



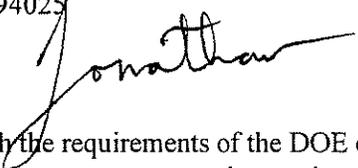
## Department of Energy

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APR 06 2001

Dr. Jonathan Dorfan  
Director  
Stanford Linear Accelerator Center  
2575 Sand Hill Road, MS-75  
Menlo Park, CA 94025

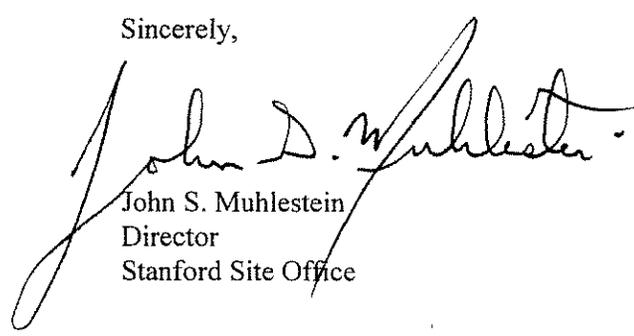
Dear Dr. Dorfan,

  
In accordance with the requirements of the DOE contract with the Board of Trustees for the Leland Stanford Jr., University for the management and operation of the Stanford Linear Accelerator Center (SLAC), enclosed is the DOE FY 2000 Annual Performance Assessment of the Laboratory.

The FY 2000 overall rating for SLAC is **OUTSTANDING**. You and your staff deserve recognition for earning the highest overall rating of "*Outstanding*" for the third consecutive year. We would like to commend SLAC for your continued Outstanding performance in Science and Technology (S&T) Program (e.g. B-Factory exceeded design, SLAC leads major R&D on NLC, initiated GLAST program, SPEAR 3 outstanding operating statistics, SPEAR 3 Upgrade Project on cost and schedule, and LCLS R&D proceeding well). The overall Business Management (Including ES&H) was rated Excellent. Of the eleven Business Management areas evaluated, seven had no change in ratings from FY 1999, three (Personal Property, Facilities Management, and Safeguards & Security) had increased ratings from FY 1999, and one functional area (Communications & Public Affairs) was evaluated for the first time in FY 2000 replacing Legal.

The FY 2000 scores continue to demonstrate the increasing effectiveness of SLAC's performance-based management system. Our challenge is to safeguard the gains that have been made while continuing to strive for improvement wherever possible (with emphasis on Business Management System). The spirit of cooperation and teamwork that exists between SLAC and DOE is a strong foundation on which to ensure our continued partnership success. Please extend our congratulations to the Laboratory for this level of performance. Should you have any questions regarding this report, please contact me at (650) 926-3208.

