EUROPEAN SPALLATION SOURCE

Meeting Minutes	
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In-Kind Visit DoC @ IPN Orsay and CEA on January 27-28, 2020

Date: 27-28 January, 2020

Location: IPN Orsay, France – Bat 106

Chairman: Guillaume Olry&Christine Darve **Secretary:**Vincent Hennion&Christine Darve

Attendees:

ESS	C. Darve		V. Poux
	M. Looft		D. Reynet (part)
	M. Skafar	CEA	C. Cloue
	M. Zambelli		V. Hennion
IPN Orsay	S. Gueddani		C. Madec
	J. Nsimaketo		C. Mayri
	G. Olry		

Indico page: Workshop - Quality for In-kind CEA/IPNO: https://indico.esss.lu.se/event/1379/

Agenda : January 27-28

January 27, 2020

13:30-13:40	Welcome and Introduction of Participants (G. Olry)
13:40-13:50	Short Review of ESS Project Status (M. Zambelli)
13:50-14:00	Short Review of Cryomodule Collaborations and QA (C. Darve)
14:00-14:20	Short Review of CEA In-Kind Contributions to ESS (C. Madec)
14:20-14:40	Short Review of IPNO In-Kind Contributions to ESS (G.Olry)
	Coffee Break
15:10-15:30	Quality Issues at ESS (M. Skafar)
15:30-17:00	Hazard Identification (HAZID) based on example (M. Looft)

January 28, 2020

09:00-11:00	Cryomodule Component Breakdown Structure w.r.t European Directives
11:00-11:10	Wrap-up
11:10-12:00	Visit IPN Orsay Labs

Minutes

1 Welcome and Introduction of Participants (Guillaume Olry)

Guillaume Olry (GO) welcomed everybody to IPN Orsay. Following Orsay CNRS restructuration, IPN Orsay has merged with 4 other laboratories and 800 employees are now working at the Irene Joliot-Curie laboratory, IJCLab. "IJCLab est un laboratoire de physique des deux infinis sous tutelle du CNRS, de l'université Paris-Saclay et de l'université de Paris-Diderot. Il nait en 2020 de la fusion des cinq laboratoires situés sur le campus universitaire d'Orsay : CSNSM, IMNC, IPNO, LAL et LPT. "
Christine (CD) introduced the workshop purpose based on ESS Quality Division requirements. Vincent provided further recommendations for a successful workshop, instead of "theoretical" presentations.
Every participants introduced themselves. At IPNO, Soukaina GUEDDANI (SG) and Jean NSIMAKETO are now supporting the team of Veronique POUX with the technical documentation for the Spoke Cryomodules and Cryogenic Distribution System. At CEA, Christelle Cloue (CC) (and Vincent Hennion (VH)) are handling the technical documentation for the Elliptical cryomodules.

2 Short Review of ESS Project Status (M. Zambelli)

Mauro (MZ) gave a brief introduction of the ESS project status and the ESS organization. First Science is planned for 2023. MZ listed the evolving In-Kind progress. ACCSYS/WP04 and WP05 technical work is still under the Technical Directorate, who is now led by Kevin Jones (replacing Roland Garoby). The Project Directorate, led by Mark Antony, will follow-up on the IK schedule milestones (supply chain), whereas the Strategy Directorate/In-Kind Group deal with Framework management issues, including Quality Division (QD) support deliverables.
Root cause analysis of IK component delay shall be identified and addressed in collaboration with the ESS management. The ESS evolution from conceptual toward implementation phase, drives the in-kind group to further support technical tasks like the delivery of quality documentation in collaboration with the ESS Quality Division. Christine Darve and Ebbe Malmstedt will be supporting this interface to ease the tasks of the In-Kind contributors. Quality Division, led by Mattias Skafar, is still responsible for defining the ESS needs. ESS focus is on delivering first science in 2023.

3 Short Review of Cryomodule Collaborations and QA (C. Darve)

Christine (CD) recalled the organization and progress of the ACCSYS/WP04, WP05 and WP11.2. All information to be shared and accessible on the Cryomodules Collaboration space: https://confluence.esss.lu.se/display/CRYOM including the QA/QC aspects and Risk Analysis. The relevant Technical Annexes are:

- AIK 4.1 Spoke Cryomodules, IPNO
- AIK 11.2 Cryogenic Distribution Line; Spoke Linac , IPNO
- AIK 1.1: AIK_ESS-ERIC Schedule 1, CEA
- AIK 5.1 H-ECCTD, High Beta Elliptical cavities and cryomodule demonstrator, CEA
- AIK 5.2 Elliptical Cryomodules Components Supply, CEA
- AIK 5.3 Elliptical Cryomodules Engineering and Assembly, CEA
- AIK 5.5 Technical assistance in installation and commissioning of the medium and high beta cryomodules, CEA

It is worth noticing that “CE Marking” is not explicitly requested in the In-Kind contracts (TAs) of CNRS and CEA, but the components shall comply with European Directives. The objective of the CE marking is linked to the safety of the people working on site.
In order to comply with ESS Quality Division (QD) requirements, the In-Kind group is gathering information for In-Kind partners at In-Kind Group / Technical Documentation.
The typical Road Map is:

1) CEA/CNRS complete HAZID: ESS-1713369_Hazard Identification Checklist
2) ESS QD Identify the applicable European Directives,
3) ESS QD define format applicable to Risks Assessments, then Partner complete the analysis/assessment,
4) Using CEA/CNRS specific information, ESS QD compiles the Technical File
5) CEA/CNRS compiles the user instructions using ESS template (see Guideline: Standard to write "Users Instructions": ISO 20607:2019)
6) CEA/CNRS sign the **Declaration of Incorporation (DoI)**, ESS/Maurice to support with template and filling
7) ESS sign the CE-Marking form for the Accelerator.

