



# U.S. Muon Accelerator Program Memorandum

June 15, 2012

**From:** Stuart Henderson, Associate Director for Accelerators, Fermilab  
Mark Palmer, Director, U.S. Muon Accelerator Program

**To:** Tor Raubenheimer, Chair, **Muon Accelerator Program Advisory Committee**  
(MuPAC)

**Subject:** Charge for Annual Program Advisory Committee Review

This memorandum describes the scope of the annual review that we ask the Muon Accelerator Program Advisory Committee (MuPAC) to undertake for FY 2012. As of March 2011, the U.S. Muon Accelerator Program (MAP) was approved as an official R&D Program in the DOE Office of High Energy Physics. Furthermore, MAP is now operating with a new director in place. In this context, you are requested to provide both programmatic and technical evaluations for the program.

The principal focus of MAP is to conduct the necessary R&D to assess the feasibility of the design concepts and technologies required for a future neutrino factory and muon collider. This involves development of suitable concepts and technologies for a multi-MW proton driver, high power target and front-end capture system, emittance cooling of the resulting muon beams, acceleration schemes for the finite lifetime beams, and storage and collider rings capable of meeting the necessary physics specifications. The program also involves support for the International Design Study for a Neutrino Factory (IDS-NF) and the Muon Ionization Cooling Experiment (MICE) at Rutherford-Appleton Laboratory. You are requested to evaluate the following issues:

- The maturity and suitability of the design concepts that will be presented;
- The choice of technologies being pursued to verify that the above design concepts can be successfully implemented;
- The effectiveness of the R&D program being carried out to demonstrate the required technologies;
- Progress that has been achieved in each area since the beginning of FY11;
- The quality and suitability of the MAP R&D plan;
- Interactions with and support for international collaborations;
- The program management plan and its suitability for conducting a national R&D effort;
- The planned budget profile and the program's ability to meet its goals within this profile.

The feasibility assessment period for the program is anticipated to extend over the next 6 years and will be sub-divided into two phases (FY13-15 and FY16-18). Detailed plans



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and milestones will be presented for the first phase and an overview provided for the remainder of the program. Finally, you should also evaluate progress on any issues that were identified during reviews held by the predecessor of this committee (the Muon Technical Advisory Committee, MUTAC).

You are asked to provide a verbal report at the conclusion of the review to the management team and a written report to Fermilab Director Pier Oddone within 30 days of the conclusion of the review.

**cc:** P. Oddone, Director, FNAL  
B. Strauss, Program Manager, U.S. DOE, OHEP