

Fermi National Accelerator Laboratory (Fermilab) FY 2007 Mid-Year Assessment

Background:

The Department of Energy (DOE) Fermi Site Office (FSO) has recently completed its FY 2007 mid-year assessment of Fermilab's performance. The overall objective of the mid-year assessment is to provide information to Fermilab and Fermi Research Alliance, LLC (FRA) management which:

- 1) Represents DOE's mid-year evaluation of Fermilab performance;
- 2) Provides Fermilab with information relative to any identified concerns;
- 3) Provides Fermilab with an opportunity to improve performance prior to a final year-end evaluation; and
- 4) Provides a means for further discussion of performance expectations and evaluation considerations.

Appendix B of FRA's contract with DOE contains the FY 2007 performance expectations which are the basis for measuring Fermilab's performance and determining the FY 2007 performance rating. On May 11, 2007, Fermilab provided a FY 2007 mid-year performance self-assessment briefing to FSO and the Office of High Energy Physics (OHEP). DOE's evaluation is based on inputs from a variety of sources, including:

- 1) FSO and OHEP's review of the quality of Fermilab's mid-year self-assessment;
- 2) FSO and OHEP's observations as part of our line management oversight responsibilities;
- 3) FSO's operational awareness activities;
- 4) Meetings and discussions between FSO, OHEP, and Fermilab on a variety of topics;
- 5) Performance input from the Chicago Office (CH) Subject Matter Experts in those areas where significant activity/interactions have occurred;
- 6) FSO functional and/or topical reviews of Fermilab performance; and
- 7) DOE review of available audits, assessments, reviews, etc., conducted during the assessment period.

While the end-of-year evaluation will reflect numerical ratings and grades, the mid-year evaluation has focused on identifying areas of concerns or interest that will likely influence the final ratings.

Goal #1: Efficient and Effective Mission Accomplishment

The scientific performance of the Laboratory has been excellent so far this year. MiniBoone has completed and published their analysis, and makes a strong statement on the LSND result. Physics results continue to be published from the Run II experiments at an impressive rate of more than one a week. There appear to be no obstacles to the Laboratory receiving a good final appraisal on mission accomplishment.

Goal #2: Efficient and Effective Design, Fabrication, Construction and Operation of Research Facilities

The performance of the Tevatron has been very good, already exceeding last year's total luminosity. The Office of High Energy Physics conducted an operations review that endorsed the Laboratory's projection of 6.0-7.0 fb⁻¹ integrated by the end of FY 2009.

The Laboratory has three projects under development: MINERvA, NOvA, and DES. MINERvA has achieved CD-3a, and NOvA has achieved CD-1. The Lab reviewed the NOvA cost estimate prior to seeking CD-2 and found it to be high and in need of further work. Steps are being taken to address that issue. The key is to deliver a credible estimate so that the DOE can make the decision to proceed with confidence. Another concern related to the NOvA project is the continuing need for timely completion of an Environmental Assessment. Fermilab and project management have initiated steps toward ameliorating this situation, but it remains a concern.

The failure of the LHC inner triplet during a pressure test at CERN has revealed problems with the Lab's engineering. The Lab is working with CERN to correct the flaw and is aggressively reviewing its quality assurance procedures. Successfully solving these issues will be a key to a good final appraisal.

Goal #3: Effective and Efficient Science and Technology Program Management

The Lab has pressed hard to develop a superconducting RF infrastructure to support the ILC program and other accelerator initiatives. This has shown real leadership on the Lab's part. A review of the effort found that the work is required and is being well carried out. The review committee did disagree with some of the Lab's priorities, and this disagreement needs to be resolved. In addition the plan should be refined to make it more flexible to changes in funding.

The Lab has been working hard to make the budget more transparent to OHEP. We appear to be converging to a system that will allow us to properly plan the transitions in the Lab's program over the next few years.

The Lab has formed a long range steering group to address how to maximize the productivity of the US accelerator based high energy physics program should the ILC initiative take longer to develop than is currently hoped.

The Lab's quality assurance procedures mentioned above appear to be the only major concern at the mid-year evaluation.

