




Department of Energy
Office of Science
Washington, DC 20585

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MEMORANDUM FOR LK LEN and KEN MARKEN

FROM: GLEN CRAWFORD 
DIRECTOR, RESEARCH AND TECHNOLOGY DIVISION
FOR HIGH ENERGY PHYSICS

SUBJECT: Charge for HEP-GARD Magnet Development Program Review

The mission of the Department of Energy High Energy Physics (HEP) program is to seek an understanding of how our universe works at its most fundamental level. The General Accelerator R&D (GARD) subprogram supports that mission by fostering fundamental research and development in the science and technology of particle accelerators. Within GARD, the Magnet Development Program (MDP) seeks to push magnet technology to the highest fields possible in support of future accelerator facilities that will be used to carry out the HEP research program thereby advancing our strategic goals for science.

This memorandum is to request that you conduct a technical and management review of the HEP-supported MDP R&D efforts on December 4-5, 2019, in the Washington D.C. metro area. The purpose of this review is to assess the quality and impact of the recent scientific achievements within MDP, the feasibility, relevance and impact of the future plan of the research program, the effectiveness of its management and whether resources and planning are being appropriately directed to achieving the scientific goals and milestones of the HEP mission.

We also ask for your help in understanding these aspects of MDP within the context of international efforts in magnet development. To this end we are inviting non-reviewer international participants to present high level overviews of magnet technology R&D in their countries and institutions. The aim is crystallize an international view of present challenges and priorities for high field magnet technology development.

It is requested that your review evaluate:

- The quality and significance of the recent test of MDPCT1, the 15T design cosine-theta dipole, and the merit, feasibility and impact of the future test plan for this magnet.
- The quality and significance of recent tests of Nb₃Sn and HTS canted-cosine-theta (CCT) magnets, and the merit, feasibility and impact of the future test plans for CCT magnets.



- The effectiveness of management in strategic planning and implementing a prioritized and optimized program for high field magnet technology development.
- The effectiveness and appropriateness of the laboratory interactions to maximize the utilization of existing infrastructure and expertise available at those laboratories.
- The appropriateness of existing and potential collaborations outside of MDP.
- The soundness and feasibility of the draft updated roadmap for the next stages of MDP effort in the context of international efforts and priorities.

I would appreciate receiving the review reports, suitable for transmission to the laboratories, within 45 days after the review.