Sincerely,

  
John S. Muhlestein  
Director  
Stanford Site Office

Enclosure

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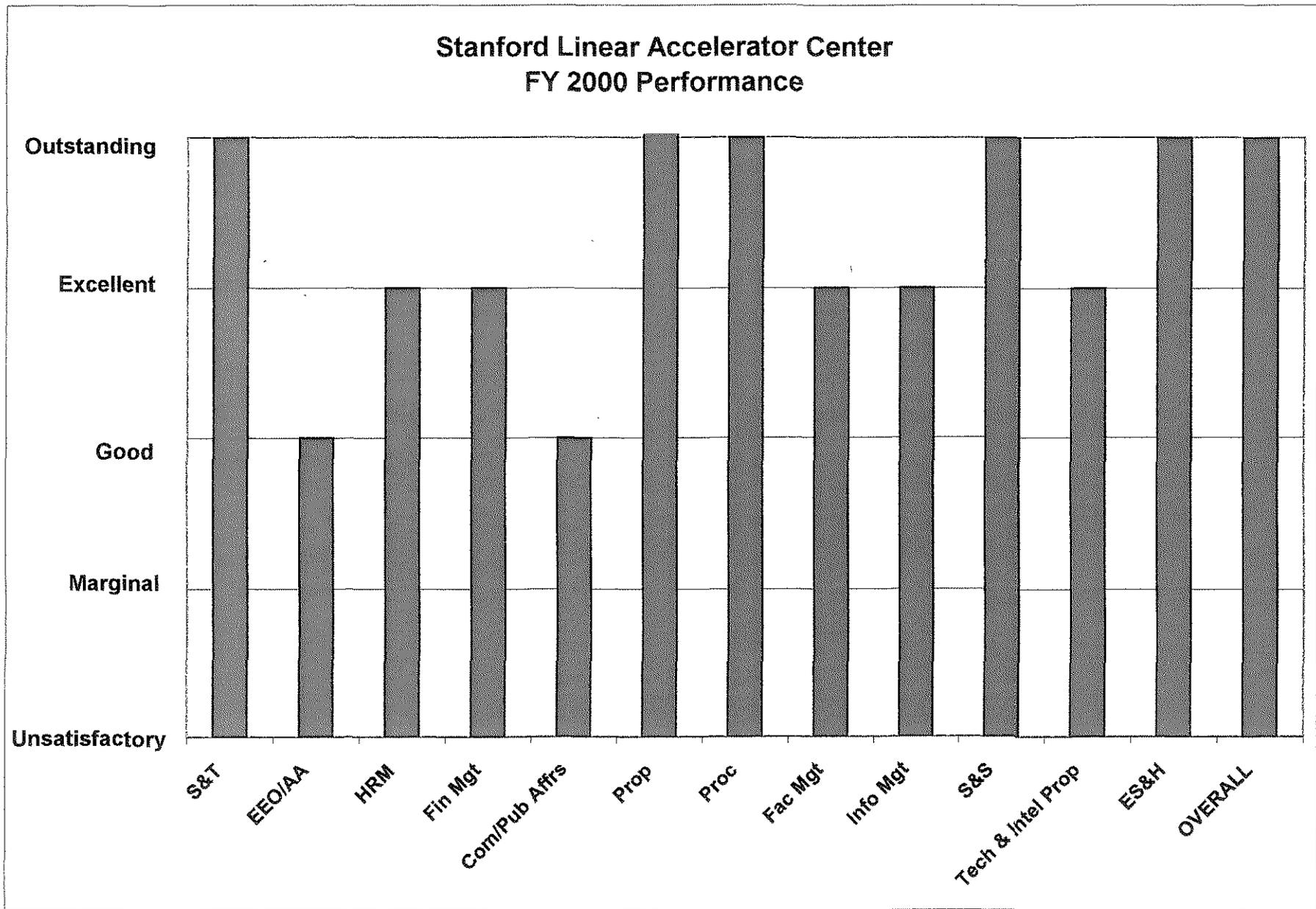
