ESS, ACCSYS Cryogenics Engineer	Reviewer
Piotr Tereszkowski	ESS, ACCSYS Mechanical Engineer	Reviewer
Patxi Duthil	IJCLab, CDS-SPK Project Leader	Presenter
Jacek Podolski	Kriosystem, CDS-SPK Installation Team Leader	Presenter

The CDR Committee conducts this review with the authority of ACCSYS Project Leader, Mats Lindroos.

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Appendix 3
Questions

1) Are all or a sufficient coverage of requirements and specifications for the CDS-SPK auxiliary process lines, including its interfaces with other systems, documented and communicated to and understood by the Work Unit team?

2) Does the updated design of the CDS-SPK auxiliary process lines meets requirements and specifications including requirements regarding installation constrains?

3) Have quality assurance and quality control activities been planned?

4) Have safety issues and technical risks been identified and eliminated or otherwise mitigated for in the detailed design or identified for managing for manufacture, assembly, installation or operation?

5) Is the schedule for delivery of materials, components and for the repair of the failed line sufficiently understood and in accordance with activities, durations and milestone dates shown in the ACCSYS project plan?

6) Are the roles of ESS, IJCLab and KrioSystem well understood and agreed upon?

7) Does the work unit team require additional input from ESS or its other partners, or seek additional review, decision or approval from ESS to proceed with all work planed?

8) Are there any outstanding agreements to be made or other actions necessary to allow the work unit to achieve the plan?

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