U.S. Department of Energy
Office of Science (SC)
Stanford Site Office (SSO)
Stanford Linear Accelerator Center (SLAC)
2575 Sand Hill Road, MS-8A
Menlo Park, CA 94025

March 24, 2006

Dr. Jonathan Dorfan, Director
Stanford Linear Accelerator Center
2575 Sand Hill Road
Menlo Park, CA 94025

Subject: SLAC Contract #DE-AC02-76SF00515 FY05 Annual Performance Assessment

Dear Dr. Dorfan:

The Department of Energy (DOE) Office of Science Senior Management and the Stanford Site Office reviewed and discussed the recommendations of functional managers concerning SLAC's FY05 performance evaluation. Based upon this process an adjectival rating of "**excellent**" is awarded for SLAC's FY 2005 performance.

For SLAC's FY05 performance assessment, DOE separated the SLAC Environmental Saafety & Health assessment into two distinct performance periods. SLAC was unsuccessful in operating the facilities without incident in the first six-month period based on the life threatening accident and the Lab's subsequent closure. In the second half of the year, SLAC re-emerged from the crisis with the successful and comprehensive restart process and revitalized the Laboratory's Integrated Safety Management System.

SLAC management should establish a clear vision for the Laboratory and ensure a thorough evaluation of resources and capabilities prior to accepting new commitments. This is particularly important with the SLAC transition from a High Energy Physics Laboratory to a Photon Science Laboratory.

The spirit of cooperation and teamwork that exists between SLAC and DOE serves as a strong foundation for continued success in support of DOE's missions and national goals. The SLAC research program is in general well managed, and the scientific productivity is high, in spite of difficulties from the tightly constrained budget. The FY 2005 rating continues to demonstrate the increasing effectiveness of SLAC's performance-based management system. Our challenge is to safeguard the renewed focus that have been made while continuing to strive for improvement.

On behalf of DOE, please extend our congratulations to the Laboratory community for this excellent performance, and our commitment to work as your partners in pursuit of improved performance in FY06.

Sincerely,

Nancy N. Sanchez
Site Manager
Stanford Site Office

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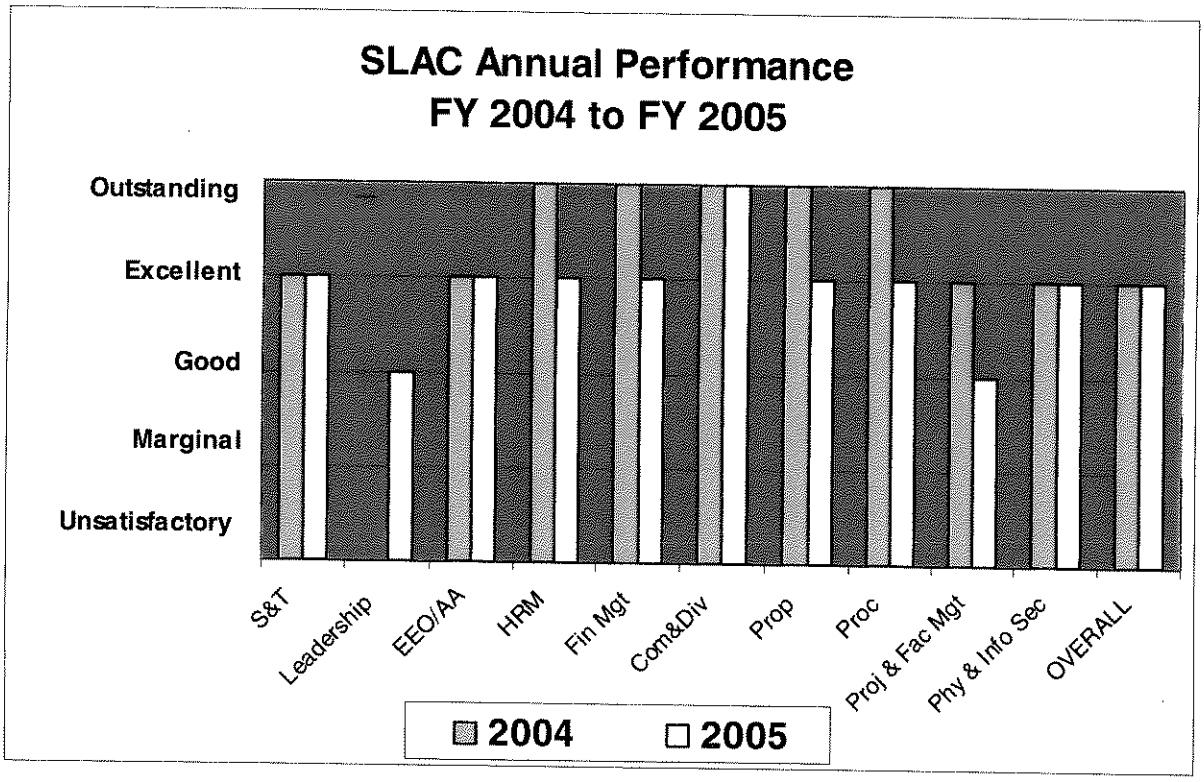
ATTACHMENT 5.0

Attachment E



1.0 PREFACE:

The evaluation period is from October 1, 2004 through September 30, 2005. The performance evaluation provides a standard by which to determine whether the Contractor is managerially and operationally in control of the Laboratory and is meeting the requirements of the Department as stipulated within the contract in achieving organizational goals, fulfilling Laboratory missions, and reducing/mitigating the risks associated with performance shortfalls.

The contract performance criteria used for this evaluation are based on three "Goals" which were determined to be the Stanford Linear Accelerator Center's (SLAC) most important areas. The three goals were developed jointly between the U.S. Department of Energy (DOE), Office of Science, [High Energy Physics (HEP), Basic Energy Science (BES), Biological and Environmental Research (BER), the Stanford Site Office (SSO), and the Chicago Office], to evaluate the Stanford Linear Accelerator Center's (SLAC) overall performance.

Science and Technology: SLAC will deliver innovative, forefront science and technology aligned with DOE strategic goals, conceive, design, construct, and operate world-class user facilities, all in a safe, environmentally sound and efficient manner.

Laboratory Leadership: The Contractor will provide leadership, guidance, and oversight that add value to the overall management of SLAC.

Operations & Administrative: SLAC will conduct all work and operate facilities cost effectively and with distinction, integrated with and supportive of its missions in science, technology, energy, and environment, while being fully protective of its workers, its users, the public, and the environment.

The DOE performed a mid-year assessment of SLAC performance in June 2005. The overall objective of the mid-year assessment was to communicate to SLAC and Stanford management the following:

1) Informed them of any identified weaknesses, concerns and/or issues with SLAC performance to date,
2) Provided SLAC an opportunity to improve their performance prior to a final year-end evaluation and/or,
3) Acknowledged topics to be addressed in the SLAC year-end self-assessment.

The outcome of the mid-year was beneficial for both the SLAC Business Division and SSO. Overall, SSO reviewed the briefing material and agreed with SLAC's evaluation except in the areas of ES&H and Project & Facilities Management. Specific details were addressed to SLAC and issues raised from the mid-year were covered and addressed in SLAC's Self Assessment Report.

DOE and SLAC acknowledged that the performance levels achieved against the specific Performance Objectives, Criteria and Measures, established in the contract are the primary but not the sole criteria for determining the Contractor's final performance ratings. With respect to determining the Contractor's final performance ratings in any given performance period for each area evaluated, the Contracting Officer shall also consider any other relevant information which is deemed to have had a significant impact (either positive or negative) on the Contractor's performance. Other relevant information may become available from a number of different sources including but not limited to the Contractor's self-assessment, DOE's day-to-day operational awareness, annual business reviews (if applicable), Inspector General (IG) reviews, General Accounting Office (GAO) audits, for-cause reviews, etc., as well as Contractor cooperation, interaction, and responsiveness to DOE throughout the performance period.

2.0 EXECUTIVE SUMMARY:

This evaluation is based upon an objective performance measurement system, validation of the Laboratory's self-assessments, and ongoing operational awareness.

The period of performance for this Fiscal Year 2005 Annual Performance Assessment Report is October 1, 2004 through September 30, 2005. The rating is based upon a system evaluation, which provides previously agreed-to measures with ratings expressed as percentages. The rating characterization is five tier (Outstanding, Excellent, Good/Satisfactory, Marginal, and Unsatisfactory). The Scientific Research Programs and Technology Development section is weighted 60%, while the Operations & Administrative sections including Laboratory Leadership are weighted 40%.

