

Stanford Linear Accelerator Center
Operated for the U.S. Department of Energy by Stanford University

2000 ES&H Self-Assessment Report

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Approved by:

Jack J. Hahn, Chairman
Safety and Environmental Discussion Assistance
Committee
(SEDAC)*

Kenneth R. Kase, Associate Director
Environment, Safety and Health Division

Matthew A. Allen, Chairman
ES&H Coordinating Council

*Safety and Environmental Discussion Assistance Committee (SEDAC) is composed of members that represent each of the Divisions of the laboratory.

The members are:

Technical Division	Janice Dabney
SSRL Division	Ian Evans
Business Services Division	Gail Gudahl
ES&H Division	Ellen Moore
Research Division	Frank O' Neill
ES&H Environmental Resource	Rich Cellamare
Chair	Jack Hahn

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Year 2000 Environment, Safety & Health Self-Assessment Report

I. Overview of the 2000 Self-Assessment Process

The SLAC self-assessment programs are designed to evaluate the effectiveness of the Environmental, Safety & Health (ES&H) program at SLAC. The Self-Assessment process has been designed to be integrated with, and support the laboratory's Safety Management System (SMS) required under the university's contract with DOE. This report will cover all the elements of the self-assessment process:

- Talk, Walk, Clean (TWC) Program
- ES&H Coordinating Council (ES&HCC) Quarterly Assessments
- Line Management /Building Management Assessment Program
- Worker Initiated Assessments/Behavior Based Safety (BBS)
- Independent Assessments
- Performance Measures

Evaluating the overall integration of ES&H into SLAC management and work practices at all levels is a fundamental part of the self-assessment process.

This is the fifth year SLAC has conducted the Safety and Environmental standdowns. In order to continue to improve this process, this annual event has been significantly revised this year into the TWC Program. The TWC program allows groups to choose one of three options: the traditional Safety and Environmental Discussion, or a Walk-through inspection of a predetermined area, or a Clean-up activity for a pre-designated area. Including participation of employees in safety inspections and clean-up activities has enhanced the ability of many groups to be positively and enthusiastically involved.

Each of the five SLAC Divisions continue to provide formal quarterly divisional assessment reports at the meetings of the ES&HCC. Activities covered in these reports include: Projects and Programs status, Lessons Learned, Accomplishments, Authorizations, Inspection Programs, and other assessments. The Associate Directors maintain an awareness of safety issues and concerns across divisions through these reports.

Associate Directors, Managers, and Building Managers continue to perform inspections and walkthroughs of SLAC areas and buildings through the Line Manager and Building Manager Assessment process. A working group undertook a study of the Building Manager Program this year. The strengths and weaknesses were examined and a set of recommendations was developed to improve this important system of maintaining safe and healthy working conditions at SLAC. Associate Directors' and Managers' walkthrough inspections continue to bring management and workers together to review and discuss safety concerns and issues.

The Worker Initiated Assessment Program (Behavior Based Safety) began at SLAC in July of 1999. *Safety Towards Avoiding Risk Today (START)* is the title of the laboratory program. Behavior Based Safety is a process that uses peer-to-peer

observation of safety-related behavior followed by positive verbal feedback, data collection, and problem solving to improve at-risk behaviors and the management systems that produce them. The BBS process does not involve supervisors or safety department personnel trying to change behaviors. The START Program is in the data collection stage. A report on the status and progress of the program will be completed in the near future.

The Independent Assessment Process provides professional, in-depth ES&H compliance assessments with two major assessment activities conducted each year.

The Performance Measures section of this report summarizes “outcome measures” which provide results such as rates of injuries, and “process measures” which show progress toward completion of management programs.

