



Comments on the MICE-US Exercise to Level the Resource- Loaded Schedule

MICE-US Project Team | November 5, 2013

At the MICE Resource-Loaded Schedule (RLS) Review in May 2013, the MICE-US team presented a high-level analysis based on the anticipated U.S. budget profile in order to estimate a likely completion date for the MICE Experiment. This analysis took the existing US RLS, which was dominated by technical limitations¹, and applied contingency assumptions to reach the conclusion that, even in the absence of the remaining R&D risks to the program, the schedule would likely have to stretch by as much as 2 years in order to be “realistic.”

The US schedule that has been uploaded for this review incorporates the core assumptions of this analysis along with recent adjustments to the MICE experimental plan. Specific changes include:

1. Stretch of planned activities to match the anticipated funding profile (including fabrication contingency) for the construction of MICE hardware in the US;
2. Adjustments to fully incorporate the use of a Partial Return Yoke (PRY) for both Step IV and for Step V-VI operation;
3. Adjustments to match actual hardware production rates during US FY13;
4. Introduction of production contingency slack on key production activities.

The resulting schedule is consistent with plans for deployment of the Step IV beamline hardware. Nevertheless, as of today, there has been insufficient time to prepare an integrated US-UK plan extending through Steps V and VI. We would hope to present that analysis at the next MICE review in Spring 2014.

There are certain conclusions that can be drawn from this revised schedule. First of all, we believe the new US schedule to be entirely consistent with the simpler analysis that was presented to the RLSR committee in May 2013. Secondly, the production sequence as presently laid out suggests key issues that should be considered for future planning. For instance, if the initial CC magnet prototype that will initially be operated in the MuCool Test Area (MTA) at Fermilab achieves acceptable performance parameters for MICE operation, we should carefully consider the option of removing it from the MTA after testing is complete. This could enable shipping of the two Step VI RFCC modules to RAL in quick succession in 2018 and could significantly expedite the Step VI schedule. Furthermore, combining the results of the US scheduling effort with a UK schedule fully incorporating likely contingencies will provide a much more realistic overall plan for completion of the experiment.

¹ By technically limited in this case, budget limitations were only taken into account in the sense that they would constrain coupling coil fabrication and assembly of the RFCC units to be a serial production process. Once these basic assumptions were established, development of the schedule relied principally on technical limitations.