The overall SLAC performance rating for FY2005 is Excellent. The evaluation of performance measures rating Laboratory Leadership as **Satisfactory** includes strategic planning, stewardship/safe operations leadership and research support. In the Science and Technology Program summary rating of **Excellent**, Dr. James F. Decker, Principal Deputy Director, Deputy for Programs provided the FY2005 Office Science Program Performance Evaluation. The summary rating combines performance evaluations from the Offices of HEP, BES, and BER. The Operations & Administrative summary rating of **Excellent** covers: Laboratory Leadership, EEO & Affirmative Action, Human Resource Management, Environmental Safety & Health, Financial Management, Personal Property, Projects & Facilities Management, Physical and Information Security, and Community Outreach and Diversity.

3.0 EVALUATION OF PERFORMANCE MEASURES

3.1 Laboratory Leadership

Based on performance expectations the Stanford Site Office (SSO) rated the Stanford Linear Accelerator Center (SLAC) for their performance in the area of Laboratory Leadership as Satisfactory/Good. This is the first year that SLAC had a performance measure for Laboratory Leadership. Significant emphasis was placed in the area with 95 points out of possible 400 points assigned. This measure was broken down into three areas: strategic planning, effective resource management, stewardship of assets and effective operations, and research support from other sponsors.

The overall rating in the area of strategic planning is satisfactory.

SLAC was unsuccessful in operating the facilities without incident. There was an initial loss of focus on strategic issues and SLAC was unable to move forward without significant assistance from DOE/Office of Science. The Lab Director made the decision to shutdown the lab for a thorough investigation due to serious impact of the Type A accident. SLAC's leadership was slow to re-orient the lab toward Photon Science.

By the second half of FY2005, SLAC implemented the transition strategy and the Laboratory leadership was instrumental in the development and implementation of corrective actions to re-stabilize the laboratory. SLAC re-organized with new senior leadership and with a renewed focus on the Linac Coherent Light Source Project.

SLAC was ineffective 1HY05 in the resource management, stewardship of assets, and effective operations of the Laboratory. Based on the life threatening accident and the Lab's subsequent closure, they are rated marginal in this area. In the second half of the year, SLAC re-emerged from the crisis with the successful and comprehensive restart process and revitalized the laboratory's Integrated Safety Management System. The Lab Director commissioned a working group named the Business Improvement and Transition Team to explore business and related systems at the Lab and they completed the SLAC 2005 SC Laboratory Business Plan. Operations resumed on a positive trajectory.

In the area of research support from other sponsors, SLAC has been highly effective in fostering non-DOE sponsored work and collaborations that benefit from the unique research competencies and scientific facilities of the Laboratory. Consequently, SLAC has earned an outstanding in this performance measure. They have collaborated with non-U.S. labs on B-factory, the US ILC and SPEAR3. They have existing and growing collaborations with industry (e.g. Sun Microsystems, IBM, SGI, and Objectivity).

SLAC's collaboration with Caltech resulted in a $12.4M gift from the Moore Foundation for a Microfocus Structural Biology Beamline at SPEAR 3. Twenty-five companies use SPEAR3, and in the area of Technology transfer, SLAC is active in commercialization of the Compact Light Sources.

3.2 Science and Technology

For FY2005, the Stanford Linear Accelerator Center's overall performance on Office of Science (SC) science and technology programs is rated as Excellent. It is a weighted average of performance evaluations provided by the SC offices of BER, BES, and HEP. For each of the performance measures the overall SC weighted scores and full narrative evaluations from each program area are

provided in Attachment C.

Please note that an adjustment has been made to the HEP score for performance measure 1: Quality of Fundamental and Applied Science from what is contained in Attachment C. It changed from 98% to 94% based on discussions between DOE senior management that occurred after the initial evaluation was provided to the Site Office.

3.2.1 High Energy Physics Program

General

The Stanford Linear Accelerator Center (SLAC) currently operates a cutting edge program in high energy physics based on the B-factory, the construction of a space-based astro particle physics experiment, a number of initiatives for non-accelerator based experimental proposals, theoretical physics, an advanced accelerator research program, and the final analysis of a small scale accelerator experiment. Overall, the laboratory's priorities are well aligned with the DOE mission and the national HEP program. The SLAC research program is in general well managed, and the scientific productivity is high, in spite of difficulties from the tightly constrained budget.

However, there were a number of problems, which the laboratory will need to work hard to avoid or overcome. A compelling vision of SLAC's future as a high-energy physics laboratory is needed.

B-Factory

The SLAC B-factory is one of the highest priority facilities supporting the advancement of DOE's strategic goals for science. SLAC experienced a very serious electrical accident which closed down its accelerator operations for 1HFY2005. Nonetheless, when PEP-II was running, the B-factory performed quite well, but it has been pointed out by outside reviewers, that there is a need for better modeling of the PEP-II beam. BaBar continues to make substantial progress in a comprehensive set of measurements for CP-violating asymmetries, a systematic exploration of rare decay processes, and detailed studies to elucidate the dynamics of processes involving heavy quarks. The effectiveness of SLAC management was well demonstrated by the luminosity records at the B-factory in FY2004 as well as FY2005.

The BaBar detector continued to perform extremely well, with an operational efficiency of 96%. From September 2004 to July 2005, PEP-II delivered 53.5 fb^{-1} of which the BaBar detector recorded 51.1 fb^{-1}. BaBar promptly analyzed and presented the latest results with over 174 submitted publications since 1999; of those 51 appeared between the beginning of October 2004 and Sept 2005. For example, at a major summer conference, Lepton-Photon 2005, BaBar contributed 75 abstracts.

The B-factory operations review conducted in 2004 concluded that B-factory is being very effectively managed. However, it expressed concerns on the high level of demands on the professional staff that may not be sustainable long term and noted a higher incident rate in FY2004 due to a stressed and aging staff.

Laboratory management, as its highest responsibility, needs to recognize and pay attention to these and other concerns raised in other external reviews. This is critical in order to ensure the long-term health of its human resources and scientific programs and to avoid any possible catastrophic risks in its daily operation.

The excellent achievements in the advanced accelerator research program also demonstrate well-

developed research plans with effective management and optimal use of resources. In light of the demands that the LCLS will make on the laboratory work force, it is becoming increasingly unclear if SLAC has the work force needed to support B-factory operations and its many projects in new accelerator techniques. A thorough assessment by SLAC management will be needed to address this question.

R&D

The SLAC theory group worked in a variety of areas ranging from the development of fundamental theories to detailed calculations and tests of theories directly relevant to high-energy physics experiments at SLAC and elsewhere. At the OHEP's annual review, their work was evaluated to be outstanding with significant impact on the field.

The excellent achievements in the advanced accelerator research program also demonstrate well-developed research plans with effective management and optimal use of resources. This work included a wide variety of topics covering performance enhancement of current accelerators, research and design for near future facilities, research in fundamental aspects of accelerator and beam physics, and accelerator physics and technology on high gradient acceleration and advance concepts. The FFTB continues to achieve world records in new accelerator techniques, as illustrated by its July 29, 2005 contribution to the Physical Review Letters where it reported that its plasma-wakefield accelerator has accelerated electrons by over 2.7 GeV in a 10 cm long plasma module.

SLAC continues to lead the ILC R&D program, focusing on development of critical technologies such as klystrons and solid-state modulators, design and test of high gradient structures, examination of final-focus requirements, and an aggressive R&D program in the NLCTA program. The lab is planning a new High Gradient collaborative effort. The existing FFTB is planned to evolve into the SABER project as the LCLS takes additional beam line.

Kavli Center

The Kavli Institute for Particle Astrophysics and Cosmology (KIPAC), which is connected to both Stanford University and SLAC, completed its second full academic year. It played a key role in focusing and strengthening SLAC staff's participation in the particle astrophysics research program. The KIPAC continues to bring fresh vibrant intellectual activities to SLAC. However it should be acknowledged that there is a difference between the KIPAC and SLAC as institutions. The expansion of the particle astrophysics and cosmology program will require thorough planning with a realistic budgetary projection weighted by mission relevance of HEP and a clearer understanding of the relative roles of the KIPAC and SLAC.

GLAST/LAT

The GLAST project is nearing launch. Its 16 modules have been completed and assembled and it will be shipped out to a NASA facility for pre-launch shakedown in mid-January, 2006. This project has suffered numerous delays in the past and was re-baselined this past year during March, 2005, with the total project cost increasing from $42 M to $45 M. This cost overrun occurred when SLAC management underestimated the effort needed to qualify a vehicle for flight. The extra money was taken from SLAC Accelerator operations. OMB was made aware of this re-baselining and supported the decision.