II. Relationship of Self-Assessment to the SMS Process

The Self-Assessment serves an important role in assuring that the Guiding Principles (GP) and Core Functions (CF) that are defined in the SLAC Safety Management System plan are carried out at the working level. Provided below are some examples of how the “Talk” portion of the TWC process directly measures or significantly affects GP’s and CF’s:

GP-1 Line Management Responsibility for Safety (through direct management participation, issue identification, and the corrective action process)

GP-4 Balanced Priorities (by setting aside a period for ES&H only, and by identifying ES&H issues that may not be getting appropriate priority)

GP-6 Hazards Controls Tailored to Work Being Performed (by evaluating the most critical environment, safety and health issues in the working unit, or SLAC-wide)

CF-2 Analyze the Hazards (guided by the wealth of actual experience within the working group, shared in an environment specially designed to encourage frank and open discussion)

CF-3 Develop and Implement Controls (affecting not only engineering controls, but employee behaviors by establishing new norms for work practices both formally and informally)

CF-4 Perform Work Within Controls (by identifying when this may not be the case, and establishing corrective plans to remedy any shortcomings)

CF-5 Provide Feedback and Continuous Improvement (by feedback through formal reports and Web site information, and by addressing root causes and affecting behaviors in the short term, and permanently affecting attitudes.)

The “Walk” activity affects the same core functions as above, but with a method that focuses on buildings and outside areas where work takes place. The “Clean” program this year provided the opportunity for senior line management to be directly involved with workers, helping to make visible line management’s commitment and responsibility for safety (GP#1), as well as affecting improvements as suggested by

CF#2 and #5. A comparison of SMS requirements to the other elements of the SLAC Self-Assessment process would suggest similar relationships between these programs.

III. Discussion of 2000 Self-Assessment Activities/Results

A TALK/WALK/CLEAN (TWC) Program

1. TWC Process

With the introduction of the Talk, Walk, Clean Program as a significant revision to the original Safety and Environmental Discussion method, many chose these new options to improve the value of ES&H in their work areas. This did not preclude the original discussion format, which 15% of the groups chose, continuing a strong and mature program. Processes used to identify teams, collect data and report hazardous conditions or safety and environmental issues remained similar to previous discussion years. A set of objectives and a clear set of focus topics allowed groups to be well prepared for their activity. In addition, SEDAC provided checklists for groups performing the Walk, extra recycling containers and garbage bins for groups performing the Clean, as well as a clear avenue for material to be taken and dropped off at SLAC Salvage. This new approach also alleviated conference room space and allowed discussion groups to be less cramped and time conscious than in past years.

On February 15, 2000, the director issued an "All Hands Memo" (Appendix A) announcing the TWC event to be held April 14, 2000. TWC team leaders were given pamphlets (Appendices B, C, D) at the kick-off meeting and referred to the Web for additional support. The TWC website (<http://www.slac.stanford.edu/esh/standdown/standdown.html>) provides full details of this year's process. SEDAC members were available to provide information for anyone not having easy computer access. In keeping with SLAC's SMS philosophy, all three programs (especially when viewed as a global program) produce an effective means of addressing "safety" issues:

- Good pre-planning ensured that the scope of work through the TWC program was well defined and that the proper resources were applied.
- Identification and analysis of hazards were performed by all groups, either through discussion or inspection process, via checklists, or at the working level as personnel cleaned their work areas.
- Controls were developed to mitigate hazards to acceptable levels or fix the problem in the short term. Talk groups proposed corrective actions, while Walk groups reported safety issues through the division, which allowed departments and groups to identify and allocate resources as necessary. Clean groups took care of issues in pre-defined areas throughout the allotted time, e.g., removing or relocating equipment, salvaging items, and performing housekeeping duties.
- At the divisional level, feedback about the success of the TWC program was promptly provided to management and the line organization via staff and group meetings and from team leaders to SEDAC representatives. Collating all the positive as well as the negative comments allows the program to be further refined for next year.

2. TWC Benefits

The primary benefit of the TWC process in the view of SEDAC, is the continued engagement of the majority of the SLAC staff toward this ES&H improvement activity. The laboratory seemed to continue to embrace the standdown process, despite this being the fifth year of a side-wide improvement activity. This year's activity resulted in identification and resolution of numerous ES&H issues, the ES&H survey of dozens of locations, and disposal or recycling of many tons of materials and equipment.