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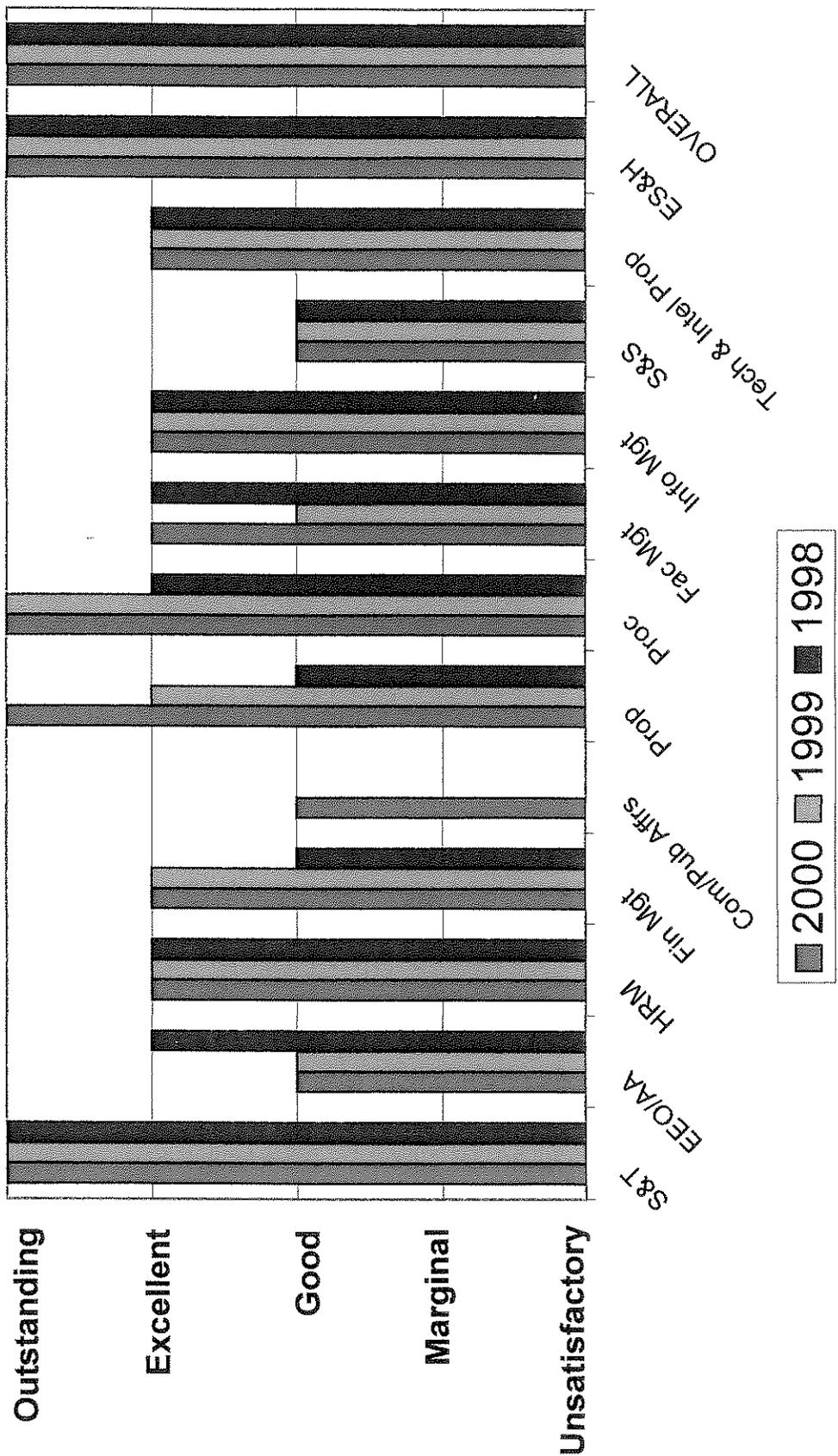
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# SLAC Annual Performance FY 1998 to FY 2000



