



MQXF Long Coil Fabrication Status and Plans at Fermilab

Fred Nobrega

HiLumi - LARP Collaboration Meeting

May 11-13, 2015

FNAL

Outline

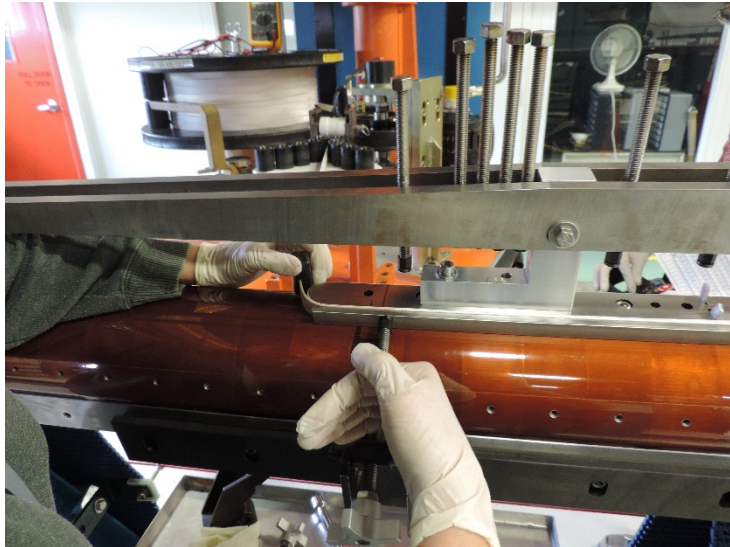
- Overview
- Status
 - Wind & cure
 - Reaction/Impregnation
- Fabrication Plan
- Summary

Overview

- Practice cable 1 → coil fab process at FNAL
- Practice cable 1a → coil fab process at BNL
- Long coil #2 → mirror magnet assembly at FNAL
- Long coils #3-6 → 1st long magnet
 - All coil winding at FNAL
 - Coils 3 & 5, reaction & impregnation at BNL
 - Coils 4 & 6, reaction & impregnation at FNAL
- Coil travelers updated and revised as needed.

Fabrication Status, Wind & Cure

- Long coil winding machine recently modernized and commissioned since last used in 2005 (ICB) for LHC IR Q2a/b coils.
 - Winding Machine designed for single layer coils, coil pairs spliced.
- New curing mold complete & ready for introductory cure cycle.
- All curing tooling is at FNAL, spacers, pushers, shells, etc. Curing shim at FNAL machine shop due May 19.
- Coil winding of 1st practice coil with practice Nb₃Sn cable has begun.



Fabrication Status, Reaction/Impregnation

- 2 sets of reaction and 2 sets of impregnation tooling were procured in Aug.
- 100 % of form blocks received by FNAL
 - ~25% rejected and are being reworked or remade.
- 4.4 m long base plates and stiffener plates are 75% complete.
 - Two of each is expected at FNAL Thursday, May 15.
 - Upon inspection approval, there will be 1 complete reaction tooling assembly and 1 complete impregnation assembly
 - Remaining 2 sets of plates expected in about 3-4 weeks.
 - New/reworked form blocks expected in about 6 weeks.



Fabrication Plan

- Practice coil #1 → 5/4/15 - 11/25/15
- Practice coil #1a → 6/30/15 - 12/10/15
- Long coil #2 → 9/2/15 - 3/1/16
- Long coils #3-6 → 11/9/15 - 7/8/16
- 1st long magnet assembly → 10/3/16 - 2/10/17
- Magnet test → 2/27/17 - 5/19/17

Summary

- Long coil winding has begun.
- Curing tooling is complete.
- Reaction and impregnation tooling procurement is about 75% complete.
- One complete set of reaction and impregnation tooling expected to be available when the 1st practice coil winding and curing is complete.
- Coil travelers being updated/revised as needed.