Perhaps the key to success this year was providing additional choices via the Walk and Clean activities. Providing additional choices for ES&H improvement, afforded participants the opportunity to move on to new areas of concern, as issues that had been raised in the traditional safety discussions had been resolved. In addition, the effort to convey a positive team spirit, a sense of pride in the lab, and an irreverent sense of fun were well received by most and contributed to the program's popularity and effectiveness. Creating and associating a positive experience with an ES&H effort, as opposed to the more negative experience of a traditional audit activity, has a beneficial impact that lasts well beyond the annual standdown event.

3. TWC Results

As previously discussed, Teams were given a choice of activities this year. Fifteen teams chose to do the Talk, while 38 groups chose Walk and 43 chose Clean. Some groups did both Walk and Clean. The results of the Talk Program, the Walk-through inspections, and the Clean-up events are discussed below.

3a. Talk Program

The TWC 2000 Talk Program resulted in identification of 26 issues (see Appendix B). The distribution of issues is represented in the four tables below.

Table I -- Distribution of Issues by Division

Director's Office	0
Business Services Division	0
ES&H Division	1
Research Division	5
SSRL	8
Technical Division	<u>12</u>
TOTAL	26

The top two problem types were: 1) Slips, Trips, and Falls, and 2) Transportation Safety. The top three causes were: 1) Maintenance, 2) Policy/Procedure Implementation, and 3) Improper Tools or Equipment.

Table II -- Distribution of Issues by Problem Type

Slips, Trips and Falls	8
Transportation Safety	6
Electrical Safety	1
Emergency Preparedness	1
Environmental protection	1
Hazardous Materials/Hazardous Waste Mgmt.	1
Hoisting and Rigging	1
Industrial Hygiene	1
Industrial Safety	1
Machinery and Machine Guard	1
Other (deer tick problem)	1
Seismic Safety	1
Sprains, Strains, Tendinitis	1
Struck or Injured by Object	<u>1</u>
TOTAL	26

Table III -- Distribution of Causes

Maintenance	8
Procedure/Policy Implementation	6
Improper Tools or Equipment	6
Communication of Hazards	2
Obsolete Components/Equipment	2
General Housekeeping	1
Lack of Procedures	<u>1</u>
TOTAL	26

Examples of some of the Talk issues from this year's TWC program are:

- Falling florescent lights. Recently, a florescent light fell about 50 feet onto a workbench we often work at (B26, central high bay).
- Deer population/Lyme disease/ticks
- Broken pavement on sidewalk between Main Gate and Auditorium.
- Lack of walkways around PEP Loop Road (near IR12) and the campus loop near Computer Building and SSRL present a hazard for pedestrians.
- SPEAR ring/wooden ladders: Ladders are not secured or well marked.

3b. Walk Program

38 teams chose to do walk-through inspections of rooms, buildings, labs, or outside areas. Each team filled out a "Walk Report" which was submitted to the ES&H division. Any corrective actions required were

submitted to Division/Department safety coordinators for tracking. A sampling of the results from the Walk reports follows:

- A door was marked “Exit” when in fact it did not lead out of the building.
- An impalement hazard from a sprinkler support was identified.
- A roof HVAC duct cover was discovered to be unsecured and leaning in such a fashion as to potentially fall to the ground to cause injury.
- Several breaker boxes were discovered to have access partially blocked.

3c. Clean Program

Forty-three teams chose to clean up offices, labs, or outside areas around the site. Each team filled out a “Clean Report” which was submitted to the ES&H division. The Clean effort resulted in a very significant improvement in the state of housekeeping and safety within the laboratory. The magnitude of this effort can be quantified by considering the amounts of materials collected by the Clean event. Approximately six tons of paper were recycled, or enough to form a stack approximately forty stories high. About six thousand pounds of scrap metal was recovered, approximately the weight of two compact automobiles. Twenty-seven pallets of material were delivered to Property Control for disposition. Countless dumpsters of trash were also collected and disposed of from this event. While some of the clean activity improved the cosmetics of the facility, other efforts significantly reduced potential trip hazards, egress issues, and fire hazards. Numerous pieces of government property, which could not be located using the property control system, were located by the Clean effort.