## EXECUTIVE SUMMARY

### I. PERFORMANCE-BASED ASSESSMENT PROCESS

This report is produced by the U.S. Department of Energy (DOE) Stanford Site Office (SSO) and Oakland Operations Office (OAK), to evaluate the Stanford Linear Accelerator Center's (SLAC) overall performance. The evaluation areas are: 1) Scientific Research Programs and Technology Development; and, 2) Business Management (including ES&H). 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 2000 Annual Performance Assessment Report is October 1, 1999 through September 30, 2000. The rating is based upon a system evaluation, which provides previously agreed-to measures with weighted point scores, that are accumulated to determine the overall adjectival rating for SLAC. The previous year rating characterization were four tier (far exceeds expectations, exceeds expectations, meets expectations, and needs improvements) versus the five tier this year, (outstanding, excellent, good, marginal, and unsatisfactory). The Scientific Research Programs and Technology Development section is weighted 60%, while the Business Management section (including ES&H) is weighted 40%. Appendix A of this report provides the methodology for the rating. Appendix B of this report provides detailed scores and ratings for each functional area.

The overall SLAC performance rating for FY2000 is **OUTSTANDING**. The Science and Technology Program summary rating of Outstanding, is based on input provided by Dr. James F. Decker, Acting Director, Office of Science (SC). The Summary Rating combines performance evaluations from the Offices of: High Energy and Nuclear Physics (HENP), Basic Energy Science (BES), and Biological and Environmental Research (BER). The Business Management summary rating, Excellent, provided by the DOE/SSO, OAK Functional Managers, combines performance evaluations for: Communications & Public Affairs, Environmental Safety & Health, Equal Opportunity & Affirmative Action, Facilities Management, Financial Management, Human Resource Management, Information Management, Personal Property, Procurement, Safeguard & Security, and Technology & Intellectual Property Management. A summary chart of the scoring and rating in each area is provided in Section V of this Executive Summary. A full text of the FY 2000 Performance Assessment is provided under the Detailed Assessment Results.

## II. SUMMARY OF SIGNIFICANT ACCOMPLISHMENTS:

Rather than reiterate the scoring or adjectival ratings for each of the functional areas contained in this Performance Assessment Report, this Executive Summary highlights noteworthy FY 2000 performance achievements, or recommended areas for improvement at SLAC.

### A. SCIENCE AND TECHNOLOGY

**Introduction:** Stanford University manages and operates the Stanford Linear Accelerator Center (SLAC) for the U.S. Department of Energy as a National User Facility. SLAC conducts research, design, construction, engineering, testing, training, education, and technology transfer on behalf of the Department of Energy (DOE), in a manner that will maintain a vigorous, forward-looking program. SLAC's mission is the generation and expansion of scientific and technical knowledge in: high energy physics (including theoretical, experimental, and accelerator physics); basic energy sciences (including synchrotron radiation research in biology, chemistry, materials science, medical sciences, physics and other disciplines); biological and environmental sciences; and, all appropriate areas of natural sciences, engineering, and related disciplines. SLAC was established as a National User Facility for the conduct of unclassified research, providing a unique resource for the DOE Office of Science and related User communities.

The very nature of scientific inquiry—its complexity, duration, and examination of the unknown—mitigate against the establishment of purely quantitative criteria for evaluating the results of this research. In recognition of this difficulty, a system utilizing the review by scientific peers has proven its worth in influencing the direction of, and establishing standards for, scientific research. In keeping with this tradition, DOE Headquarters Office of Science has used this peer review process to evaluate the science and technology programs at SLAC.

**High Energy Physics (HEP) Performance Evaluation:** SLAC, together with Fermilab, provides the backbone of the U.S. program in High Energy Particle Physics. A pioneer in using electrons and Positrons for HEP research, SLAC is the primary U.S. laboratory for physics with lepton beams, has successfully constructed and operated a series of electronpositron colliders, and remains the main U.S. expertise repository. Numerous important advances in physics have resulted.

Currently focused on CP violation, the new B-Factory (PEP II electron-positron collider and BaBar detector) is a magnificent success, exceeding its design parameters for peak and integrated luminosity (collision rate). By the end of FY 2000, BaBar recorded  $23.6 \text{ fb}^{-1}$  vs. a planned level of  $15 \text{ fb}^{-1}$ . This level of performance, so soon after commencement of operations, is unprecedented. The first physics results were reported at the International Conference at Osaka, Japan in August 2000. With increased integrated luminosity, these measurements will provide precise tests of the Standard Model.

The Laboratory's theoretical physics program is internationally recognized as a leader in a number of sub-fields; SLAC theory leads the international consortium on the physics for the next generation of linear colliders.

The B-Factory project was awarded the first DOE Deputy Secretary's Award for Excellence in

Project Management. This accomplishment is especially noteworthy, because of the need to coordinate the activities of the international collaboration for the BaBar detector, including the international funding agencies.

SLAC continues to lead linear collider technology development with a major R&D effort on a trillion volt (TeV) collider (Next Linear Collider); built and operates a small test accelerator (NLCTA) to support this R&D; pioneered development of state-of-the-art test facilities and simulation codes for colliding beams to the benefit of the entire international program; and, contributes to the development of sophisticated free electron lasers (FEL). These facilities are open to, and used extensively by, the international community in cooperative development of concepts and instruments, that further the goals and objectives of DOE strategic plans. In addition, SLAC initiated a program of particle astrophysics, and is the Host Laboratory for the Gamma Ray Large Area Space Telescope (GLAST) mission (2005 launch). SLAC organized the international collaboration to design and execute the next-generation, space-based observatory of cosmic gamma rays sources.