3.2.2 Basic Energy Sciences

General

The research supported by the BES Materials Sciences and Engineering Division at SLAC/SSRL produces high quality publications in prestigious journals in the areas of photoemission studies of HiTc superconductors, x-ray scattering of magnetic materials, and discovery of complex oxides and rare earth compounds with novel properties.

The SSRL program includes research on important national topics, including nanostructures, high temperature superconductors and other strongly correlated electron systems, energy conversion phenomena, and environmentally important materials. SSRL fulfills a very important DOE mission in providing outstanding service and reliability to its synchrotron radiation user community.

Two new projects were awarded in FY2005: (1) a project awarded to a team of three young principal investigators investigating energy conversion phenomena in organic/inorganic hybrid systems and (2) a project to understand novel fuel cell catalysts. These projects make use of the excellent facilities that are uniquely available at SSRL, and they significantly broaden activities at SLAC in the areas of materials sciences.

SLAC's senior management reorganization to support the transition from high-energy physics to ultrafast x-ray science is recognized as the appropriate first step in the transition that has begun at SLAC and that will evolve over the next few years. BES encourages SLAC to think broadly and outside the current models in order to continue to evolve its management *and* faculty structures in anticipation of what will become very nearly an entirely new laboratory. The future SLAC should not necessarily be a perturbative change on the past SLAC. The opportunities presented by the transition rarely come to an organization, and these opportunities should be seized.

Unfortunately, the SLAC safety shutdown in October 2004 delayed the start of FY2005 SSRL user operations until February 2005, resulting in a significant decrease in the scheduled operating hours from those that might have been delivered. We note, though, that SSRL resumed operations as quickly as feasible and then served as the model for how other parts of SLAC were to resume operations. The SSRL safety culture was viewed as outstanding during the safety investigations. Nevertheless, the BES evaluation for SSRL operations is strongly influenced by the fact that SSRL did not run for a significant period in FY2005.

At the beginning of February the BES Scientific User Facilities Division peer reviewed the operation of SSRL. Reviewers noted that the SSRL storage ring has been successfully upgraded to a low emittance 3rd generation source (SPEAR3). It achieved 97% overall availability during its first run period. SSRL continues to attract very high quality scientific staff who provide outstanding user support. SSRL sets a good example for standardization of beamline hardware and software to make the facility user friendly with a limited staff. The SSRL faculty was identified as a key strength of the facility, accounting for approximately 18% of the total publications while using only 8% of the available beam time.

SSRL needs to address the lack of clear career advancement for its non-faculty junior staff scientists to ensure retention of its first-class staff.

Ultra Fast Science Center/Geballe Laboratory for Advanced Materials

The Center for Ultrafast Science initiated in FY2004 will serve as a focal point for the future emphasis on the strong coupling between ultrafast science and basic energy research at this institution.

The recent successful proposal that initiated a Center for Ultrafast Science at SLAC will further broaden activities at SLAC in the areas of materials and chemical sciences and will serve as a focal point for the future emphasis on ultrafast science at this institution. The management of the current research programs in materials sciences is outstanding. The new relationship of SSRL to the Geballe Laboratory for Advanced Materials at Stanford University and the initiation of the Center for Ultrafast Science are examples of creative management constructs.

Linac Coherent Light Source (LCLS)

The Linac Coherent Light Source (LCLS) project made good progress in FY2005, and overall performance has improved. The project's leadership is highly capable, but stretched thin. Project staffing levels have increased as necessary, and the External Independent Review process was successfully completed in April 2005. The May 2005 DOE review found that the rate of technical progress has been very good despite the funding limitations imposed by the FY2005 Continuing Resolution. The review committee was quite concerned, however, that the procurement for the Construction Manager/General Contractor was far behind schedule. Title II design of conventional facilities was also lagging. Long-lead procurements of technical hardware were found to be on track. With the reorganization of SLAC in 2005, the LCLS project is now being given the high priority for laboratory resources needed for its success.

3.2.3 Biological and Environmental Research

The SLAC/SSRL molecular environmental science (MES) program is also world-class. An impressive number of new techniques have been developed at SSRL by the local faculty and staff, and many of the leaders in MES around the country were educated here. The number of BER-funded users in this area continues to grow and the facility provides excellent instrumentation and service for them.

The SLAC/SSRL structural molecular biology (SMB) program is recognized as one of the world's leading contributors to this field. The program provides access to instrumentation for the full range of synchrotron techniques applicable in SMB, the only program in the U.S. to cover all the techniques within a single organization. The staff are leaders in their respective techniques, publishing an impressive number of research papers both on new techniques and on applications in SMB, many in collaboration with users. These collaborative papers reflect the high level of expertise that the SMB program staff provide for solving problems brought to SSRL by users. The SMB program also involves numerous students both in user groups and at Stanford University.

The SLAC/SSRL structural molecular biology and molecular environmental science programs offer forefront capabilities to the user communities in both areas. As a result of the technologies implemented at the synchrotron U.S. researchers are able to carry out experiments that make use of x-ray instrumentation comparable to the best available anywhere in the world. As a result life and environmental science researchers from all types of institutions use the synchrotron.

SLAC/SSRL manages staff and resources for the structural molecular biology and molecular

environmental science user communities exceptionally well. Planning for short and long-term development of the facility for these users is outstanding, as evidenced by the successful upgrades of the beamlines they use for the installation of SPEAR3. Financial resources are appropriately allocated to the different components of the programs.

3.3 OPERATIONS & ADMINISTRATIVE

The overall Business Management rating was Excellent in FY2005. Of the ten functional areas evaluated, three had no change in ratings from FY2004 to FY2005:

EEO and Affirmative Action.....Excellent
Physical and Information Security.....Excellent
Community Outreach & Diversity.....Outstanding

One Functional area increased rating from FY2004 to FY2005:

Environmental Safety & Health.....Unsatisfactory to Good

Five Functional areas decreased rating from FY2004 to FY2005:

Human Resource Management.....Outstanding to Excellent
Financial Management.....Outstanding to Excellent
Personal Property.....Outstanding to Excellent
Procurement.....Outstanding to Excellent
Projects & Facilities.....Excellent to Good

3.3.1 Equal Opportunity & Affirmative Action

Stanford Linear Accelerator Center (SLAC) has earned a rating of Excellent for its FY2005 performance in the Equal Opportunity and Affirmative Action functional area. SLAC accomplishment goals identified in the FY2005 Strategic Plan. SLAC achieved most of the individual goals for FY2005, including utilizing the GEM program as a pipeline for engineering positions and establishing an engineering intern position.

FY2005 accomplishments of the strategic goals included continued support and utilization of the GEM program as the primary pipeline for minorities in mechanical and electrical engineering fields. This continued support of the GEM program is noteworthy as it supports increasing the pipeline. During the summer of 2005, there were four GEM students, which included three new students and one returning. The goal of establishing a SLAC-sponsored engineering intern position was accomplished through a partnership between the AA Office and the Environmental & Safety Division. While there were no new female hires for managerial positions, three females were promoted into professional categories. Unfortunately, funding for the successful faculty exchange program was cancelled. This program had allowed visiting professors from Historically Black Community Colleges and Universities to utilize SLAC's facilities benefiting all involved.

During this evaluation period, there were 180 hiring and promotional opportunities. Of these, 67 (37.2%) went to minorities; while 40 (22.2%) went to females. During this year, there was an overall decrease of 40 positions due to a reduction-in-force. Even with this reduction, the laboratory was able to maintain representation. Minorities represent 31.7% of the total population, while women represent 22%.

3.3.2 Human Resources Management

SLAC achieved an overall Excellent rating in Human Resources for FY2005. Performance under the FY2005 measures reflects a commitment to providing programs of high quality, effective management of resources, and responsiveness to customer needs. SLAC's Human Resources program has sustained an Outstanding rating from employee survey respondents, yet continually identifies additional areas on which to focus further improvements. The priorities of the Department are also reflected in these programs of focus, as evidenced by the Laboratory's commitment to assess the Return to Work program and its ability improve the Laboratory's "transferred work days" (DART) by 50% over FY2004. A working group led by Human Resources, assessed best practices, and dissected the policies, procedures and accident data. Recommendations were presented and accepted by SLAC management. While not all recommendations were implemented in FY2005 given the level of funding, several were implemented. This achieved a greater level of management and Occupational Medicine involvement in reviewing accidents and increased communications. For FY2005, SLAC's rate of turnover for this group was 8.9%, meeting the excellent gradient requirement of achieving a rate between 5% and 9%. The ability of the Laboratory to achieve a 95% offer acceptance rate and maintain attrition at a level well below industry standard, particularly considering the Laboratory's Silicon Valley location and funding challenges, is indicative of highly effective management of Human Resources programs.