Reports received from the field suggest the spirit associated with the event. Included in the feedback received from staff were the following comments:

- *“We had cheerful participation from the entire building.”*
- *“There were quite a few comments that it was a really good thing to do and we should do it again at least once a year.”*
- *“I highly recommend to continue this annual form of checks and balances.”*

4. TWC Corrective Actions

For the Talk program, the Associate Directors assigned responsibility for issues (Appendix E) within the control of their respective divisions and referred the site-wide issues to ES&H Division, which coordinated corrective action determination through SEDAC and the ES&HCC. Examples of corrective actions that have been implemented or are in progress:

- Considering current pedestrian traffic density, and pedestrian traffic generated by planned facilities, perform a professional engineering study of pathways to see if potential for collision between autos and pedestrians can be reasonably reduced.

- Research relationship between deer populations and deer tick populations. If connection exists, suggest corrective measures as practical and appropriate based on health risk. Consider policy on other corrective measures such as cutting grass and application of pesticide in high traffic areas, as performed in Research Division.
- Investigate root cause of falling light, and make suggestions to SEM to mitigate the hazard. High priority should be given where potential exists for bulbs falling on occupied work areas.

5. TWC Evaluation of the Process, Lessons for the Future

TWC Leaders were given a concise pamphlet at the kick-off meeting and referred to the Web for additional information. SEDAC members were available to provide information for anyone not having easy computer access. This approach was well received and aligned the program with the site's attempt to conserve resources and go "paperless" when possible. Accessibility to TWC results through the Web with easy links from the ES&H Division Web Page continued to allow participants to check the status of any "Talk" issue and its related corrective action(s).

Supportive responses to the new program were noted on the various Talk, Walk, or Clean forms turned in to the Program Planning Office. The primary goals stated in the '99 summary were met: the process was kept fresh by a change of approach and leaders, and the length of attachments to the Director's All Hands memo was reduced by placing more documents on the Web at an early stage of the process.

Results this year suggest any future TWC activity would benefit from pre-event planning with Property Control.

Some ideas that should be considered are extra forklifts, more centrally located pallets, a secure staging area, pre-Clean distribution of Property Control tags, further education of departments on the necessity and methods of sorting, and the establishment of staging areas to alleviate possible storm water pollution problems caused by materials left outdoors.

Additional ideas for next year are: obtain more recycle bins for office buildings, call for volunteers for team leaders, outline a contingency plan for the Walk/Clean modules in the event of rain the day of the standdown, and consider more specificity for the report format of Walk/Clean.

B. ES&H Coordinating Council Quarterly Divisional Assessment

Each of the five SLAC Divisions provided a quarterly divisional report at meetings of the ES&H Coordinating Council (ES&HCC) during the year. These reports document the environment, safety and health activities that occur at the line level. The ES&HCC review of the line activity provides an assessment of how well the SMS philosophy is played out in the field. The DOE Integrated

Safety Management System's (ISMS) terminology as applied at SLAC provides the following Guiding Principles (GP's) and Core Functions (CF's).

Guiding Principles

- GP1: Line Management Responsibility for Safety
- GP2: Clear Roles and Responsibilities
- GP3: Competence Commensurate with Responsibilities
- GP4: Balanced Priorities
- GP5: Identification of Safety Standards and Requirements
- GP6: Hazard Controls Tailored to Work Being Performed
- GP7: Operations Authorization

Core Functions

- CF1: Define the Scope of Work
- CF2: Analyze the Hazards
- CF3: Develop and Implement Hazard Controls
- CF4: Perform Work Within Controls
- CF5: Provide Feedback and Continuous Improvement

While the activities assessed by the ES&HCC in these quarterly reports are too numerous to mention in this report, a list of some of the more notable accomplishments as reported are provided below. Also provided is a code following each item that indicates the relationship of each activity to the numbered SLAC Core Function (CF) or Guiding Principle (GP).