Goal #4: Sound and Competent Leadership and Stewardship

4.1 Vision & Effective Plan for Accomplishment

The Fermilab Business Plan was updated according to the guidelines. In response to Under Secretary Orbach's remarks at HEPAP, Director Oddone quickly charged a steering group to develop a strategic roadmap for accelerator-based high energy physics in the event of a longer ILC start-up period. Deputy Director Kim is leading a critical Organizational and Human Asset Plan (OHAP) study of Fermilab. The OHAP study will assist the Laboratory leadership in

maintaining optimum skills mix and core competencies for the support of future programs. The results of these activities are critical components of the Laboratory's strategic planning efforts.

The Laboratory continues to communicate fully and openly with the public, which is challenging and commendable. Fermilab's ILC Citizens' Task Force is breaking new ground with the local community and being watched by others with interest. The Task Force provides a voice to local community leaders and offers an avenue for the Laboratory to receive valuable community advice. This activity lays the groundwork for critical community support for the potential siting of the ILC at Fermilab.

4.2 Responsive & Accountable Leadership

Concerns about quality assurance (QA) activities at the Laboratory were highlighted this fiscal year with two Fermilab component failures during LHC testing. The year-end accomplishments from the new Office of Quality and Best Practices (OQBP) in identifying and addressing improvement opportunities, in particular with regard to QA issues, will influence the final evaluation. The Laboratory continues to strengthen the self-assessment process. Formal tracking of continuous improvement activities could raise the visibility of improvement actions to senior managers and facilitate completion.

The Laboratory leadership has been responsive to issues that have arisen during the fiscal year. The most visible issues have been the two major Fermilab component failures at CERN and concerns regarding the Fermilab safety performance. The Laboratory has been adeptly managing the LHC component failure concerns within a complex, international setting. Safety trends in TRC and DART rates at the Laboratory this fiscal year are concerning. DOE is looking for the Laboratory and FRA leadership to find effective approaches to strengthen the Laboratory's safety performance.

4.3 Corporate Office Support

The FRA Visiting Committee for Fermilab Scientific Programs completed a successful review at Fermilab on April 20-21. Effective utilization of the Visiting Committee observations and recommendations to strengthen Fermilab programs is a key component of the review process.

As Chair of the FRA Board, President Zimmer has opened up the FRA Board meetings to DOE senior executives. This action lends transparency and insights into the corporate leadership and is appreciated. President Zimmer's leadership and desire to make the most effective use of the Board members expertise in solving strategic issues for the Laboratory is notable. At the Board meeting in June, Board members participated in breakout groups discussing key strategic issues for capture of the ILC at Fermilab.

At the first FRA Board Meeting in March, President Zimmer took a firm stance that all FRA proposal commitments would be met. All commitments have been assigned to Board Sub-Committees for monitoring. A high-level formal tracking system for FRA commitments and Board recommendations is under development.

Goal #5: Sustain Excellence and Enhance Effectiveness of Integrated Safety, Health, and Environmental Protection

As mentioned previously, FSO is troubled by the statistical trends observed in the TRC and DART rate indicators to date. Presently the rates are approximately two times higher than DOE

expectations for this fiscal year and meeting those expectations at the end of FY 2007 will not be possible. FSO encourages continuing and increased Fermilab senior management involvement with their workers to strongly emphasize the importance of working safely. FSO recognizes that Fermilab has made efforts toward enhancing its safety program including: progress in implementing recommendations from the Laboratory Director's Safety Panel; working toward ISO 14001 and OHSAS 18001 certification to strengthen current environmental and safety programs; providing DuPont safety training and Human Performance Improvement training for management and staff; development of a Worker Health and Safety Program under 10 CFR 851 that was built upon a grass-roots program planning effort; and undertaking updates to policies and procedures. Other than the TRC and DART metrics, Fermilab is considered to be on track to meet or exceed Goal #5 performance metrics. However, Fermilab will not be able to meet DOE expectations for TRC and DART rates during FY 2007. FSO remains concerned about the Fermilab safety performance.