Field Coordinators shall be empowered and disseminate this procedure to each In-Kind component deliverables.

4 Short Review of CEA In-Kind Contributions to ESS (C. Madec)

Catherine (CM) and Christelle (CC) show the overall technical documentation that will be supplied to ESS. A systematic tracking of each cryomodule subcomponent has been set-up at CEA. It includes Generic (e.g. specifications, calculations to show compliance with standard, drawings and 3D model) and Specific documents (e.g. leak detection, alignment data, RF measurements configuration of one cryomodule).
Documentation is agreed to be sent to ESS by .FTP (see Joakim Meyer). It will be redistributed accordingly to FBS, LBS, AEM, etc..

➔ Action item:

1. ESS Quality Division to validate CEA HAZID and application of the action listed above. NB. The equivalent for IPNO Spoke cryomodule will be based on this validation.

5 Short Review of IPNO In-Kind Contributions to ESS (G.Olry)

Since the Spoke cryomodules and the Elliptical cryomodules projects are very similar, GO referred to CEA presentation of the documentation.
Veronique (VP) presented the list of technical documents that IPNO is preparing and which will be provided to ESS asap. This list is a best guess, and shall be validated by ESS QD.
Documentation is agreed to be accessible by Joakim Meyer team directly from IPNO database, so that ESS can distribute is according to FBS, LBS, AEM, etc..

➔ Action item:

2. IPNO to provide the list of documentation expected so that ESS QD cross-check it with the applicable European Directives requirements.

6 Quality Issues at ESS (M. Skafar)

Mattias (MS) presented ESS expectations to Plan, Demonstrate, and Perform. ESS expect the delivering organization to take full responsibility of any delivered item (during all phases of its lifecycle up to delivery and final acceptance).

MS further described that prior to shipment of IK delivery the requested documentation needs to be completed and reviewed by IK contributors, then it is sent to ESS for review and approval. When those tasks are completed, the order to ship component will be issued.
MS showed example of unqualified Quality (e.g. welding, electrical components, etc..). Non-destructive tests on welding are recommended.

➔ Action item:

3. LQR – Local Quality Representative, shall be identified at CEA/IPNO and ESS side.

7 Hazard Identification (HAZID) based on example (M. Looft)

Maurice (ML) analyzed the HAZID (Hazard Identification) list, which has been completed by CEA. Maurice recalled that it is voluntary to comply with it.
It has been a very useful base to initiate the work process. After details discussion with ML, Maurice explained that the application of the Machinery Directive would be the most convenient: see Hazard Identification list, HAZID.
The declaration of conformity (DoC) for the cavities (integrated inside the cryomodule) has to be signed by ESS.
Components provided by IPNO and CEA will be considered as part of the assembly. Hence a Declaration of Incorporation (DoI), pertinent to the final assembly to be operated in the ESS tunnel, will need to be provided by IPNO and CEA for the each component delivered at ESS.

➔ Action item:

4. ESS (ML) to supply to CEA the analysis of each identified risks wrt the Swedish regulations
5. ESS (ML) to supply to CEA a risk assessment based on the analysis
6. CEA to characterize each risk inside the risk assessment documentation (criticality and probability of occurrence)
7. CEA to characterize each risk inside the risk assessment documentation (criticality and probability of occurrence)
8. The final document (i.e. Declaration of Incorporation) should be signed by the site Director at CEA (TBC by CEA Christophe M)

8 Cryomodule Component Breakdown Structure w.r.t European Directives

Each component has been identified and described, in order to identify the proper European Directives that would apply. ML explained that a special attention shall be given to Interfaces. Maintenance, operation shall be considered. Mechanical, electrical, chemistry information are listed in the HAZID.
Declaration of Incorporation (DoI) for the assembly components are mandatory, otherwise ESS would be declared as the owner of the given system.
A case by case analysis has been conducted, e.g. RoHS, EMC, PED, radiation, (X-ray) scintillator) etc.. shall apply.
Risk list and Risk Assessment (RA) templates have been considered and tables were showed to guide CEA and IPNO. For the component interface, ESS staff shall support partners with the identification of the RA (e.g. helium guard and collector, filling vessel with N2 during transportation, energizing piezo during transportation).
Procedure for emergency shall be prepared.

9 Wrap-up

Following the identification of European Directives, Risk Analysis shall be completed by partners, with the support of ESS.

10 Visit IPN Orsay Labs

Visit to IPNO facilities and Labs: see pictures at:
https://photos.app.goo.gl/bdyMvNfG3Qm5WgLs6

Summary of Action items

Action item #	Status
1. ESS Quality Division to validate CEA HAZID and application of the action listed above. NB. The equivalent for IPNO Spoke cryomodule will be based on this validation.	Done on 27/02/2020
2. IPNO to provide the list of documentation expected so that ESS QD cross-check it with the applicable European Directives requirements.	Done on 18/02/2020
3. LQR – Local Quality Representative, shall be identified at CEA/IPNO and ESS side.	Done - TBC
4. ESS (ML) to supply to CEA the analysis of each identified risks wrt the Swedish regulations	Done on 27/02/2020
5. ESS (ML) to supply to CEA a risk assessment based on the analysis	Done on 27/02/2020
6. CEA to characterize each risk inside the risk assessment documentation (criticality and probability of occurrence)	On-going
7. CEA to characterize each risk inside the risk assessment documentation (criticality and probability of occurrence)	On-going
8. The final document (Declaration of Incorporation) should be signed by the site Director at CEA (TBC by CEA Christophe M)	To do