- *“The Technical Division Associate Director performed his annual walkthrough of all Technical Division areas, accompanied by the pertinent assistant director, department head, building manager, and a pre-assigned OSC representative from the division. Observations were noted by participants for further action (if not remedied immediately).” (GP#1; CF#5)*
- *“The Power Conversion Department safety coordinator continues to lead very comprehensive meetings with the accelerator maintenance crews (3 shifts, 2 meetings) on a monthly basis. The forum enables the crews to be updated on new ES&H policies and procedures and to discuss and see follow-through on any hazards they have noted.” (CF#2, #5)*
- *“The San Mateo County inspector was very impressed with the condition of our site and reported that there were no major violations (spills, open containers, stored incompatibles, etc.). He commended all of us for our hard work following the citations issued by the previous inspector. Special commendations go to MFD's Plating Shop (the cleanest he's seen), all of the machine shops, and the auto repair area. Staff in all areas were cooperative and knowledgeable, and any minor infractions were oftentimes resolved on the spot.” (GP#2, #3; CF#5)*
- *“Mechanical Fabrication Department head expressed concern about department personnel using “visitor” safety glasses in the performance of their work. Department safety coordinator reports “as a result, we procured various samples of optically correct safety glasses, asked our personnel to evaluate the samples, and then ordered quantities of one model that was*

universally rated to be the most comfortable and effective. As a result, all MFD machinists (who do not already wear prescription safety lenses) are now equipped with optically corrective safety glasses, and the department maintains a backup stock for distribution to MFD employees in all the additional groups.” (GP#6; CF#2, #3)

- *“The July Interaction Point contained an article by Environmental Protection & Restoration about the ES&H Environmental Achievement Awards. Numerous Technical Division persons or groups were called out for their notable efforts.” (GP#3; CF#5)*
- *“SPEAR3 was presented to the SLAC Safety Overview Committee. Many committees have a vested interest and agreed to start communicating with project system managers now, in order to fully understand the extent of the proposed changes.” (GP#1, #5; CF#2, #3)*
- *“Issues from the 1999 Safety Standdown: six site-wide issues. (Entered into the SLAC Facilities Safety Action database), thirteen issues closed (Hazardous materials training, rodent problem, trailer walkways and lighting), three issues semi completed (recycling issues, B137 traffic mirror and emergency plan update) and two in review (housekeeping issues).” (GP1; CF#2, #5)*
- *“Added emergency lights to B120 chemical labs, upgraded emergency light system in B137 and closed out a couple of major lighting improvements in one of the machine shops and around the trailer complex. Staff becoming more aware of the need for ES&H and requisite planning and costing involved.” (GP#4, #6; CF#3, #5)*
- *“This year many of the SSRL groups performed Walk Inspections or Clean Up activities. Initial feedback indicates that these programs were well received. We are still collating information from the inspection and Talk activities, however preliminary data is encouraging, in that many of the items can be fixed relatively easily in house and do not require large resources (time or money).” (GP#1, CF#2, #5)*
- *“The Preliminary Fire Hazards Analysis was reviewed and approved by the relevant SLAC personnel and submitted to the DOE site office, along with a request for a ‘Permanent Equivalency’ for non-compliance of SPEAR3 with the provisions of automatic suppression system (fire sprinklers) in the accelerator housing. Approval by the DOE of the PFHAD and issuance of the ‘Permanent Equivalency’ was given in June. (GP#4, GP#5, GP#6, GP#7, CF#2, CF#3)*
- *E-158 Program (Hydrogen Target), Safety Reviews - HEEC (Citizen Committee) review process included preliminary meetings with key HEEC members, committee meeting to review design concept and formal review to approve the design; separate HEEC approvals will be required for testing and*

normal operations. External review by outside safety experts was completed in April.” (GP#1, #6; CF#2, #3)

- *“BaBar Program, Permit Required Confined Space (PRCS) - The Silicon Vertex Tracker nitrogen purge has been replaced with dry air thereby eliminating one of the hazards in the PRCS.” (GP#6; CF#2, #3)*
- *“Research radiation sources have been reassessed for usage and consolidated under one subcustodian.” (GP#2, CF#5)*
- *“Research demolition activity included the removal of Bldgs. 110, 114, and 220; job hazard analysis and safety briefings were completed for this high hazard activity.” (GP#6, CF#2, CF#4, CF#5)*
- *“Research Division AD safety walkthroughs are conducted for each RD Experimental Group and are scheduled approximately once per month.” (GP#1; CF#5)*
- *“Within the parameters of California State Law, Security is now enforcing the policy of removing abandoned vehicles. Accumulated vehicles have been disposed of; new ‘finds’ are handled as they appear. This action mitigates problems of soil/water contamination by leaking, abandoned vehicles.” (CF#2, #3)*
- *“Security published an article in the SLAC Bulletin Board alerting staff/users to SLAC rules-of-the-road and pedestrian safety.” (CF#2, #5)*
- *“A Behavior Based Safety Program is currently in place in several departments facilitated by the ES&H Division.” (CF#2, CF#5)*

