

February 28, 2003

Dr. Peter Paul, Director Building 460 Brookhaven National Lab. Upton, NY 11973	Dr. Charles Shank, Director Building 50A Lawrence Berkeley Natl. Lab. Berkeley, CA 94720	Dr. Michael Witherell, Director Mail Station 105 Fermilab Batavia, IL 60510
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Dear Drs. Paul, Shank and Witherell:

This comes to provide you with the Report of the Muon Technical Advisory Committee (MUTAC) and the letter of transmittal from MUTAC Chair, Dr. Helen Edwards, following their meeting of January 14-15, 2003. We provide the letter and report together with the comments and recommendations of the Muon Collider Oversight Group (MCOG) pertaining to the contents of the report. Our letter is supplied in the context of MCOG performing its oversight role for the national R&D program in muon collider/storage ring R&D. The members of MCOG unanimously concur in the contents of this letter.

We note the successes in the muon R&D work accomplished during the past year, especially the continuing conceptual design creativity and general enthusiasm of the collaborators in spite of three successive years of severe budget decreases that have strongly restricted the scope of experimental R&D work able to be carried out by the Muon Collaboration. Despite these very restricted resources, the Muon Collaboration has moved forward in a number of targeted R&D areas. The project organization put in place by the Collaboration, together with the management role exercised by Project Manager Mike Zisman, has continued to provide good project management and reporting. The successful record of progress is epitomized by the summary judgement in the report, namely that "Overall, MUTAC was impressed by the accomplishments since the last meeting, particularly given the strained financial situation. MUTAC can enthusiastically assure MCOG that the limited funding is being well and carefully utilized." The substantive basis for this conclusion, along with MUTAC's positive response to the specific items in the charge, are contained in the Report. In summary, MCOG is pleased by progress in the muon R&D program over the past year and commends the Muon Collaboration for their performance.

As we commented in last year's report, MCOG is concerned by the continuation of severe budget cuts in each of the last three years. These cuts in the level of support accorded to the muon R&D work of the Collaboration has severely impeded progress, especially in the attempts to advance the *experimental* work of Muon Cooling and High-Power Target R&D. Of particular concern is the projected level of support for FY 2003 and FY 2004, both in the explicit R&D funding directed to the Collaboration, and in the base program support provided by the supporting laboratories. MCOG has concluded that it is imperative that DOE seek to provide enhanced R&D funding for this work if it is to meet either the intent or the recommendations of the Long Range Plan laid out in the 2002 Gilman Report of HEPAP.

Letter to P. Paul, C. Shank and M. Witherell
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Failing the improvement of the budget conditions for FY 2003 and FY 2004, the rate of progress in the Muon R&D area will be limited to conceptual advances and a very restricted scope of experimental work in the muon cooling area. U.S. participation in the international Muon Ionization Cooling Experiment (MICE) will not be fully effective in spite of the value promised by the founding of this international collaborative group. To discuss these funding problems and hopefully find some relief, MCOG will seek a meeting with program officers of the DOE HEP Division and leaders of the Muon Collaboration in the near future.

The three members of MCOG held a telephone conference call on February 26, 2003 to discuss the MUTAC Report and to generate advice to the agencies. MCOG subsequently arrived at the following recommendations to DOE:

1. In the area of experimental work, the highest priority should continue to be accorded to the 800 MHz and 200 MHz RF work, especially the testing of the 800 MHz cavity in a magnetic field. This work is critical to the advancement and eventual success of the MUCOOL and MICE projects. High power target R&D is important to a number of future high energy accelerator projects under consideration in the U.S. program and this work should be continued as resources allow.
2. MCOG supports participation by the U.S. in the Muon Ionization Cooling Experiment (MICE) and urges the DOE to support this valuable international activity.
3. The creative conceptual advances made by the Muon Collaboration are strengthening the notion that a muon-storage-ring-based neutrino factory is feasible and will offer opportunities for a future facility. As such, we recommend continued support for conceptual development activities in parallel with the strengthened experimental and engineering R&D activities described above.

We are available for elaboration of the MCOG observations in this letter as you may desire.

Sincerely for the MCOG,

Thomas B.W. Kirk
MCOG Contact Person

Enclosures: (2)

Cc: A. Sessler, Muon Collaboration Spokesperson
M. Zisman, Muon Project Manager
J.R. O'Fallon, DOE HEP Division Director
MUTAC Members
S. Holmes, MCOG Member
P. Oddone, MCOG Member