The BaBar detector is pioneering HEP use of object-oriented programming, C++ computer language, and storing/retrieving/analyzing event data using multi-hundred CPU arrays. SLAC is cooperating with industry (CRADA, SBIR) to develop the object-oriented database management program, upon which future distributed analysis for the Large Hadron Collider and other major experiments depend.

#### **Synchrotron Radiation Performance Evaluation:**

**Basic Energy Science (BES):** The quality of Material Sciences and Engineering research at SSRL is very highly regarded, with first-rate investigators working on important BES research problems: outstanding work of Z-x Shen on the High-Tc Superconductor problem, central to condensed matter physics research; and Martin Greven's first-rate crystal growing effort for x-ray and neutron scattering (DMS&E emphases).

Chemical Sciences, Geosciences and Biosciences data quality from the new Molecular Environmental Sciences Beam Line (B/L-11), indicates the facility will be important in meeting the scientific needs of the heavy element community.

Other activities which are of great importance and being performed at an outstanding level include:

- Collaboration with U. Texas-El Paso for Hispanic students in x-ray scattering;
- Linac Coherent Light Source (FEL) collaboration with other laboratories;
- Microbeam technique development with Batterman.

SSRL has operated in an extremely productive manner. Several Users said it was a "real pleasure to do science at SSRL these days". SSRL operating statistics have been outstanding - this is important to the BES mission supporting User Facilities. The addition of Jo Stohr (Deputy Director) is welcomed, and strengthens SSRL research by adding microstructure of magnetic materials as well as polymeric materials.

**Biological and Environmental Research (BER):** SSRL structural molecular biology (SMB) research is recognized world-wide as outstanding. This highly regarded research staff is making major contributions to synchrotron science, and publishing leading-edge papers in major

scientific journals. These staffs provide outstanding service to enable SSRL Users to obtain outstanding results, evidenced by many prominent structures published during the past year. Users bring their most difficult structural problems to obtain essential data at SSRL; these facilities are highly relevant to BER program needs in the life sciences, with the redirected focus of the experimental program on study of complex biological systems.

SMB planning is outstanding, with high quality facility improvements taking advantage of new technology, consistently leading nationally with the latest detectors and instrumentation. The program is operated in a highly efficient manner, with limited BER operating funds supporting a large number of Users in crystallography, spectroscopy, and small-angle scattering. Equipment funds are expended in a highly cost-effective manner, e.g., offering Users a superior data management system put together with modest funding.

## **B. BUSINESS MANAGEMENT**

**Introduction:** Overall Business Management was rated Excellent for FY 2000. Of the eleven functional areas evaluated, seven had no change in ratings from FY 1999 to FY 2000:

- Procurement: Outstanding,
- Environmental Safety & Health: Outstanding,
- Human Resource Management: Excellent,
- Financial Management: Excellent,
- Information Management: Excellent,
- Technology & Intellectual Property Management: Excellent, and
- Equal Opportunity & Affirmative Action: Good.

Three functional areas increased ratings from FY 1999 to FY 2000:

- Personal Property: Excellent to Outstanding;
- Facilities Management: Good to Excellent; and,
- Safeguard and Security: Good to Outstanding.

One functional area was evaluated for the first time in FY 2000 replacing Legal:

- Communications & Public Affairs: Good.

The functional area successes are summarized below. The areas needing improvement are summarized in Section III.