C. Line Management/Building Manager Assessments

A program of structured line management and building manager assessments are part of the overall self-assessment effort. These activities are reported routinely to the ES&HCC Coordinating Council Quarterly Divisional Assessment process previously described. Many of the examples of issues uncovered and reported to the Council are from these two activities. Detailed records of these inspections are maintained by the line and building managers.

D. Worker Initiated Assessment Program

The Worker Initiated Assessment Program is a behavior-based safety (BBS) process. This peer-review process is designed to allow workers to initiate an assessment of both safe and at-risk behaviors and to generate recommendations to improve workplace safety. The objective of BBS is to reduce the probability of an employee sustaining an injury or illness. Figure 1 shows the lines of communication in BBS, and where some of the guiding principles and core functions of ISMS are in the process.

1. BBS Process

The key group for identifying and analyzing safe and at-risk behaviors is called the START (Safety Toward Avoiding Risk Today) Team. It consists of employees from the Site Engineering and Maintenance Department (SEM) and the Operational Health Physics Department (OHP) and is divided into two functional sections: the Steering Committee and Observers. Observers provide peer reviews. The Steering Committee analyzes at-risk behaviors within SEM and OHP work areas. The Steering Committee will provide START Team suggestions to the appropriate Citizen Committees and SLAC departments to effect changes in work environments or safety policies or procedures. A management sponsor, a member of the ES&H Coordinating Council (ES&HCC), is a direct management contact for the START Team to provide guidance and resources needed to effect changes in work environments or safety policies and procedures. The manager sponsor also helps keep START Team suggestions and the BBS program visible to the upper management.

Prior to initiating the BBS process, the SLAC Union Steward and members of the SLAC Bargaining Unit participated in a meeting to discuss the BBS process. Bargaining Unit members participate as Steering Committee members and Observers.

The BBS process consists of five major steps shown in Figure 1:

