

Magnetic shielding meeting: 2012-09-19: 15:00 BST
Conference Room 4, R1 (phone conference details circulated)

Present: PS, JT, LF, AN, AG, KL, TH, IM, JW, PH, HW, JC

1. Actions:

- AN, KL:** How to add effort
“Done”; need to ask DL MAR Group colleagues to help with a specific.
- JT:** Pursue clarification of Cryomech basis of estimation of effect of high-pressure hose length
JT reports that T. Bradshaw will make a check on Cryomech hoses. For Sumitomo a routing at 30 m run.
Action closed.
- CMacW:** Pursue development of test of non-standard lengths of Sumitomo high pressure hose;
Quote available, will proceed when JT has full layout.
- ABr:** Pursue development of test of non-standard lengths of Cryomech hoses
No report this week.
- **LF, CMacW :** Collect information regarding the design of the LINAC wall (North side of hall)
PS has geometry from JT and CMacW and LF has checked the iron content using magnets and weights to determine force required to pull magnets off the wall. Information acceptable to MC as a starting point.
- **PS :** Compile document listing model / analysis scenarios required.
Done. Document circulated. ABr and CMacW replied. Needs development as a living document on the wiki.
- **MC :** Re-run the model for the North wall RF area with aluminium racks.
Done.
- **JW, IM :** Send more detailed information for masses in the North racks
Done.
- **JT :** Send hall models to HW
Done.

2. Status of review of items in Hall and contacts with system owners: LF/MOM

- LF sent out email to the remaining people on the contact list earlier today. Awaiting replies;

3. Status of magnetic model of MICE Hall: PS

- See slides: [here](#)
- Components added:
 - EMR: modelled as a block of iron as no information being provided by Geneva group;
 - SW distribution board wall;
 - Linac wall;
 - TOF cage;
 - Trench;
 - Cellar and components (i.e. the cellar that was filled with concrete at the west end of the Hall);
- Initial contacts made with Vector Fields to work out how to set boundary conditions to parallelise the analysis of specific components.
- MC and PS presently not using the same comi files. MC and PS will prepare a plan for convergence.

4. Status reports:

- Racks behind north wall: TH, IM**
TH: Structural engineer has been consulted and has formulated a plan to strengthen the false floor;
IM: Reported that rack build is progressing;

Compressors along west wall: JT

JT has been studying routing of compressor lines and has 40m Cryomech-hose routing and 30m routing for Sumitomo high-pressure hoses. Now need to work on details.

ISIS plant room: KL

KL met with D. Findlay and it was agreed that study of the use of the Plant Room could begin.

We agreed:

- **IM:** Send drawing of Plant Room to JT;
- **JT:** Prepare drawing of Plant Room for modelling in the magnetic model and for rack layout;
- **PS:** Prepare model of magnetic field in the Plant Room;
- **KL:** ask whether A. Stevens wants regular invite to this meeting.

5. Discussion of options:

On the mezzanine level to the north east;

Back-up scenario at the moment;

Partial return yokes: HW

HW reported that he is working on quote from BNL engineering for realization of partial return yoke. HW has sent an updated CAD file. HW will follow up.

HW started to look into a more complicated model including some components of the MICE Hall. This takes ~48 hours to solve.

There is the potential of a small dipole component.

Model was sent to Vector Fields to look at force on CC for Step VI. This would be large compared to the force in the absence of the shield. Possibly up to a factor of 1.8. The force depends on the shape of the shield.

JC agrees that one should aim for the same geometry. However, if partial return yokes are to work they should be insensitive to the environment.

JC reports on the effect of the proposed partial return yokes in tracker is negligible.

Igloo:

Closure of ends of shield wall.

On hold for the moment.

6. Consideration of shielding for tracker racks etc. PS, MC

MC sent slides ([here](#)) yesterday of the racks behind the north wall. PS reports that the presence of steel in the rack frames become magnetised. Racks clad in aluminium do not suffer from this problem, but do not shield in the inside the rack.

Message appears to be that the racks behind the north wall can be shielded.

7. List of specific items to check PS

- LH2 delivery systems**
- Q9 power supply**
- HV rack**
- Control rack for compressors, vacuum etc.**
- Vacuum pumps**
- Substation**
- Equipment on the roof**

This item can now be deleted from the agenda as PS's living list supersedes this list.

8. AoB

- **PH:** Simulate Wang situation and compare to the measurements made by LBNL colleagues.

Summary of actions:

- **ABr:** Pursue development of test of non-standard lengths of Cryomech hoses
- **IM:** Send drawing of Plant Room to JT;
- **JT:** Prepare drawing of Plant Room for modelling in the magnetic model and for rack layout;
- **PS:** Prepare model of magnetic field in the Plant Room;
- **KL:** ask whether A. Stevens wants regular invite to this meeting.
- **PH:** Simulate Wang situation and compare to the measurements made by LBNL colleagues.