### **Environmental, Safety & Health**

SLAC's overall rating for ES&H is Outstanding for FY 2000. This rating is based upon the combined evaluation of the ES&H outcome measures, and the Integrated Safety Management System (ISMS) process measure. FY 2000 was the second year for evaluation of the ISMS process measure, which includes eight components developed from the results of the Phase I ISMS verification (August 1998) and the Phase II validation (September 1999). SLAC

substantially completed seven of eight components of the FY 2000 ISMS process measure for the rating of Outstanding. Industrial hygiene, industrial safety, waste management and environmental restoration maintained their performance ratings from the previous year. Performance improved from Exceeds Expectations to Outstanding in the areas of waste minimization and environmental releases, while performance decreased from Exceeds Expectation to Good in a fire protection and a radiation protection performance measure. SLAC's ES&H program continued to mature, and maintained an overall Outstanding rating for FY 2000. Assessment of the effectiveness of ISM implementation in work planning and execution activities at SLAC will be major focus in FY 2001. The Stanford Site Office (SSO) and SLAC will conduct Quarterly Reviews of the effectiveness of ISM implementation in planning, performance of work, assessment, and feedback for continuous improvement. These results will provide the basis for evaluating SLAC's FY2001 performance on the ISMS process measure.

### **Functional Areas Increased Ratings**

**Personal Property:** The overall rating increased from Excellent to Outstanding for FY00. This improvement can be attributed to the following achievements: 1) SLAC's sensitive inventory results during FY 2000 which were significantly improved from 97% to 99.46%; 2) equipment inventory results were outstanding at 99.98%; 3) SLAC's aggressive efforts in the review of storage, with a release of 110 out of 308 of the items previously held in storage; and 4) a 27% reduction in the time and associated costs were achieved for check-in of excess property at the SLAC warehouse.

**Facilities Management:** The overall rating increased from SLAC performance in Project and Facilities Management is rated from Good to Excellent. This is attributed to SLAC's attention to problem areas and commitment to improvement as evidenced by the following achievements: 1) office space utilization 16% below the General Services Administration standard; 2) improved General Plant project execution; 3) establishment of the Site Engineering and Maintenance organization; 4) completion of 14 of a planned total of 17 energy management tasks; 5) increased electricity reliability with only two unplanned outages for a total duration of three hours; and 6) completion of the SLAC Comprehensive Site Plan and the SLAC University Technical Representative Guide.

**Safeguard and Security:** The overall rating increased from Excellent to Outstanding for FY2000. This improvement can be attributed to the following achievements: 1) continued decrease in reportable security incidents and 2) reduction in property losses and theft, due to an increased Security Force surveillance presence, an increase in number of installed security cameras, continued reduction in number of long term outside contractors, and ongoing publicity program regarding office and personal security.

### III. RECOMMENDED AREAS FOR IMPROVEMENT

#### A. SCIENCE AND TECHNOLOGY

None

#### B. BUSINESS MANAGEMENT

**Equal Opportunity & Affirmative Action:** The overall rating of this area was sustained at the Good level. To achieve the Excellent rating earned in FY1998, SLAC was required in FY00 to continue to demonstrate improvements in representation of minorities and women in "high priority" job groups, specifically in the areas of Mechanical Engineering and Electronics Technicians. SLAC was unable to attain those improvements in FY1999 as well as FY2000. Only two vacancies were filled in the Mechanical Engineering job group. With no minority placements, representation remained at 11.1 percent. Efforts to recruit women for the limited number of vacancies in the Electronics Technician job group continue to be unsuccessful. Out of six new hires and two promotions, there were no women applicants. However, given the laboratory's successful efforts to retain women in this job, the percentage of women rose slightly from 9.0 to 9.5 percent, although total population declined. SLAC is urged to continue to assess progress Laboratory-wide and, more specifically, in reaching full improvements in the representation of minorities and women at the Laboratory.

#### **Communications & Public Affairs:**

FY 2000 is the first year that Communications & Public Affairs had a performance measure in place; this year it replaced the "Legal" category. The overall rating in Communications & Public Affairs was Good for FY2000, the highest rating that can be obtained using a track and trend gradient. Track and trend is a term used by DOE which means that SLAC and DOE/OAK will monitor (track) data and look for areas which show consistent activities (trends). The data collected will then form a baseline for determining performance ratings. SLAC and DOE/OAK will discuss to modify the FY 2001 measures to include gradients.