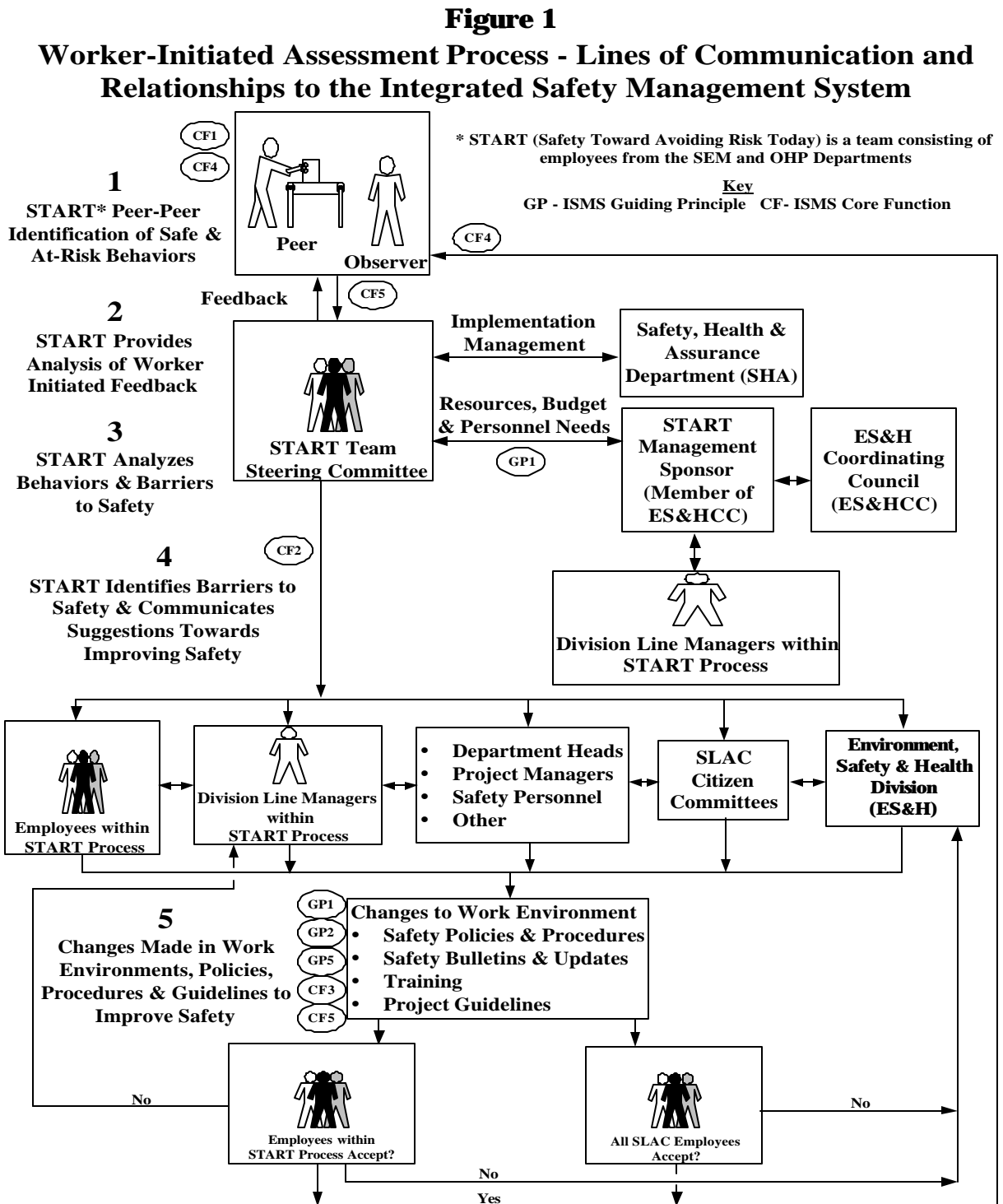
1. START Team peers and workers identify safe and at-risk behaviors.
2. START Team provides analysis of worker-initiated feedback.
3. START Team analyzes behaviors and barriers to safety.
4. START Team identifies barriers and communicates suggestions toward improving safety.
5. Changes are made in work environments, policies, procedures or guidelines to improve safety.

The START team can bring recommendations for correcting at-risk behaviors to the Safety, Health and Assurance (SHA) Department, SLAC Citizen Committees or to department heads, project managers, safety managers, University Technical Representatives (UTR's), or others that can address changes to the work environment. These changes are used to eliminate the safety barriers that were originally identified in the worker initiated assessment and may also be presented to effect changes throughout the entire SLAC site (Step 5).

2. Management Participation

SLAC management has been indirectly involved in the BBS process in tasks ranging from ES&HCC approval of funding for BBS, to an employee who needs time for an observation. To date, there have been two meetings with the ES&HCC to discuss BBS. A third meeting is scheduled for September 2000. The managers and supervisors within both OHP and SEM have actively worked with the Steering Committee and Observers to participate

observations, to attend ownership meetings, and to avert scheduling and budgetary constraints



3. Milestones

- Behavior Based Safety Process Implementation Kickoff, 7/23/99 – Completed
- Leader Training conducted, 7/23/99 – Completed
- Critical Behaviors Inventory (CBI) Development Training conducted, 8/27/99 – Completed Critical Behaviors Inventory (CBI) Tool developed and piloted, 9/30/99 – Completed
- Observer Training conducted, 11/19/99 – Completed
- BAPPTTrack Software Training conducted and data entry initiated, 2/14/00 – Completed
- Assessing & Improving Observation Quality & Coaching conducted, 3/17/00 – Completed
- Status of Behavior Based Safety Pilot Process presented to ESHCC, 4/10/00 – Completed
- Behavior Action Planning, 5/24/00 – Completed
- Behavior Based Safety Process Review, 7/25/00 – Completed
- Status of Behavior Based Safety Pilot Process presented to ES&HCC, 9/25/00 –

On-going Actions:

Identification of Critical Behaviors, Observations (Data Collection & Feedback), Reduction/Elimination of Barriers, and Action Planning