Goal #6: Efficient, Effective, and Responsive Business Systems

Fermilab is delivering efficient and effective business and financial management results that are responsive to the Laboratory and the Department and enable the successful achievement of the Laboratory's mission. A more detailed assessment of Fermilab's performance is provided below.

The accounting function at Fermilab is conducted in an effective and efficient manner. This determination is based on the following: operational awareness discussions during the period; quarterly reports on erroneous payments, accounts receivable and travel costs disclosed no deficiencies; and functional cost submissions met the DOE Headquarters' requirements.

The acquisition and government property management programs at Fermilab are on track to achieve the result of "meets or exceeds" expectations for the end of the FY 2007 performance period. The property management program at Fermilab is performing well and no issues have arisen to date which would indicate that there are any systemic issues requiring correction. Recent documentation, timeliness and purchase order verifications issues have been addressed with Fermilab's acquisition management and corrective actions have been noted.

The human resources function at Fermilab is performing in a manner which is expected to result in a final rating of "meets or exceeds" expectations. Corrective actions for compensation issues are well underway with validation ongoing by FSO/CH. Documentation supporting Balanced Scorecard initiatives is anticipated to be provided by Fermilab's year end self-assessment.

The internal audit function is conducted in an effective and efficient manner. This determination is based on the following: FSO and CH identified no weaknesses or issues with the Internal Audit Group; Internal Audit's development of an effective tracking system that allows FRA Management and DOE-FSO/CH to track internal audit findings/issues easily; and to date, FY 2007 Internal Audit reports have been well written and findings have been well documented.

Fermilab currently has no Information Technology (IT) projects in excess of \$1 million scheduled for FY 2007. However, there are several IT projects between \$100K - \$500K that have recently been completed, or are well-underway. These projects are on track to achieve the schedule, budget and technical milestones set forth by senior laboratory management at the onset of the project.

The Fermilab Business Systems Department maintains a Strategic Information Systems Plan (SISP) for business computing at the Laboratory. The SISP has two principal components: a Strategic (Long Range) plan and a Tactical (Short Range) Plan. The FY 2007 SISP Plan is in place and is being implemented. The FY 2008 SISP is on target to be in place by September 30, 2007.

The Fermilab Business Systems Department also conducts meetings with its key customers on a regularly scheduled basis to review and prioritize enhancements to existing systems and to agree upon metrics and measures of importance. Formalized Customer Satisfaction Surveys are distributed for feedback every year. Results from the surveys were not available for mid-year consideration. Performance is currently at an acceptable level.

Goal #7: Operating, Maintaining, and Renewing the Facility and Infrastructure Portfolio

Despite the budget uncertainty at the beginning of the fiscal year due to the Continuing Resolution, Fermilab continued with investment in maintenance. All planned GPP milestones were completed on schedule. No scheduled Tevatron operational run time was lost due to a failure of the industrial cooling system. With the exceptions for design, engineering and quality assurance associated with the LHC inner triplet problem, Fermilab is considered to be on track to meet or exceed DOE FY 2007 expectations for the established performance metrics.

Goal #8: Integrated Safeguards and Security Management (ISSM) and Emergency Management Systems

This goal includes performance measures for emergency management; protection of classified matter and property, special nuclear materials and cyber security; maintenance of appropriate export controls; and provision of annual counterintelligence training. No problems are noted at mid-year which would be attributable to systemic or incidental issues with these metrics. FSO concurs with Fermilab's self assessment with respect to performance on these measures through March 2007. FSO anticipates that Fermilab will meet or exceed expectations for this goal in the annual appraisal for FY 2007.

Summary Fermilab Mid-Year Assessment for FY 2007

Based on our mid-year evaluation, DOE expects Fermilab and FRA to meet or exceed expectations in most performance objectives. Primary areas of concerns include the following:

- Successful resolution of the LHC inner triplet problems;
- Improvements to the Laboratory's quality assurance activities;
- Improvements to the current trends in safety performance;
- Development of a credible NOvA project cost estimate and successful completion of an Environmental Assessment that meets the schedule needs of the project;
- Resolution of the prioritization issues identified in the superconducting RF review; and
- On-going strategic planning efforts on long-range accelerator research and human resource needs.