3.3.3 Environment, Safety and Health

Because of the serious Type A Accident electrical arc flash injury that occurred at SLAC in October 2004, the SSO reviewed and modified the existing FY2005 ES&H performance measures in the DOE/Stanford contract. The basis for initiating changes in the contract performance measures was the subsequent identification of broader safety program weaknesses by DOE and SLAC. These included work planning and hazard controls, implementation of safety processes, safety oversight, maintaining appropriate balance of priorities and a need to further strengthen the safety culture at SLAC. The first six months of the fiscal year were largely focused on the Type A accident and development of the Type A Corrective Action Plan (CAP), the validation activities for restart of the major SLAC experimental facilities following shutdown of operations, and completion of the CAP commitments.

For SLAC's FY2005 performance assessment, DOE separated the SLAC ES&H assessment into two distinct performance periods, each six months long. These two six-month performance periods were evaluated and rated separately by DOE. The first six-month period addressed the October 2004 electrical arc flash accident, the early accident response actions initiated by SLAC, the validation activities related to the restart of experimental facilities following the shutdown and completion of the scheduled Type A CAP commitments. The second six month period addressed the SLAC recovery phase including additional restart validation activities, completion of the remaining Type A Corrective Action Plan (CAP) milestones scheduled before the end of FY2005, significant efforts by the Laboratory to identify and address weaknesses in the safety program and the preparation for and subsequent SSO review of the SLAC Integrated Safety Management System. The SLAC Director and Stanford University initiated several important internal reviews of the SLAC program utilizing subject matter experts from around the DOE complex.

Equally weighting the two six-month periods and developing a single consolidated rating

determined a final rating for ES&H. This contractual language change pertaining to assessment of FY2005 performance was negotiated between the SSO Manager and the SLAC Director in February 2005.

Rating (October 1, 2004 – March 31, 2005): Unsatisfactory

Rating (April 1, 2005 – September 30, 2005): Excellent

The overall rating for this measure is Good.

3.3.4 Financial Management

SLAC's performance rating for both measures of Funds Control, Obligational Control and Uncosted Balances, continued to be "Outstanding" in FY 2005. The Financial Management category included an "Outstanding" rating for Indirect Rate Management and an "Excellent" rating for Financial Reporting. However the overall SLAC Financial Management rating slipped from FY 2004's "Outstanding" to "Excellent" as scored against the FY 2005 performance measures of Appendix B performance expectations. SLAC's rating was reduced from last year's level primarily due to slightly lower performance in some areas. SLAC's Internal Control and Audit Findings rating of "Marginal" (77%) was lower due to: (1) an issue with timely and effective audit resolution and follow-up from a Stanford University Internal Audit Department (IAD) audit regarding employee abuses of Blanket Purchase Agreements (BPA); and (2) no delivery of an audit findings tracking system. These findings pointed to a systemic problem with internal controls in the purchasing function, and require more management attention for improved performance. Other financial management areas performed similarly to FY 2004, with minor increases or decreases which did not significantly affect the overall rating.

3.3.5 Personal Property

The overall management of the SLAC Personal Property System is rated Excellent by SSO based on the Appendix B performance expectations. Due to implementation of the Balanced Scorecard and new negotiated measures for SLAC their rating dropped from an Outstanding to Excellent.

The Balance Score Card was broken down into four perspectives, Customer Perspective, Internal Business Perspectives, Learning and Growth Perspective, and Financial Perspective. Of the four perspectives, the areas attributing to the reduction of rating were in the internal business perspective and the financial perspective.

In the area of internal business, SLAC did not meet the 5% increase of the reported as excess and disposed of within 180 days from previous year. This was attributed to the closure of the OAK office as GSA had cancelled the activity code without prior notice. Therefore, SLAC was unable to input entries into Energy Asset Disposal System (EADS) to meet target level. The activity code was required in order to process excess property into EADS. SLAC achieved 4.5%, which did not meet the national target of 5%.

Also, in the area of internal business, SLAC achieved 70.43% and did not meet the national target of 98% of personal property acquired via purchase card recorded in the property and financial database within 72 hours of receipt of property. There were 186 equipment items assigned in the property control number. Of these 131 were marked within the 72 hours criteria.

SLAC failed to meet the national target 90% of each non-law enforcement sport utility vehicle (SUV) trips required driving on other than normal road conditions with the total number of trips the SUV

made in the area of financial perspective. SLAC reached only 6% off-road trips per SUV.

SLAC personal property management system complies with the Federal Property Management Regulations, the DOE Property Management Regulations and applicable DOE Orders.

3.3.6 Procurement

SLAC earned a rating of "Excellent" for its overall FY2005 performance in the Procurement functional area. The evaluation is based upon the Balanced Scorecard (BSC) Performance Management Program. The BSC is a tool used to assess four operational perspectives relative to the Customer, Internal Business Processes, Learning and Growth, and Financial.

The Customer Perspective measured three areas: percentage of satisfied requestors (using purchase order transactional surveys), percentage of satisfied BIS operators (using climate surveys), and percentage of satisfied P-Card holders (using P-Card surveys). SLAC met or exceeded the negotiated targets in all three areas and received a rating of "Outstanding" in this perspective.

Under Internal Business Process Perspective SLAC met or exceeded their negotiated targets in Effective Utilization of Alternative Procurement Approaches and Acquisition Processes.

SLAC did not meet the negotiated target for Effective Internal Controls of 90%; they achieved 86.4%. SLAC identified two major contributing factors for not meeting this goal, the reassignment of three buyers from the SLAC Purchasing to the LCLS team and its impact on the efficiency of the Purchasing Department. The workload was redistributed and the remaining buyers had to absorb that work as well as their regular workloads. The other contributing factor was the Type A accident at SLAC in October 2004.

The negotiated target for Effective Supplier Management was 84%, and only 67.6% was the average percentage of on-time deliveries of key suppliers. The Purchasing Department will increase monitoring of a supplier's performance, which will include managing and analyzing late deliveries to identify those key suppliers that need to improve their on-time deliveries. The negotiated target for Effective Use of Competition was 50%. Even though Purchasing met this goal, the rating the reduction in score is because many of their sole-source justifications were inadequate. SLAC was unsuccessful in meeting the negotiated goals for Socio-economic subcontracting, only one goal was attained, the 8(a) Pilot Program. Several factors contributed to the Purchasing Department not meeting these goals: use of the purchase card, large businesses receiving awards on the LCLS and GLAST projects due to the specific nature of their efforts, and the initiative by DOE HQ of the ICPT. Procurement received a rating of "Good" in this perspective.

In the Learning and Growth Perspective of Employee Satisfaction and Employee Alignment SLAC met or exceeded the negotiated targets. SLAC exceeded the Financial Perspective which measured the cost to spend ratio.

3.3.7 Projects & Facilities Management

There was a slight improvement from FY04 that allowed SLAC to attain an Outstanding rating in the Real Property and Asset Planning area due to completion of a higher percentage of milestones. In the area of Facility Information Management System (FIMS) data input improvement has been made in the FIMS QA plan that was updated and the FIMS reporting was on time.

The SLAC Facility Construction Projects overall rating is Good. The evaluation is based on the

criteria stipulated as follows:
(1) Demonstration of a formal project management system in place that is compliant with the requirements in DOE Order 413.3 "Project and Program Management for the Acquisition of Capital Assets" and the accompanying DOE Manual 413.3-1 and (2) Establishment of project scope, cost and schedule baselines, in partnership with SSO for all active projects over $250K regardless of funding type.

The projects used in the scoring and associated evaluation are:

The SLAC's Safety and Operational Reliability Improvement Project does not have an established approved baseline. The TEC is $15.6M and is currently in CD-1 Phase. The only milestones that can be associated are those established for "planning purpose". Therefore, S&ORI was not used in the assessment of this performance standard.

The were a total of 13 projects started and due to the electrical accident and various programmatic changes, only 7 had to be rebasedlined. SLAC fully met only performance criteria (1) and because of partnering with SSO partially meet criteria (2); therefore, the evaluation of this element is only satisfactory.

