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Date of the meeting : 26 August 2021

WP6a Technical follow-up : Meeting Minutes #4

Project/Activity: HL-LHC – Cold Powering (WP6a)

Participants : F.Di Ciochis (FdC), Y.Leclercq (YL), P.Schneider (PS), F.Pillon (FP), R.Betemps (RB)

Agenda:

Indico event <https://indico.cern.ch/event/1055245/>

1. Action list follow-up
2. DFHX blank assembly progress
3. Planning of new activities
4. AOB

Discussion & comments:

1. Action list follow-up

DFH

- Action #1: Follow-up weld qualification campaign (FdC, YL, RB)
Qualification plan on-going - few remaining points to be addressed in the next dedicated meeting. Additional points to be addressed :
 - **RB to provide Current leads pressure-retaining welds list (to be checked if it has already been done) – not provided yet.**
 - **RB to inform Pierre Moyret that he can contact Julien Debeux to get details about the CL lip welds qualification campaign.**
- Action #2: Finalize feet design ensuring compatibility with installation sequence (RB)
Activity on-hold.
Tunnel floor unevenness has been measured. Results presented by Stephane Maridor, available [here](#).
- Action #6: flexible's tests follow-up (YL)
Performing flexible's tests based on what Jerome Fleiter intends to assess before approving the dedicated reports. **YL has proposed to postpone this activity until we get the parts for the test.**
 - **YL to contact Jerome Fleiter to set up the flexible's tests.**



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- Action #7: IFS flange design validation (YL)
PC reminded that the IFS flange of the DFHX is not included in the current manufacturing dossier. YL mentioned that the finalization of the IFS flange would have been taken over by AG but it still needs to be confirmed.
 - **FP to share information about the design, JF to check the design from the electrical point of view, JB to prepare a mock up, follow-up the procurement and assess assemblability**

- Action #8: Blank assembly follow-up (YL, FdC, MRC, AJ)
Completed “Sleeve support assembly – LHCFHX_0112”, some remarks concerning the shafts interconnection. The helium sleeves have been inserted into the G10 collars, everything fitted properly. Partially assembled “Assembly rear part cryogenic box2 – LHCFHX_0199” – we got stuck in assembling the shafts (the same issue came up in the LHCFHX_0112). Found scratches on “Stopped Shaft – LHCFHX_0111” – they do not affect the functionality. Placed one cradle on the rail – it does not seem to work properly, difficult to slide it without losing the alignment with the rail. Some pictures available [here](#).

DFM

- Action #1: Follow-up DSHM-DFM installation study in the LHC tunnel (YL, PS)
PS showed the main plan and status of the study. The study is progressing. Some feedback to be shared with Amalia. **PS will model PC’s proposal about the routing and check if it improves the design.**

DFX

- Action #1: Production follow-up (YL)
Production on-going. Found issues with the helium bellows – they have been delivered with damages and, therefore, we need to reorder them. The order has not been placed yet. We don’t expect to receive the new bellows before end of October (three months delay).

DSH (SC Link)

- Action #2: Reel procurement follow-up (MC)
Contract signed. MC is following-up the procurement. Delivery expected by November 2021 and test to be done by Q1 2022.
- Action #3: Reel design validation (PC, MC)
PC, MC and Erik Richards agreed to perform a test on the existing spool. The test is foreseen to be performed in early September. MC underlined the need of reducing the spool speed and adding a brake to keep constant the cable’s tension. The objective is to test how the spool is performing and to see how the cables behave during the operation.
Dedicated presentation from Erik Richards about the SC Link transport operations, available [here](#).



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DFLH (Current Leads)

- Action #1: Finalize CL drawings (RB, PC)
All the drawings are signed. RB confirmed that all the drawings have been signed.
- Action #2: Production follow-up (RB, PC)
PC underlined the need of arranging regular meeting with Pierre Moyret (EN-MME, in charge of the CL production planning) to identify any potential stopper/issue in the manufacturing in order to ensure on-time delivery. PC underlined that as baseline they will arrange regular meeting to follow up the progress. PC mentioned that at a certain point would be useful to invite Pierre Moyret to come to SMI2.
 - **PC to contact Pierre Moyret to discuss and agree on the best collaborative way to follow-up the CL manufacturing.**
- Action #4: Review models and integration of CL's transformers boxes (RB, AG)
Transformer's boxes have been modelled and integrated in SM18/Tunnel. **RB confirmed that the concept is done and the space is defined. They need to design also the dedicated supporting frame. RB and AG will have a dedicated discussion before starting the detailed drawings. RB pointed out that the design responsibility is still to be defined. RB underlined there are still some points from integration to be addressed.**

Cables & Splices

- Action #1: Splices & tooling design (RB, FP, PS)
FP confirmed that the design activities are still on-hold. FP and RB are waiting for Jerome Fleiter/Julien Hurte feedbacks before finalizing the design. **FP confirmed the design activities have been re-started and he is progressing on the DFX.**
- Action #2: Design splices anti-pulling system (PC, RB, FP)
A first meeting was held to initiate the discussion. During the meeting Julien Hurte raised uncertainties concerning the actual flexibility of HTS. PC underlined the need of arranging dedicated recurrent meetings to follow-up these activities. As a starting point, a summary table of the HTS cable's requirements is needed. This action is currently on-hold because PC underlined the need of Jerome Fleiter (on holiday) to progress.
 - **PC to prepare an action plan to be then shared with Amalia Ballarino and Jerome Fleiter. The action plan will be circulated to the team.**

2. AOB

- YL requested to discuss the nominal position in the LHC tunnel of the DFX's top plate.
 - a. PC underlined that the objective is to make sure that everyone is using the same origin and coordinate system. MRC mentioned he is waiting for comments about the SC Link extremities from Marian Gonzalez and Stephane Maridor and he expects to receive them by end of next week.



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- PC mentioned they are working on a document – “TE-VSC Contribution to WP6a” – concerning the vacuum instrumentation configurations in WP6a, which will also underline the impact of the vacuum barriers on the vacuum instrumentation.
- PC asked about the leak test configuration in AP. PC underlined that we would need to ask to AP formal leak test reports.
- YL mentioned about the need of adding the fixing points of the cables in the DFM cryostat.
- YL mentioned about the need of rotating the DFM cryostat to foresee a positive slope and evacuate potential bubbles generated around the splices.

Next Meeting: 9th of September 2021

Prepared by: F.Di Ciocchis

Date: 01-09-2021

List of actions:

N.	Action	Owner	Due date	Status
DFH				
1	Follow-up weld qualification campaign	FdC, YL, RB		Ongoing
2	Finalize feet design ensuring compatibility with installation sequence	RB		On-hold
6	Flexible's tests follow-up	YL		On-hold
7	IFS flange design validation	YL		New
8	Blank assembly follow-up	FdC, YL, MRC, AJ		Ongoing
DFM				
1	Follow-up DSHM-DFM installation study in the LHC tunnel	PS, YL		Ongoing
DFX				
1	Production follow-up	YL		Ongoing
DSH (SC Link)				
2	Reel procurement follow-up	MC		Ongoing
3	Reel design validation	PC, RB, MC		Ongoing
DFLHA/ DFLHB/ DFLHD (Current Leads)				
1	Finalize CL drawings	RB		Done
2	CL production follow-up	PC, RB		New
4	Review models and integration of CL's transformers boxes	RB, AG		Ongoing
Cables & Splices				
1	Finalize splices & tooling design	RB, FP, PS		Ongoing
2	Design splices anti-pulling system	PC, RB, FP		On-hold

