

WA104 Technical Working Group meeting

<https://indico.fnal.gov/event/21341/>

At FNAL: L. Bagby, A. Braggiotti, M. Betancourt, H. Budd, A. Chatterjee, C. Farnese, G. Meng, C. Montanari, G. Savage, A. Scaramelli, D. Torretta

Remote: A. Braggiotti, A. Chatterjee, S. Centro, M. Diwan, A. Fava, A. Guglielmi, C. James, J. Laast, G.L. Petrillo, G.L. Raselli, Y.-T. Tsai, P. Wilson, C. Vignoli, A. Zhang

1) C. Montanari _ News and updates

Installation of cable trays on top of the detector is advanced but not complete. This activity is expected to continue until the end of next week.

Electrical work is moving forward, for the time being dedicated to the cryogenic system and the power needed for drift HV, not on top of the detector yet.

A discussion took place yesterday about the safety procedures for Oxygen Deficiency Hazard (ODH). Starting in September, when operations with cryo liquids in the building will start, access to below grade levels of the building will be limited to people with appropriate training.

Tests of the noise on the TPC readout electronics will start today, and on Friday thorough tests will be done switching off all electrical instrumentations in the building and powering them back up one-by-one in sequence.

Search for shorts is still ongoing, and this is relevant to the noise measurement.

Most of the material needed for producing the cables for TTLink and wire bias is been procured in these days with fast delivery.

- Upon S. Centro request, C. Montanari clarifies that a discussion with Padova technicians will follow about the feasibility of the production of cables on site. If it will turn out not to be possible, the material will be sent out for assembly off-site, causing delays and need for additional funds to be requested.

2) G.L. Raselli _ Plans of upcoming activities on the PMTs system

<https://indico.fnal.gov/event/21341/contribution/2/material/slides/0.pdf>

Activities on light detection system, mainly on installation of electronics and electronic testing, will start next week. A vertical slice test has been setup for this purpose, and this is now operational.

People involved are: G.L. Raselli, M. Rossella, A. Chatterjee, W. Ketchum, A. Fava, D. Torretta and G. Meng. Any other interested collaborator is welcome to join.

Cables are in shipment to CERN; however, it is not clear when these cables will be available at FNAL. Some preliminary activities, such as labeling, verifying possible interferences and fixing of the cables, can be done in the meantime.

Concerning the trigger unit, tests will be performed on trigger and TTLink generation, and LabView software will be installed on the FNAL computer with the local license.

- Upon C. Montanari request, G.L. Raselli and M. Diwan clarify that the tests on PMTs will be carried out using spare cables, production primary power supplies and a portable power distribution unit than can handle 10 PMTs at a time.

- C. Montanari points out that the vacuum system is presently off for short searches, while the system needs to be under vacuum for operating the PMTs safely, without causing discharges.

Therefore, people working on the PMT tests are encouraged to interface with the K. Hardin in order to be updated on the status of vacuum pumping.

- G. Savage clarifies that for the deployment of the PMT slow control, he is trying to setup a temporary network distribution, while the cabling of DAQ optical fibers cannot be done because servers are not on site.

- Upon C. Montanari request of listing all the material needed for each activity in order to get an estimate of the timeline, A. Fava suggests that the spreadsheet she prepared and circulated some time ago is used for this purpose.

3) J. Laast, D. Zambelli _ Simulation of temperature distribution in the detector building <https://indico.fnal.gov/event/21341/contribution/3/material/slides/0.pptx>

A study of temperature and air velocity distribution in the Icarus building was done, with a simplified geometry. Thermal effects in small gaps have been ignored, focusing on global phenomena only.

Using the 3D model, a criticality is identified in the center, both between the upper central CRT panel and the concrete overburden, and under the tagger roof. This corresponds to regions where the velocity of air circulation is the lowest.

A suggestion is made to create a more uniform temperature distribution by conveying air into poorly ventilated upper regions and/or introducing cooling units. C. James makes a general comment about the present situation of the air circulation (that is already being modified); it was foreseen to add ducts or cooling units after the installation of the detector.

The simulation that was presented here will be a most valuable tool to correctly define such modifications.

- C. Montanari comments that in the simulation the concrete overburden coverage is considered continuous, while the possibility of an aperture in the shielding blocks has been added for mitigating ODH hazards. However, C. James comments that this is expected to run with forced extraction in case of emergency only; it will not to improve the air circulation and temperature problems substantially during normal operation.

AoB

A discussion follows about the organization for the search of the short(s) between the detector and the building grounds.