Construction Project Performance for Projects > $250K	
Name	TEC ($K)
Light Assembly Building Substation	$1,590
Building 751 Remodel (CEH)	$293
SLAC 10 gb Network Upgrade	$823
Klystron Gallery Equip Grounding	$400
SCS Cooling-Replace Fan & Cooling Coil	$335
Alpine Gate Road and Drainage	$512
Project Rebaselined	
Replace LINAC K1A and K1B	$426
Seismic upgrade for ESB Upgrade	$436
HVAC Upgrade SCS 1st and 2nd Floor	$478
Upgrade Substation 7	$1,103
Secondary Containment Upgrade for PEP II	$270
Re Roof Cryo Bldg 006 Low Bay	$466

In the area of Facility and Infrastructure Maintenance and Energy Management, the rating decreased due to less Energy Plan goals accomplished. Therefore, the rating decreased from excellent in FY04 to good in FY2005.

The Maintenance Investment Index (MII) is a new measure in FY2005. The MII goals established by the Office of Science for SLAC were an MII of 1.7% for all conventional buildings at SLAC. SLAC did not meet the 1.7%, but instead, achieved a MII of 1.26%. After the electrical accident in October 2004, a maintenance target of $6.5 million in FY2005 was established between SLAC and DOE. SLAC exceeded the target as $6.9 million was actually expended on maintenance. Therefore, the rating for this measure is marginal. SLAC has identified action items to improve the MII in FY2006.

Overall, Projects & Facilities Management performance rating is Good.

3.3.8 Physical & Information Security

SLAC meets the overall criteria in the area of Physical Security and is congruent with the following ISSM core functions:

Implementation of Controls - Development of site safeguards and security plan
Perform within Controls - Annual briefings conducted, with security measures in place on-site

Feedback - Corrective action plans are in place as required, and regular meetings are conducted to review lessons learned

The annual security briefing was conducted on September 20, 2005. Although DOE recommends that SLAC utilize a sign in sheet for future meetings to verify employee attendance, photographs were taken of the event. The Safeguards and Security orientation and training are given to SLAC staff as mandatory. The Safeguard and Security self-assessment program is in place at SLAC, as evidenced by corrective action; and, lessons learned discussions, which are conducted weekly with the Site Security Manager and the Assistance Director at SLAC.

The line organization ensures that the number of significant incidents of a security concern within the control of SLAC with impacts upon national security, or foreign relations is minimized and mitigated. The security events at SLAC are reported in a timely manner and managed as required identifying and repairing weaknesses in procedures and policies that are designed to protect government interests. No major incidents have occurred in 2005 at SLAC. The corrective actions for identified threats or issues are developed and implemented by the line organizations in a timely manner.

The safeguards and security plans, implementation, and oversight have been satisfied as delineated in the above criteria, and are commensurate with the required level of security at SLAC. In 2005, there were no security threats of a national security nature, and no recordable incidents (no corrective actions required). SLAC submitted a Safeguards & Security Plan, dated July 2004, which defines the context of their security program at a satisfactory level.

In summary, it is the assessment of the DOE/SSO that SLAC performance in the safeguards and security area is rated as Excellent.

In the area of Information Security, SLAC has been successful in minimizing network vulnerabilities by the development and application of a robust Risk Management program that is compliant with NIST guidance. The DOE Cyber Security Assist Team (CSAT) of its cyber security program verified this during the week of August 29, 2005 when SLAC underwent an evaluation visit. The CSAT assessed SLAC's current certification and accreditation documentation and completed a gap analysis that documented the differences between SLAC's current operational state and NIST requirement. The CSAT concluded that SLAC appears to have a workable set of security controls to protect the confidentiality, availability, and integrity of its data. The gap analysis pointed to the need for SLAC to document its processes and controls. Based on this, SLAC has met the requirements of performance measure without having any major gaps. SLAC's performance in the Information Security area is assessed as excellent rating.

The overall rating for Physical and Information Security is Excellent.

3.3.9 Community Outreach and Diversity

SLAC has earned an overall rating of Outstanding for its FY2005 performance in the Community Outreach and Diversity functional area.

SLAC's Office of Communications has maintained and continued to improve the systems in place to effectively communicate the mission of the Laboratory both internally and externally, and to support its scientific programs and achievements. Examples of how the Office of Communications has maintained SLAC's position as a constructive participant with the general public and media, provided information to the public on the Laboratory's scientific programs and achievements, continued effective internal information dissemination to the Laboratory community, and facilitated participation by members of the Laboratory community in communication and outreach activities are:

SLAC was successful in National & International Collaborations. Their efforts in High Energy Physics & Synchrotron Radiation include initiatives such as: the Interactions.org website; the Lighsources.org website; and the Quantum Diaries website.

SLAC has excellent relationships with the world's scientific press, such as CNN, BBC, Nature, New Scientist, Scientific American, Science & Physics World. These relationships ensure that all stakeholders recognize the value of SLAC science. Major newspapers carried features on SLAC including the San Francisco Chronicle, San Jose Mercury News and the Palo Alto Daily.

In the area of Community Outreach SLAC participated in the Stanford University Walk to Cure Diabetes. SLAC also hosted tours during Stanford University Commencement with 450 attendees. They have increased the pool of tour guides and continue to facilitate lab visits by all local area high schools. SLAC conducts a public lecture series featuring notable physicists from SLAC. The series opens the doors to the inner workings of SLAC for the local nonscientific community. The average attendance per series has been 300.

4.0 RECOMMENDED AREAS FOR IMPROVEMENT

SCIENCE AND TECHNOLOGY

Laboratory mission and capabilities: There are some clear indications that SLAC resources, both people and money, are stretched too thin to meet the current demands associated with the present SLAC commitments. SLAC management needs to establish a clear vision for the Laboratory and ensure a thorough evaluation of resources and capabilities prior to accepting new commitments. This is particularly important with the SLAC transition from a High Energy Physics Laboratory to a Photon Science Laboratory.

BUSINESS MANAGEMENT

Improvements for FY06 in Procurement are:

- Reducing the number of Purchase Card Holders
- Placing more emphasis on competing their procurements and properly justifying those procurements that are sole-sourced
- Better utilization of transactions placed through E-Commerce
- Increasing the percentage of on-time deliveries from key suppliers
- Better use of community outreach in an effort to generate more interest in small businesses doing business with SLAC

5.0 ATTACHMENTS

ATTACHMENT A

SUMMARY OF FY- 2005

PERFORMANCE MEASURE RATINGS

Functional Area (Objective)	Available Points	Score	% Outcome	Report Card
Section A: Laboratory Leadership	**95**			
Strategic Planning	43	34.0	79.07%	Good
Stewardship/ Safe Operations Leadership	33	19.0	57.58%	Marginal
Research Support	19	19.0	100.00%	Outstanding
Subtotal:			**78.88%**	**Good**
Section B: Science & Technology	**600**			
High Energy Physics	350	285.2	81.49%	Excellent
Synchrotron Radiation	250	226.6	90.64%	Outstanding
Subtotal:			**86.07%**	**Excellent**
Section C: Operations & Administration	**305**			
EEO & Affirmative Action	15	12.3	82.00%	Excellent
Human Resource Management	20	16.9	84.50%	Excellent
Environment Safety & Health	120	86.4	72.00%	Good
Financial Management	25	21.8	87.20%	Excellent
Personal Property	20	17.6	88.00%	Excellent
Procurement	25	22.3	89.20%	Excellent
Projects & Facilities Management	25	19.0	76.00%	Good
***Physical Security**	14	11.9	85.00%	Excellent
***Information Security**	31	24.8	80.00%	Excellent
Community Outreach & Diversity	10	9.4	94.00%	Outstanding
Subtotal:			**83.79%**	**Excellent**
Total:	**1000**	**826**	**82.91%**	**Excellent**

* One performance objective- 45pts

5.0 ATTACHMENTS

Attachment B

Evaluation of Performance Measures

SLAC and the DOE will independently perform the following evaluation process.
The total point available for Science and Technology is 600 while the total points available for Laboratory Leadership and Operations & Administrative are 400. The parties establish points assigned to each Performance Area at the beginning of each annual evaluation cycle. Any modification of points assigned to individual Performance Areas at the beginning of the annual evaluation will continue to cause the total points available for Science and Technology and the total points available for Laboratory Leadership and Operations & Administrative to remain unchanged. The following table shows the Performance Areas in Laboratory Leadership, Operations & Administrative, and Science and Technology along with their associated point assignments.

