Charge Document for the Internal CDR for ODH Detection System in HCB, Dog shed, CXB and CTL Gallery

Internal Critical Design Review (CDR)
19 September 2017, Lund, Sweden

Charge for the CDR

Purpose of this CDR

The purpose of this CDR is to confirm that the hardware design, test preparation and installation of the ODH Detection System in Helium Compressor Building (HCB) (including the TMCP Hall (TCH), ACCP Hall (ACH) and HP Gas Storage (HPGS)); Dog shed; Coldbox Building (CXB) and Cryogenic Transfer Lines (CTL) Gallery are likely to meet all requirements and are specified in sufficient detail for software implementation, hardware testing and commissioning.

The expected outputs of detailed design, which should be presented and reviewed in this CDR, are:

- System Requirements Document
- System Design Description and related documents
  - System analysis
  - Technical specification (system architecture, circuit diagrams, etc.)
- System Validation and Verification Plan

CDR Committee

The CDR committee consists of:

- Annika Nordt, ICS – Group Leader for Protection Systems Group - Chair
- Duy Phan, AD - Accelerator Safety Engineer
- Philipp Arnold, AD – Section Leader for Cryogenics Section
- Hector Novella, ICS – Deputy Project Manager
- Denis Paulic, ICS – Deputy Group Leader for Protection Systems Group
- Bertil Winér, ES&H – Occupational Safety Engineer

Presenters and Observers:

- Stuart Birch, ICS – Senior Engineer, Personnel Safety Systems
- Morteza Mansouri, ICS – Engineer for Safety Critical Systems
- Yong Kian Sin, ICS – Electrical Controls Engineer
- Alberto Toral Diez, ICS – Technician, Personnel Safety Systems
- Thilo Friedrich, ICS - Systems Engineering and Engineering Process Coordinator/Engineer
- Jonas Svensson, ES&H - Fire Protection Engineer (consultant)
- Riccard Andersson, ICS - Technical Project Coordinator/Engineer for Protection Systems Group

Committee Charge

The supporting documentation will be provided to the committee about one week in advance, on the review Indico page, which also contains the agenda and presentations:
https://indico.esss.lu.se/event/906/

- 14:00 Committee discussion (closed)
- 14:15 Evaluation report and requirements
- 14:35 Hazard and risk analysis, ODH monitors placement and installation progress
- 15:00 ODH detection system hardware and network architecture
- 15:20 Coffee break
- 15:30 ODH detection system software and V&V planning
- 15:50 ODH detection system FAT template
- 16:05 Next cryogenic installations to come and associated hazards
- 16:20 Committee deliberations (closed)
- 17:10 Closeout

The committee is asked to consider the following questions:

1. Are all or a sufficient coverage of requirements and specifications within the scope of this CDR documented and understood?
2. Have all interfaces with other systems (e.g. ES&H's fire and evacuation systems, cryogenic equipment) been resolved?
3. Have all hazardous events been identified and evaluated in the safety analysis?
4. Are the dates for readiness for the ODH detection system consistent with the operation of the cryogenic facilities?
5. Does the hardware design meet the requirements within the scope of this CDR?
6. Does the network architecture support potential future system expansion?
7. Are the installation, verification and validation strategies appropriate for this stage of the project?
8. Has the installation of the ODH detection system been carried out safely and according to the agreed layout/requirements?
9. Does the FAT template cover all necessary tests for the PLC racks before they are delivered to ESS site?
10. Are there any outstanding agreements to be made or other actions necessary to allow the PSS team to transition to software implementation and hardware testing phase?

The results of the review should be summarized in a short report, outlining the answers to the above review questions and whether the review is considered passed, passed with action items, or failed. The report may also provide findings, comments, and recommended actions. Actions should be clearly categorized as one of the following:

- Must be addressed before CDR is considered closed
- Must be addressed prior to the system verification
- Must be addressed at some time during the project