

Hall A GEM Gas Distribution System Meeting

Date: June 30, 2020

Time: 10:30 – 11:30

Attendees: P. Bonneau, A. Brown, P. Campero, E. Cisbani, B. Eng, K. Gnanvo, G. Jacobs, T. Lemon, N. Liyanag, M. McMullen, B. Sawatzky, J. Segal

1. Gas Distribution Panel (G. Jacobs, J. Segal, B. Sawatzky)

1.1. George can give an update on the procurement and assembly of the mechanical components.

1.1.1. George is waiting on input from Hall A before fabrication of the distribution panels can start.

1.1.1.1. Brad and Jack state that the final decision on the gas panel enclosure is that George will re-distribute the current DSG design to the Hall A collaboration. Hall A will review the design to ensure the proper footprint is provided on the hall floor, beyond the shielding. Design, procurement and fabrication of the panels can begin immediately. Extra gas lines will need to be added to the panels (see 3.1.2.1). The panel mount can be some version of a standard rack or materials which would hold the panels. **The current DSG design is viable.**

1.1.2. Jack had a meeting Thursday concerning the upcoming GEM installation. Detector mounting hardware is still in the design phase for both SBS and BB.

1.1.2.1. The platform is in hall a.

1.1.2.2. The detector frame is in Test lab.

1.1.3. Jack is still considering the location for the gas panels, perhaps it should be mounted on the individual GEM frame.

1.1.4. Nilanga suggests that the gas distribution panel be located approximately 10 meters away, which would be behind the radiation shielding blocks/huts.

1.1.4.1. Jack is concerned with excessive gas lines running to that location.

Nilanga states that electronics cables (HDMI, HV) already have to make that run, adding a gas line to each bundle going to a GEM package makes sense. **Jack will consider this suggestion.**

Nilanga also says there will be a patch panel for easy disconnection.

Nilanga has currently someone designing the patch panels at or near the shield huts, he suggests to incorporate cable/gas line routing in this design work. Nilanga has suggested that the redesign of the patch panel be done by DSG. **He will submit an official request via DSG-halla_gas mailing list.**

1.2. Jack and Brad can provide updates on the installation schedule and location of the distribution panels so DSG can adapt the current design to fit in the space/location.

1.2.1. Installation of the detectors will start sometime after the current run ends. Nilanga requests the distribution system to be ready for testing as early as Oct. 1. **He will submit an official request to DSG via the mailing list.**

1.2.2. The location seems to be resolved, but still needs refinement. However, the gas distribution panel issue is solved (with modifications for expansion). It will be free standing and located on the floor.

2. Flow Readback (M. McMullen, B. Eng)
 - 2.1. Marc can provide an update on the status of the readout PCBs
 - 2.1.1. Gas Flow Sensor V1
 - 2.1.1.1. The sensor boards have been delivered and are currently being populated and tested by DSG.
 - 2.1.2. I²C Multiplexer
 - 2.1.2.1. Currently under design by DSG.
 - 2.1.3. After the SBS/BB flow readback presentation was given by DSG, Nilanga recommended that the system be increased (doubled) to provide exhaust readback. **Jack requested DSG to submit reqs to purchase the additional sensors as well as the supporting multiplexers boards and single board computers.** The talk will be posted on DSG website for distribution.
3. GEM detector progress for SBS/BB (K. Gnanvo, N. Liyanage, E. Cisbani)
 - 3.1. A general status update on the progress of the GEM detectors should be provided.
 - 3.1.1. Kondo states the UVA group has resumed GEM construction and testing in the EEL.
 - 3.1.2. Impact of detector progress and testing due to MEDCON and the path forward.
 - 3.1.2.1. Nilanga states that some of the INFN chambers have some issues. The less efficient INFN GEMs will go to SBS, the better ones will be installed on the BB.
Kondo has used the time during MEDCON 5/6 to develop a new GEM package which is intended to support the forward tracking effort, currently provided by the INFN trackers. To support these new trackers, additional gas lines will need to be added to DSG design. New modules will have multiple gas supply lines. DSG requested information on the requirements regarding the new GEM packages so that George can modify the gas panel design. The detector frames are still on the way from Belgium. The new GEM packages will be ready early 2021.
4. Open discussion items. (All)
 - 4.1. Nilanga has shown interest in the progress DSG has made, particularly towards the cost effective readout system. He suggests that DSG be included in future publications and possibly present at a future collaboration meeting. **He will send his suggestions and comments to the mailing list for consideration by DSG management.**