Laboratory Leadership	Science & Technology	Operations & Administrative
Laboratory Leadership **95 pts.**	High Energy Physics **350 pts.**	Equal Opportunity & Affirmative Action **15 pts.**
	Synchrotron Radiation **250 pts.**	Human Resources Management **20 pts.**
		Environment, Safety & Health **120 pts.**
		Financial Management **25 pts.**
		Personal Property **20 pts.**
		Procurement **25 pts.**
		Projects & Facilities Mgmt. **25 pts.**
		Physical & Information Security **45 pts.**
		Community Outreach and Diversity **10 pts.**
Total = 95 pts.	**Total = 600 pts.**	**Total = 305 pts.**

Grand Total 1000 points

The Performance Area evaluation begins by assigning ratings to the Performance Objectives. The Performance Objective ratings are expressed as percentages and reflect the Evaluation Rating on that objective. The ratings are developed in Business Management by assessing the Performance Objectives using the Performance Assumptions and Gradients. In Science and Technology, the ratings represent a subjective assessment of the Performance Objectives. The following table relates these elements.

Performance Objective Ratings	***Evaluation Rating***	***Business Management***	***Science and Technology***	***Laboratory Leadership***
90 – 100% 80 – 89% 70 – 79% 60 – 69% Less than 60%	Outstanding Excellent Good Marginal Unsatisfactory	Use assumptions and gradients to determine rating.	Rating is determined by subjective assessment of Performance Measure.	Rating is determined by subjective assessment of Performance Measure.

For the areas that do not provide the weighted percentage gradients, it shall be understood that the above table is recognized for use to achieve the rating outcome for the particular objective.

Once the Performance Objective Ratings have been determined, they are multiplied by the percent weight assigned to each weighted Performance Measure. This gives the weighted percentage rating for each Performance Measure. The sum of the weighted percentage ratings yields the total percentage rating for the Performance Areas. The sum percentage ratings multiplied by the points available for the Performance Areas determine the points earned for each area. The sum of the points earned for each area establishes the total points earned for Laboratory Leadership, Science and Technology, and for Operations & Administrative and, ultimately, for total SLAC. The total points earned can then be correlated with a comprehensive Evaluation Rating for SLAC through the following table.

Correlation of Total Points Earned to Evaluation Ratings and Definition of Evaluation Ratings

Total Points Earned	Evaluation Ratings	Definition
900 - 1000	Outstanding	Significantly exceeds the standard of performance; achieves noteworthy results; accomplishes very difficult tasks in a timely manner.
800 - 899	Excellent	Exceeds the standard of performance; although there may be room for improvement in some elements, better performance in all other elements offset this.
700 - 799	Good	Meets the standard of performance; assigned tasks are carried out in an acceptable manner - timely, efficiently, and economically.

		Deficiencies do not substantively affect performance.
600-699	Marginal	Below the standard of performance; deficiencies are such that management attention and corrective action are required.
Less than 600	Unsatisfactory	Significantly below the standard of performance; deficiencies are serious, may affect overall results, and urgently require senior management attention. Prompt corrective action is required.

The ratings assigned to each of the FY2005 Performance Measure rating for SLAC three Performance Measures (two in Critical Operations and one in Science and Technology) have a direct impact on the total overall laboratory score.

Department of Energy
Office of Science
Washington, DC 20585
December 20, 2005

MEMORANDUM FOR NANCY SANCHEZ
MANAGER
STANFORD SITE OFFICE

FROM: JAMES F. DECKER
PRINCIPAL DEPUTY DIRECTOR
DEPUTY FOR PROGRAMS

SUBJECT: FY 2005 Office of Science Program Performance Evaluation

For FY 2005 the Stanford Linear Accelerator Center's (SLAC) overall performance on Office of Science (SC) science and technology programs is rated as Excellent. This rating relates to a scale that includes Unsatisfactory, Marginal, Good, Excellent, and Outstanding. It is a weighted average of performance evaluations provided by the SC offices of Biological and Environmental Research (BER), Basic Energy Sciences (BES), High Energy Physics (HEP), and Workforce Development for Teachers and Scientists (WDTS). The weighting factor is the fraction of SC's SLAC budget provided by each of the above program offices. The attached table provides the individual SC program ratings of the laboratory's performance for each of the performance measures and the overall SC weighted scores. Full narrative evaluations from each program area will be emailed separately.

I would like to take this opportunity to thank you and your staff for your work in the development of the FY 2006 Performance Evaluation and Measurement Plans which incorporate the new SC Laboratory Appraisal Process. Approval of these plans marks the implementation of a strengthened contractor performance-based management system within SC. This new system allows for increased comparability, consistency, fairness, and transparency in the performance evaluation of our laboratories and I look forward to working with you as we implement our new process.

Attachment

Office of Science
Stanford Linear Accelerator Center
FY 2005 Ratings for each Performance Measure

	Performance Measure 1: Quality	Equivalent Grade	Performance Measure 2: Relevance	Equivalent Grade	Performance Measure 3: Research Mgmt	Equivalent Grade	Performance Measure 4: Facilities	Equivalent Grade	Overall Program Rating	Equivalent Grade	
ASCR	n/a	-	n/a	-	n/a	-	n/a	-	n/a	-	
BER	95	O	95	O	95	O	n/a	-	95	O	
BES	98	O	95	O	95	O	80	E	91	O	
FES	n/a	-	n/a	-	n/a	-	n/a	-	n/a	-	
HEP	98	O	90	O	80	E	66	M	83	E	
NP	n/a	-	n/a	-	n/a	-	n/a	-	n/a	-	
WDTS	95	O	97	O	95	O	n/a	-	95	O	
Overall SC Weighted Scores	98	O	92	O	86	E	71	G			86 = E

Ratings:
O = Outstanding – 90 to 100
E = Excellent – 80 to 89
G = Good – 70 to 79
M = Marginal – 60 to 69
U = Unsatisfactory – 0 to 59

ATTACHMENT 5.0

Attachment C

DOE-HQ Program Office Evaluations

OFFICE OF SCIENCE EVALUATION FORM FOR PROGRAMMATIC APPRAISALS

Stanford Linear Accelerator Center (SLAC)

PROGRAM: High Energy Physics
B&R(s): KA12, KA13, KA14, KA15
FY2005 Funding: $169,036k
EVALUATOR & Phone Number: Robin Staffin (301)903-3624
DATE: Dec 2, 2005

EVALUATION FACTORS	RATINGS*				
	O	E	G	M	U
(Insert Numerical Score in Appropriate Box)					
	98				

1. Quality of Fundamental and Applied Science. Reviewers will evaluate the overall quality of the research performed. Depending on the nature of the program, reviewers will consider the following:

SLAC will be recognized as a world-class research institution providing state-of-the-art facilities to the user community; have an innovative, productive research staff that is recognized as such by their peers; promote and facilitate education of graduate students and production of PhDs; and have a strong and enthusiastic user organization.

COMMENTS:

The Stanford Linear Accelerator Center (SLAC) currently operates a cutting edge program in high energy physics based on the B-factory, the construction of a space-based astro particle physics experiment, a number of initiatives for non-accelerator based experimental proposals, theoretical physics, and an advanced accelerator research program. SLAC has recently joined the ATLAS detector group, strengthening the US participation in the LHC. It will also become a Tier-2 computer site for LHC data analysis. A long-range future program has been developed with accelerator research aimed towards the design of an energy-frontier International Linear Collider (ILC).

SLAC experienced a very serious electrical accident, which closed down its accelerator operations

for Q1 and Q2 of FY2005. This incident will be discussed in section 4 below. Nonetheless, when PEP-II was running, the B-factory performed quite well. From September 2004 to July 2005, PEP-II delivered 53.5 fb^{-1} of which the BaBar detector recorded 51.1 fb^{-1}. BaBar promptly analyzed and presented the latest results with over 174 submitted publications since 1999, of those 51 appeared between the beginning of FY2005 and Sept 2005. For example, at a major summer conference, Lepton-Photon 2005, BaBar contributed 75 abstracts. BaBar continues to make substantial progress in a comprehensive set of measurements for CP-violating asymmetries, a systematic exploration of rare decay processes, and detailed studies to elucidate the dynamics of processes involving heavy quarks. Its accurate, high precision studies test the limitations of the Standard Model and show hints of intriguing new physics which might be further uncovered at the LHC. In addition, its discovery of new heavy quark states in the multi-GeV region may lead to more understanding of QCD, the theory of the strong interaction of quarks and gluons. BaBar is a large (600 member) collaboration with members from 72 institutions in 9 countries. There are approximately 150 graduate students and 170 postdoctoral researchers receiving training on BaBar. SLAC research staff contributed significantly to this outstanding achievement.

