

December 31, 2001

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), following their meeting of October 18-19, 2001, together with the advice and recommendations of the Muon Collider Oversight Group (MCOG) pertaining to the contents of that 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.

In brief, we note the positive tenor of the MUTAC Report on the productivity of the muon R&D work accomplished during the past year. In spite of restricted resources, the Muon Collaboration has moved forward in most of the targeted R&D areas and the project organization put in place by the Collaboration, together with the management role exercised by Project Manager Mike Zisman, have contributed strongly to this coherent performance. The impressive record of progress is epitomized by the summary judgement of the report, namely, that "The committee finds the progress since last year excellent." Elaboration of this conclusion, along with MUTAC's positive response to the other 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.

Less satisfactory, in the opinion of MCOG, is the deteriorating level of support accorded to the muon R&D work of the Collaboration. Of particular concern is the projected level of support for FY 2002, both in the explicit R&D funding directed to the Collaboration, and in the base program support provided by the supporting laboratories, especially at Fermilab. In examining the FY 2002 budget provided by project manager Mike Zisman, MCOG concurred with his assessment that there is no way that all the important research directions required for a timely evolution of the R&D program can be adequately supported in this budget. The concurrent deterioration of base support at Fermilab has further undercut the situation. To this point in time, MCOG has endorsed Zisman's submitted budget as the provisional basis for FY 2002 operations, pending its assessment of the October 2001 MUTAC Report and subsequent MCOG deliberations.

To discuss the issues raised by the MUTAC Report and to generate its own advice to the agencies, the three members of MCOG held telephone conferences on December 17 and 21, 2001 during which the MUTAC Report and other topics were discussed. The latter

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conference included participation by Spokesperson, Andy Sessler and Project Manager, Mike Zisman. MCOG subsequently arrived at the following recommendations to DOE:

1. At a summary level, MCOG notes the continuing promise of muon collider/storage ring R&D for potential application in future HEP facilities and recommends that this area of R&D continue to be supported by the agencies. MCOG further recommends that a significantly increased level of funding be provided, if possible, starting in FY 2003.
2. In view of the strong recommendation by MUTAC to supplement the cooling R&D effort, MCOG recommends that the Muon Collaboration and Fermilab work together to bring the proposed Linac Test Area to completion as expeditiously as possible consistent with current funding constraints.
3. Because the target R&D effort is applicable to all future muon related HEP experimental efforts, including all future neutrino programs and any future muon collider facility, MCOG recommends that the Collaboration continue the target R&D efforts planned for the coming year under the provisional budget submitted to MCOG by Project Manager Mike Zisman.
4. Finally, noting that simulation and analytical studies typically require significantly lower resource allocations, MCOG recommends that hardware activities in any new areas of investigation be preceded by sufficient conceptual studies that an optimum direction for the experimental activity be determined prior to its inauguration. We note that a number of conceptual avenues of investigation have come and gone in favor, seemingly independent of explicit new experimental results.

Beyond recommendations that pertain to near-term evolution of the muon collider/storage ring R&D program, MCOG also notes that it is especially important not to withdraw support from *any* productive area of accelerator R&D, at least until the future direction of the U.S. HEP program, now moving toward a linear electron-positron collider, has been consolidated in a new facility construction plan. As noted in the draft report of the HEPAP Sub-panel, it is important to continue general accelerator R&D, even after we know what the next facility step for the U.S. program will be.

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: (3)

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