

memorandum

DATE: APR 09 2007

REPLY TO
ATTN OF: Office of Nuclear Physics, SC-26

SUBJECT: Independent Project Review of the 12 GeV CEBAF Upgrade Project

TO: Daniel R. Lehman, Director
Office of Project Assessment

I request that your office organize and conduct an Office of Science Independent Project Review (IPR) of the 12 GeV Continuous Electron Beam Accelerator Facility (CEBAF) Upgrade Project at Thomas Jefferson National Accelerator Facility (TJNAF) in Newport News, Virginia on June 26 – June 28, 2007. The purpose of this review is to assess all aspects of the 12 GeV CEBAF Upgrade project – technical, cost, schedule, management, and environment, safety, & health (ES&H), in support of attaining Critical Decision-2 (CD-2) approval.

In carrying out its charge, the review committee is requested to consider the following questions:

1. Is the design of the 12 GeV CEBAF Upgrade project technically sound and likely to meet the performance expectations? Are there credible plans in place for resolving any remaining technical issues?
2. Can the project be completed within the cost and schedule proposed for the Performance Baseline? Is the project ready to proceed to a CD-2 decision, Approve Performance Baseline?
3. Does the project satisfy all 16 lines-of-inquiry (Appendix A)?
4. Are ES&H aspects being properly addressed given the project's current stage of development? Are Integrated Safety Management Principles being followed?
5. Is the project being properly managed for its successful execution?

The acting 12 GeV CEBAF Upgrade Program Manager, James C. Hawkins, will work closely with you as necessary to plan and carry out this review. I would appreciate receiving your Committee's report within 60 days of the review's conclusion.



Dennis Kovar
Associate Director of the Office of Science
for Nuclear Physics

cc:

Stephen Tkaczyk, SC-1.3

Kin Chao, SC-1.3

Jehanne Simon-Gillo, SC-26.2

James Hawkins, SC-26.2

Eugene Henry, SC-26.1

Brad Tippens, SC-26.1

James Turi, TJSO

Joe May, TJSO

Christoph Leemann, TJNAF

Claus Rode, TJNAF

Allison Lung, TJNAF

**External Independent Review Elements
16 Lines-of-Inquiry**

Appendix A

1. *Resource Loaded Schedule.* Assess the method of estimation and the magnitude for each Work Breakdown Structure element reviewed. Identify and assess key cost and schedule assumptions and evaluate the reasonableness of these assumptions as related to the quality of the cost and schedule estimates. Identify specific work activity that constitutes project completion and whether these completion activities are sufficiently well defined. Assess whether the project funding profile is consistent with the resource loaded schedule.
2. *Key Project Cost and Schedule Assumptions.* Identify and assess key cost and schedule assumptions and evaluate the reasonableness of these assumptions as related to the quality of the cost and schedule estimates for each WBS. Assess cost and schedule contingency and other cost and schedule factors related to TPC and the project completion schedule. Ensure that the TPC and project completion date incorporates all activities necessary to successfully complete the project.
3. *Critical Path.* Review the Critical Path schedule and assess whether the Critical Path is reasonably defined and whether the schedule is integrated and reflects reasonable schedule durations.
4. *Funding Profile.* Assess whether the project funding profile is consistent with the resource loaded schedule.
5. *Work Breakdown Structure.* Assess whether the Work Breakdown Structure incorporates all project work, and whether it represents a reasonable breakdown of the project work scope. Assess whether the resource loaded schedule is consistent with Work Breakdown Structure for the project work scope.
6. *Risk Management.* Determine if risks have been identified and properly classified as high, medium, and low. Assess whether appropriate risk mitigation actions have been incorporated into the baseline. Assess whether adequate contingency has been included in Total Project Costs and Schedule.
7. *Basis of Design.* Evaluate adequacy of preliminary design including adequacy of drawings and specifications, and assess whether they are consistent with system functions and requirements.
8. *Design Review.* Review results of the preliminary design review and assess whether additional work identified in the design review has been incorporated into the Performance Baseline.
9. *System Functions and Requirements.* Assess whether “design to” functions and requirements are reflected in the baseline, including safety and external requirements such as permits, licenses, and regulatory approvals. Evaluate whether system requirements are derived from and consistent with Mission Need.
10. *Hazards Analysis.* Evaluate the quality of the Hazard Analysis and assess whether all scope, schedule, and costs necessary for safety are incorporated into the baseline. Assess the Hazards Analysis process, including the use of internal and external safety reviews.
11. *Value Management/Engineering.* Assess the applicability of Value Management/Engineering, and whether a Value Engineering analysis been performed with results being incorporated into the baseline. Also provide an assessment of the Value Engineering process for this project.
12. *Project Controls/Earned Value Management System.* Assess whether all project control systems and reporting requirements will be in place prior to Critical Decision-2.
13. *Project Execution Plan.* Review the Project Execution Plan and determine if it reflects and supports the way the project is being managed, is consistent with the other project documents, and establishes a plan for successful execution of the project.
14. *Start-up Test Plan.* Assess whether the start-up test plan identifies the acceptance and operational system tests required to demonstrate that system meets design operational specifications, and safety requirements. Review key tests to ensure that sufficient description is provided to estimate cost and schedule durations associated with these tests.
15. *Acquisition Strategy.* Review the Acquisition Strategy to determine if it is consistent with the way the project is being executed. The Review Team should evaluate any changes from Critical Decision-1 that may impact whether the current strategy represents best value to the government.
16. *Integrated Project Team.* Assess whether the project management staffing level is appropriate, and determine if appropriate disciplines are included in the Integrated Project Team. Identify any deficiencies in the Integrated Project Team that could hinder successful execution of the project.