The SLAC theory group worked in a variety of areas ranging from the development of fundamental theories to detailed calculations and tests of theories directly relevant to high energy physics experiments at SLAC and elsewhere. At the OHEP's annual review, their work was evaluated to be outstanding with significant impact on the field.

SLAC staff also carried out an excellent advanced accelerator research program with a wide variety of topics covering performance enhancement of current accelerators, research and design for near-future facilities, research in fundamental aspects of accelerator and beam physics, and accelerator physics and technology on high gradient acceleration and advanced concepts The FFTB continues to achieve world records in new accelerator techniques, as illustrated by its July 29, 2005 contribution to the Physical Review Letters where it reported that its plasma-wakefield accelerator has accelerated electrons by over 2.7 GeV in a 10 cm long plasma module.

SLAC continues to lead the ILC R&D program, focusing on development of critical technologies such as klystrons and solid-state modulators, design and test of high gradient structures, examination of final-focus requirements, and an aggressive R&D program in the NLCTA program. The lab is planning a new High Gradient collaborative effort. The existing FFTB is planned to evolve into the SABER project as the LCLS takes additional beam line.

The Kavli Institute for Particle Astrophysics and Cosmology (KIPAC), which is connected to both Stanford University and SLAC, completed its second full academic year. It played a key role on focusing and strengthening SLAC staff's participation in the particle astrophysics research program.

EXO-200, designed to confirm or refute the Majorana nature of the neutrino and estimate its mass, is well underway.

OFFICE OF SCIENCE EVALUATION FORM FOR PROGRAMMATIC APPRAISALS

Stanford Linear Accelerator Center (SLAC)

PROGRAM: High Energy Physics
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FY2005 Funding: $169,036k
EVALUATOR & Phone Number: Robin Staffin (301)903-3624
DATE: Dec 2, 2005

EVALUATION FACTORS RATINGS*

	O	E	G	M	U
(Insert Numerical Score in Appropriate Box)	90				

2. Relevance to DOE Missions or national needs

SLAC will contribute to U.S. leadership in international High Energy Physics (HEP) communities; contribute to the goals and objectives of DOE Strategic Plans and guidance; and, provide advanced accelerator and detector facilities that serve the needs of a wide diversity of scientific users from industry, academia, and Government laboratories.

COMMENTS:

Overall, the laboratory's priorities are well aligned with the DOE mission and the national HEP program. The core of the HEP program mission is to explore and discover the laws of nature by investigations of elementary particles and their nature and mutual interactions, which is enabled by development of key cutting edge technologies and trained manpower that provide unique support.

The SLAC B-factory is one of the highest priority facilities to support advancing the DOE's strategic goals for science. It provides new insights into the basic constituents of matter and the forces between them. The BaBar experimental program at B-factory has a large (600 member) international collaboration with members from 72 institutions in 9 countries.

SLAC also carries out an excellent advanced accelerator research program with a wide variety of topics covering performance enhancement of current accelerators, research and design for near-future facilities, research in fundamental aspects of accelerator and beam physics, and accelerator physics and technology on high gradient acceleration and advanced concepts.

SLAC led the ILC R&D program as a recognized world leader. After the choice of the cold technology for International Linear Collider (ILC) was made in summer of 2004, SLAC has

been examining its linear collider program and reorienting its R&D priorities to bring its best skills to the ILC. SLAC will continue to be an indispensable player and international leader in ILC R&D.

The work on the physics case and detector requirements for the linear collider continued by the SLAC staff with an emphasis on how to use the unique capabilities of the linear collider environment, such as highly efficient heavy quark tagging, beam polarization, and the possible Higgs and SUSY measurements.

The R&D on the EXO double beta decay experiment could provide the strengthening of the U.S. leadership in answering one of the key questions about the nature of neutrinos that is not otherwise accessible. However with limited available resources, the R&D progress continues to be slow.

The scientific program at KIPAC is quite diverse. It includes the study of clusters of galaxies, a variety of projects in weak and strong gravitational lensing as well as microlensing, investigations of particle dark matter, modeling of pulsars and gamma ray bursts, study of cosmic censorship hypothesis, calculations of atomic transition for use in X-ray astronomy, and developing new ideas in black hole astrophysics. It is an exciting portfolio; however, it should be noted that only a small fraction of these topics have relevance to the core of the HEP program mission.

OFFICE OF SCIENCE EVALUATION FORM FOR PROGRAMMATIC APPRAISALS

Stanford Linear Accelerator Center (SLAC)

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EVALUATION FACTORS	RATINGS*				
	O	E	G	M	U
(Insert Numerical Score in Appropriate Box)					
		80			

3. Effective and efficient research program management.

SLAC will: provide well-developed research plans; optimal use of personnel, facilities, and equipment; meet budget projections and milestones; reflect effective decision-making in managing and redirecting projects; identify and avoid or overcome technical problems; include scientific and technical information in program and project planning; and, make it broadly available in electronic form.

COMMENTS:

The SLAC research program is in general well managed, and the scientific productivity is high, in spite of difficulties from the tightly constrained budget. However, there were a number of problems, which the laboratory will need to work hard to avoid or overcome.

The effectiveness of SLAC management was well demonstrated by the luminosity records at the B-factory in FY2004 and 2005. A PEP-II peak luminosity of 10.025×10^{33} was achieved on Oct. 9, 2005. This value is an impressive 3.3 times larger than the original design specifications of the machine. The BaBar detector continued to perform extremely well, with an operational efficiency of 96%. SLAC has managed to deliver sufficient computing resources for BaBar by effectively managing its computing resources, as well as successfully coordinating with major European agency-funded computing centers in Europe.

The excellent achievements in the advanced accelerator research program also demonstrate well developed research plans with effective management and optimal use of resources.

However, it is rapidly becoming unclear if SLAC has the manpower needed to support B-factory operations and its many projects in new accelerator techniques in light of the demands that the LCLS will make on the laboratory manpower. A thorough assessment by SLAC management will be needed to address this question.

The KIPAC continues to bring fresh vibrant intellectual activities to SLAC. However it should be acknowledged that there is a difference between the KIPAC and SLAC as institutions. The expansion of the particle astrophysics and cosmology program will require thorough planning with a realistic budgetary projection weighted by mission relevance of HEP and a clearer understanding of the relative roles of the KIPAC and SLAC.

SLAC's future as a high energy physics laboratory is continuously being developed. It is becoming a major player in the design stage of the ILC, it is taking on more responsibilities, both in computer support and phenomenology, of the LHC, and it continues to lead world class research efforts in new accelerator concepts. However, it has not developed a plan in high energy experimental physics program that will replace the B-factory, which is scheduled to close by 2008 at the latest. SLAC, therefore, risks losing its vitality and relevance in the field, and its other plans in high energy physics will eventually be negatively impacted by this lack of initiative.

OFFICE OF SCIENCE EVALUATION FORM FOR PROGRAMMATIC APPRAISALS

Stanford Linear Accelerator Center (SLAC)

PROGRAM: High Energy Physics
B&R(s): KA12, KA13, KA14, KA15
FY2005 Funding: $169,036k
EVALUATOR & Phone Number: Robin Staffin (301)903-3624
DATE: Dec 2, 2005

EVALUATION FACTORS	RATINGS*				
	O	E	G	M	U
(Insert Numerical Score in Appropriate Box)				66	

4. Success in construction and operation of facilities.

SLAC will construct and operate leading-edge experiments and user facilities in a reliable, safe and environmentally sound manner according to planned schedules; achieve performance specifications; and, maintain and improve facilities at reasonable and defensible costs.

COMMENTS:

During the first quarter of FY2005 SLAC experienced an electrical arc accident that severely injured a worker. The subsequent investigation concluded that SLAC had not fully implemented an Integrated Safety Management System (ISMS) into the laboratory operations. In fact, SLAC had experienced an increasing number of safety incidents during FY04. SLAC was also seen to have inadequate follow-up from previous ES&H audit findings. These factors led to the shutdown of all accelerator activities at SLAC for the first two quarters of FY2005. As a result, the DOE rating for the SLAC ISM Program is currently unsatisfactory.

The SSO Manager as a result of the accident requested an ISMS review. The review team concluded that SLAC line management is responsible for and knowledgeable of ISM policy and how it is implemented. They also found that an integrated process is in place for defining, authorizing, and controlling work, and an effective system is in place for identifying, analyzing, and controlling hazards. The review team believed that it was evident that SLAC has made significant progress during the past year, and they are on a path to ensure a fully effective ISM system but much work remains. The review team found that improvements are needed in developing and maintaining institutional documentation. In addition, weaknesses were found in the formality and maintenance of documentation, as well as the formality and maintenance of the lab's conduct of operations.

