

Friday, January 15, 21

## Minutes of the DarkSide calibration meeting

14.01.2021

**Participants** Florence Ardellier, Pierre Barrillon, Alessio Caminata, Silvia Caprioli, Fabio Cortavarria, Marco Carlini, Alain Givaudan, Victor Coicoechea, Fabrice Hubaut, Alexander Kish, Pascal Pralavorio, Peter Skensved, Hanguo Wang, Isabelle Wingerter-Seez.

**Next meeting: In a month time.** Pierre will circulate a doodle poll in a couple of weeks to fix the date.

The INDICO agenda of the meeting is available at this [link](#). The files of the presentations are attached to the agenda.

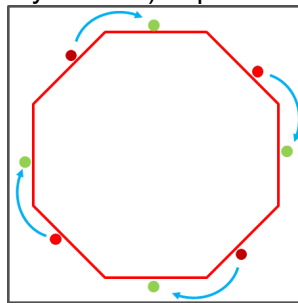
### Points to remember

Make a mock-up of the transition region btw the pipe and the glove box.

Meeting next week (week of the 18.01.2021) organised by Marco Carlini between TPC, veto and calibration teams to discuss the pipe layout.

### 1. Fresh idea about the organisation of the top cover - Hanguo Wang

- Hanguo informs us that a new idea is being developed where the DSS would rather be installed in the corners of the cover, where, in the calibration baseline design, the pipes were located. The pipes location would have to be modified to avoid any interference. A priori this change has no (or may be little) impact on the current development.



### 2. Status of the mock-up at CPPM - Pierre Barrillon slides

- Pierre presented the status of the mock-up; a first test at cold will take place end of February, beginning of March, after the temperature sensors and strain gauges are installed.
- The installation of the motor box is discussed in the next point
- Hanguo Wang mentioned that the presence of the polystyrene plug installed inside the tank to reduce the volume of the LN may lead to shorter stability of the liquid (less thermal mass). To be tested.

### 3. Round Table - Pierre Barrillon slides

3.1. Discussion on **design of the pipes** along the TPC and in the veto.

3.1.1. The latest version of the TPC CAD will be uploaded by Marco in the [google doc CAD folder](#). Concerning the veto, the version corresponds to the veto at cold and not all details are in.

3.1.2. In the context of the new idea for the organisation of the top cover, Hanguo sketches a way for the pipes to go through the veto VDUs which appears to be easier than before

3.1.3. Alessio Caminata presents a possible new design of the VDUs to accommodate the calibration in a safer way. Hanguo comments that possibly with the change of location

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of the pipes, this may not be necessary. This question will be discussed in the coming weeks.

### 3.2. **Motor boxes**

3.2.1. Peter Skensved exposes that a fraction of the pieces for the motor boxes have been machined. Because of a full lockdown taking place now in Canada and for at least two more weeks, little progress is expected during that time. The estimated time for the fabrication of the remaining pieces is estimated to be three to four weeks, if the workshop was in normal operation. Peter comments that some items exist already from former fabrication which could possibly be collected.

3.2.2. Once all the components for one box are available, Peter will assemble them on a plate and test.

### 3.3. **Motor choice**

3.3.1. The motor used at SNO+ is not available anymore; Peter and Pierre have identified a model from Sorotec. Peter will buy one and test it. If OK, Pierre can then buy four and start developing its control system.

### 3.4. **Motor box fabrication**

3.4.1. Peter sent the step files to Pierre last summer, after applying the modifications for the cable exit (changing from horizontal to vertical). The step files can be used to produce the plan for the motor box fabrication. Could Fabio Cortavarria or somebody from APC prepare these files ?

3.4.2. Peter points out that one should take care of removing one out of the two O-ring prior to the production of the fabrication files.

### 3.5. **Cylindrical glove box - Marco Carlini slides**

3.5.1. Marco presented a first, though already elaborate, design of a cylindrical glove box based on commercial component. Marco has run simulation to validate the strength of the box. To be followed up.

3.5.2. Peter suggests to study the possibility to close the box from the inside, by incorporating a plate, to be able to store the gloves when not needed.

### 3.6. **Simulation**

3.6.1. Alex has started to study, with simulation, the possibility to measure the TPB thickness, running a source underneath the TPC. His preliminary conclusions is that no effect of the thickness is observed. Alex adds that he has read publications corroborating this.

3.6.2. Pascal Pralavorio comments on the fact that effects from the TPB thickness are considered in DS-50.

3.6.3. Pascal suggests to discuss this question with Davide Franco

3.6.4. Silvia Caprioli is now in charge of the simulation for the calibration of the veto

## 4. **Calibration note - Isabelle Wingerter-Seez**

4.1. A first version of a note so called "calibration note" is available ([link](#)). It is meant to ultimately be a reference document describing the calibration system and the calibration procedure.

4.2. It is currently describing the motivations, the baseline design, a detailed simulation study and the questions to be addressed.

4.3. The current version, after all the authors have reviewed it, could be made available to the collaboration, in the form of an internal note.

4.4. The note will regularly be updated to track decisions and evolution.

4.5. It was agreed to first invite the authors to comment before acting.