Office of Science
U.S. Department of Energy

U. S. Department of Energy
and the
National Science Foundation

November 15, 2007

To: Mr. Daniel Lehman, Director, DOE Office of Project Assessment, SC-28

Subject: Request to Review the Dark Energy Survey project

The Department of Energy (DOE) Office of High Energy Physics (OHEP) and the National Science Foundation (NSF) request that you conduct a review of the preliminary design of the entire Dark Energy Survey (DES) project on January 29 – 31, 2008 at Fermi National Accelerator Laboratory (FNAL).

The DES experiment plans to utilize the existing Blanco Telescope at the Cerra-Tololo Inter American Observatory (CTIO) in Chile to study the nature of dark energy. The project includes the fabrication of a new camera (DECam) optimized for the study of dark energy, the CTIO facilities improvement project (CFIP) for upgrade to the telescope and CTIO facility, and a data management system (DESDM). The DES project plan calls for funding for the DECam to be provided by DOE and funding for the DESDM and CFIP from NSF. Funding for CFIP would be provided through the NOAO, CTIO's parent organization. In addition, funds are being requested from other U.S. and foreign institutions.

For DOE, this review will serve to assess the project's readiness to establish the technical, cost, and schedule baseline of the Dark Energy Camera (DECam). For NSF, the review will serve to assess the progress and status of the proposed CFIP and DESDM. The validation of the DECam baseline is needed for Critical Decision 2, Approval of Performance Baseline. In addition, OHEP is planning to seek CD-3a (Approve Limited Fabrication) so that the DECam may begin long lead procurements and a limited set of other fabrication activities that are needed to maintain the proposed schedule with adequate contingency. Please review the necessity of and the project's readiness to carry out these activities.

In carrying out its charge, the review committee is requested to consider the following questions for all parts of the project:

1. Technical: Does the technical design and associated implementation approach for each part of the experiment satisfy the scientific and technical performance requirements?
2. Cost: Is the cost estimate complete, well documented, and credible? Is the contingency adequate for the risk?
3. Schedule: Is the proposed schedule reasonable and appropriate in view of the technical tasks and projected funding profiles?
4. Management: Is the management structure adequate to deliver the proposed technical scope within specifications, budget and schedule?

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5. Limited Fabrication: Are the requested long-lead procurements and other fabrication activities scheduled as part of CD-3a necessary to achieve the stated schedule? Have the necessary preparations to execute these activities?
6. Are the environmental, safety and health (ES&H) aspects being properly addressed given the project's current stage of development?
7. Documentation: Is the DECam documentation required by DOE Order 413.3A for CD-2 and CD-3a complete? Does the project satisfy all 16 lines-of-inquiry specified in DOE O 413.3A (see Appendix A)?

Kathleen Turner is the DOE program manager for the Dark Energy Survey and will serve as the Office of High Energy Physics contact for the review. Nigel Sharp of the NSF Division of Astronomical Sciences will serve as the NSF contact for the review.

We appreciate your assistance in this matter. As you know, these reviews play an important role in our programs. Both agencies look forward to receiving the committee's report, within 60 days of the review.

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