In the third and fourth quarter of the year SLAC brought PEP-II operations back up. It took considerable time and effort to get the machine's luminosity back on track. The machine's operations are now displayed online on a weekly basis. Recent performance has been encouraging. For example, the peak luminosity achieved in FY2005 occurred on Oct. 9 and was 10.025×10^{33} cm^{-2} sec^{-1}, which is over 3.3 times the original design peak luminosity of 3.0×10^{33} cm^{-2} sec^{-1} However, the total luminosity delivered for all of FY2005 was less than half that of FY2004 because of the accident and the subsequent shutdown. If the accelerator improvements planned for the coming year are successful, SLAC may be able to recover its lost running time and achieve its ultimate goal of delivering 1000 fb^{-1} by FY2008.

The B-factory operations review conducted in 2004 concluded that B-factory is being very effectively managed; however, it expressed concerns on the high level of demands on the professional staff which may not be sustainable in the long term and noted a higher incident rate in FY2004 due to a stressed and aging staff. Laboratory management, as its highest responsibility, needs to recognize and pay attention to these and other concerns rose from other external reviews in order to ensure the long term health of its human resources and scientific programs and also to avoid any additional catastrophic risks in its daily operation.

The GLAST project is nearing launch, its 16 modules have been completed and assembled and will be shipped out to a NASA facility for pre-launch shakedown in mid-January, 2006. This project has suffered numerous delays in the past and was rebaselined this past year during March 2005 from a total project cost of $42 M to $45 M. This cost overrun occurred when SLAC management underestimated the effort needed to qualify a vehicle for flight. The extra money was taken from SLAC Accelerator operations. OMB was made aware of this rebaselining and supported the decision.

Office of Basic Energy Sciences (BES)
FY2005 Evaluation for the Stanford Linear Accelerator Center/ Stanford Synchrotron Radiation Laboratory (SLAC/SSRL)

1. Quality of Fundamental and Applied Science: Outstanding (98)

The research supported by the BES Materials Sciences and Engineering Division at SLAC/SSRL produces high quality publications in prestigious journals in the areas of photoemission studies of HiTc superconductors, x-ray scattering of magnetic materials, and discovery of complex oxides and rare earth compounds with novel properties.

Two new projects were awarded in FY2005: (1) a project to a team of three young principal investigators to investigate energy conversion phenomena in organic/inorganic hybrid systems and (2) a project to understand novel fuel cell catalysts. These projects make use of the excellent facilities that are uniquely available at SSRL, and they significantly broaden activities at SLAC in the areas of materials sciences. These projects along with the Center for Ultrafast Science initiated in FY2004 will serve as a focal point for the future emphasis on the strong coupling between ultrafast science and basic energy research at this institution.

2. Relevance to DOE Missions or National Needs: Outstanding (95)

The SSRL program includes research on important national topics, including nanostructures, high temperature superconductors and other strongly correlated electron systems, energy conversion phenomena, and environmentally important materials. SSRL fulfills a very important DOE mission in providing outstanding service and reliability to its synchrotron radiation user community.

3. Effective and Efficient Research Program Management: Outstanding (95)

SLAC's senior management reorganization to reflect the transition from high-energy physics to ultra fast x-ray science is recognized as the appropriate first step in the transition that already has begun at SLAC and that will evolve over the next few years. BES encourages SLAC to think broadly and outside the current models in order to continue to evolve its management *and* faculty structures in anticipation of what will become very nearly an entirely new laboratory. The future SLAC should not necessarily be a perturbative change on the past SLAC. The opportunities presented by the transition rarely come to an organization, and these opportunities should be seized.

BES notes that the management of the current research programs in materials sciences is outstanding. The new relationship of SSRL to the Geballe Laboratory for Advanced Materials at Stanford University and the initiation of the Center for Ultra fast Science are examples of creative management constructs.

4. Success in Construction and Operation of Facilities: Excellent (80)

Unfortunately, the SLAC safety shutdown in October 2004 delayed the start of FY2005 SSRL user operations until February 2005, resulting in a significant decrease in the scheduled operating hours in FY2005 from those that might have been delivered. We note, though, that SSRL resumed operations as quickly as feasible and then served as the model for how other parts of SLAC were to resume operations. The SSRL safety culture was viewed as outstanding during the investigations. Nevertheless, the BES evaluation for SSRL operations is strongly influenced by the fact that SSRL did not run for a significant period in FY2005.

At the beginning of February the BES Scientific User Facilities Division peer reviewed the operation of SSRL. Reviewers noted that the SSRL storage ring has been successfully upgraded to a low emittance 3rd generation source (SPEAR 3). It achieved 97% overall availability during its first run period. SSRL continues to attract very high quality scientific staff which provided outstanding user support, and sets a good example for standardization of beamline hardware and software to make the facility user friendly with a limited staff. The SSRL faculty was identified as a key strength of the facility, accounting for approximately 18% of the total publications while only using 8% of the available beam time. SSRL needs to address the lack of clear career advancement for its non-faculty junior staff scientists to ensure retention of its first-class staff.

The Linac Coherent Light Source (LCLS) project made good progress in FY2005, and overall performance has improved. The project's leadership is highly capable, but stretched thin. Project staffing levels have increased as necessary, and the External Independent Review process was successfully completed in April 2005. The May 2005 DOE review found that the rate of technical progress has been very good despite the funding limitations imposed by the FY2005 Continuing Resolution. The review committee was quite concerned, however, that the procurement for the Construction Manager/General Contractor was far behind schedule. Title II design of conventional facilities was also lagging. Long-lead procurements of technical hardware were found to be on track. With the reorganization of SLAC in 2005, the LCLS project is now being given the high priority for resources within the laboratory needed for its success.

BER Input to the SLAC FY 05 Annual Appraisal

Performance Measure 2.1a
SLAC will be recognized as a world-class research institution providing state-of-the-art facilities to the user community; have an innovative, productive research staff that is recognized as such by their peers; promote and facilitate education of graduate students and production of PhDs; and, have a strong and enthusiastic user organization. (30%)

BER response: Rating: 95%; The SLAC/SSRL structural molecular biology (smb) program is recognized as one of the leading contributors to this field in the world. The program provides access to instrumentation for the full range of synchrotron techniques applicable in smb, the only program in the U.S. to cover all the techniques within a single organization. The staff are leaders in their respective techniques, publishing an impressive number of research papers both on new techniques and on applications in smb, many in collaboration with users. These collaborative papers reflect the high level of expertise that the smb program staff provide for solving problems brought to SSRL by users. The smb program also involves numerous students both in user groups and at Stanford University.

The SLAC/SSRL molecular environmental science (mes) program is also world-class. An impressive number of new techniques have been developed at SSRL by the local faculty and staff, and many of the leaders in mes around the country were educated here. The number of BER-funded users in this area continues to grow and the facility provides excellent instrumentation and service for them.

Performance Measure 2.2a
SLAC will contribute to U.S. leadership in international Basic Energy Science and Biological & Environmental Research communities; ... and, provide advanced, synchrotron facilities that serve the needs of a wide diversity of scientific users from industry, academia, and Government laboratories. (15%)

BER response: Rating: 95%; The SLAC/SSRL structural molecular biology (smb) and molecular environmental science (mes) programs offer forefront capabilities to the user communities in both areas. As a result of the technologies implemented at the synchrotron U.S. researchers are able to carry out experiments that make use of x-ray instrumentation comparable to the best available anywhere in the world. As a result the synchrotron is used by life and environmental science researchers from all types of institutions.

Performance Measure 2.3.a:
SLAC will provide: well-developed research plans; optimal use of personnel, facilities, and equipment; meet budget projections and milestones; reflect effective decision-making in managing and redirecting projects; identify and avoid or overcome technical problems; include scientific and technical information in program and project planning; and, make information availability broadly known via electronic means. (20%)

BER response: Rating: 95%; SLAC/SSRL manages staff and resources for the structural molecular biology and molecular environmental science user communities exceptionally well. Planning for short- and long-term development of the facility for these users is outstanding, as evidenced by the successful upgrades of the beamlines they use for the installation of SPEAR3. Financial resources are appropriately allocated to the different components of the programs.

ATTACHMENT 5.0

Attachment D

On-line version of SLAC Performance-Based Management Self-Assessment Report

http://www-group.slac.stanford.edu/bsd/Assessment05/Report/Index05.htm