

Minutes from the LBNF-BARC meeting
July 02, 2020

Present:

1. From BARC: Sanjay Malhotra, Elina Mishra, Kumud Singh, Vikas Teotia, S.Sundar Rajan, Janvin Itteera, U.G.P.S.Sachan, Prashant Karn
2. From FNAL: Kevin Duel, Dave Hixon, Vladimir Kashikhin, Jonathan Lewis, Thomas R Kobilarcik, Philip Schlabach, George Velez, Karl Williams, Miao M Yu

Agenda:

1. Project update
 2. Action items update
 3. Engineering design of 4-m long dipole
 4. AOB
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1. Project update:
Sanjay will attend the upcoming LBNF review on July 14-17.
 2. Action items update: the meeting started 9:07am/7:37pm (FNAL/BARC), 7 minutes later, this update was skipped and we will exchange the email to update the status.
 3. Engineering design of 4-m long dipole by Janvin Itteera
Question and Discussion:
 - 1) Vladimir: Saggita is 7 mm, BARC can consider the other option with increasing the length of the core.
David: what about 6m-dipole with Saggita ~11 mm? (to be confirmed by FNAL)
BARC: It is a good suggestion, in particular for the short dipoles. Will study the two options to compensate the Saggita.
 - 2) George: How good is the laser cutting process on the laminations (accuracy and consistence), comparing to the stamping process with the die.
Sanjay: BARC will investigate both options to find the best way for the prototype.
 - 3) George: For space requirement, the dipole will be install 6-m and 4-m dipoles alternatively after each other.
 - 4) George: For the copper bus, induction brazing technique is required, and FNAL have experience to make the joint.
Jonathan: Do we have QC specification and requirement on the joint.
David: Yes, we have. QC includes the leak check and the straightness. We will share the document. All the joint is straight without a curve.
 - 5) Jonathan: Is the pressure drop test before shipping planned at BARC?
Sanjay: Yes.
 - 6) Is Hipot test planned?

Sanjay: BARC will do Hipot at 1kv and impulse test at 100v
FNAL did the impulse test on the MI main dipole, there is the specification and requirement which will be share with BARC.

Miao: Is the QA/QC plan available on the quadruple and dipole.

Sanjay: Traveler includes all the relevant measurements (for meeting TRS) as QA/QC.

- 7) Jonathan: There will be the design review soon. Plan on quadrupole review first.
Jonathan: it is better to send the traveler before the meeting that people can look at it ahead of time.
- 8) Jonathan: Did FNAL send the main injector magnet traveler to BARC?
Yes, and will double-check.
- 9) Jonathan: The mounting structure is not presented as the engineering design for the dipole.
Sanjay: we will have the final design on each magnet which includes everything.
Kelvin will send the drawings related to the mounting structure.
- 10) Kelvin: the length of the coil end should be less than 5 inches beyond the end of the core, which is specified in the drawing package sent to BARC before.
Jonathan shows the picture of the original main dipole.

Action item:

1. BARC will study the option by increasing the pole width to compensate the Saggita
 2. BARC will investigate both options, laser cut and stamping, to find the best way for the prototype.
 3. David Harding will share the copper joint QC requirement and specification with BARC.
 4. FNAL will share the electrical inspection specification and the requirement with BARC.
 5. BARC will present a first draft of the traveler document, made for an previously developed magnet, in the next meeting scheduled 23rd July 2020
 6. Kelvin will provide the drawings related to the mounting structure for the dipole magnets.
 7. BARC will verify the design to make sure the coil end within 5 inches.
 8. Sanjay will upload today's presentation to the Indico page.
4. Next meeting will be held on 7/23, 8:45am/7:15pm (FNAL/BARC)

Agenda:

- 1) Project update
- 2) Engineering design of 6-m long dipole.
- 3) BARC magnet fabrication traveler.
- 4) AOB