4. Observations, Data Generation, and Action Planning

Appendix F provides a summary of observation results from the Behavior Based Safety Program. Since November 19, 1999, there have been in excess of 200 observations conducted. During the observation and feedback process, data and information are collected. They are then entered into a software database where reports can be generated to ascertain specific information with respect to at-risk behavior trends. These data are used by the Steering Committee to generate action plans. To produce quantifiable data, reports are generated and reviewed by the Steering Committee. The review process, a method of quality control, ensures that correct barriers to safety are identified by consensus and entered into the database. Along with barriers to safety, detail of observations, appropriateness of the categories, and feedback levels are reviewed to ensure that entry personnel correctly interpreted these items. The database is modified to reflect any changes from the review process. The barrier reports are generated from the database to aid in the Action Planning phase.

The Action Planning phase requires quantifiable data to develop the steps necessary to address an at-risk behavior trend. After a trend is identified, an action plan is generated to inform at-risk work group(s). The Steering Committee will seek the assistance from employees who may or may not work within the targeted population for behavior based safety. With respect to the last action plan, the Steering Committee needed assistance from

individuals within the following departments: SHA, Training, OHP, and SEM.

E. Independent Assessments

The program of independent assessments is coordinated by the Quality Assurance and Compliance Group. Independent assessments include three major elements: 1) multi-disciplinary assessment of projects from ES&H and building code requirements by ES&H Division professionals, 2) safety and environmental field surveillance by QAC personnel, and 3) subcontracted multi-disciplinary semi-annual audits, provided this year by Dames and Moore. All three activities provide assurance that applicable regulations, SMS, and other requirements are implemented.

Multi-disciplinary assessments for SLAC projects were numerous this year, and are on record in the Quality Assurance and Compliance Group. Safety and environmental field surveillance activity is also an ongoing activity, with unresolved issues tracked by the Program Planning Office. Dames and Moore (D&M) activities included an assessment of the following topic areas:

Hazardous Materials Management
Hazardous Waste Management and Treatment
Department of Transportation Requirements
Radioactive Material Management Program Assessments

The results of this Dames and Moore activity is summarized in report 41427-004-179 available from the Quality Assurance and Compliance Office. Assessments of the following topic areas occurred in September of 2000, with the report currently in progress.

- General Health and Safety
- Industrial Hygiene
- Electrical Safety
- Asbestos
- PCB/TSCA

F. Performance Measures

The laboratory uses performance measures to track ES&H progress each quarter. The performance measures consist of: 1) outcome measures, which provide results such as injury rate, and 2) process measures, which show progress toward completion of management programs such as the Behavior Based Safety program.

Process measure information is provided in Appendix G. Overall, good progress has been made in ES&H performance as demonstrated by the specific information provided in the appendix.

Appendices

- A. Director's All Hands TWC Memo
- B. Talk Pamphlet
- C. Walk Pamphlet
- D. Clean Pamphlet
- E. Talk Issues List
- F. Worker Initiated Process Results or BBS Observation Results
- G. CY 2000 ES&H Performance Measures

APPENDIX A
Director's All Hands TWC Memo



SLAC Director's Office All Hands Memo

TO: All Hands

FROM: Jonathan Dorfman, Director

DATE: February 15, 2000

SUBJECT: **Site-Wide Safety and Environmental Talks, Walks & Cleanups, 14 April 2000**

In our ongoing effort to make SLAC a safer and healthier place, we will hold a revised version of our previous safety and environmental standdowns on Friday, 14 April, from 8:00AM to 10:00AM.

As in previous years, operations will cease for that period, and the accelerator and critical processes in other areas will go into an appropriate stand-by condition. This year, the division groups will have a choice of three methods of action, as outlined in the attached list of Focus Topics:

- ✓ **Talk:** the format of the past, in which the suggested focus topics are used to generate discussion that leads to two documented concerns;
- ✓ **Walk:** in which small groups will use the applicable sections of a checklist to determine possible hazards in areas pre-defined by the group; or,
- ✓ **Cleanup:** a two-hour housekeeping effort in areas pre-defined by the group.

Materials to assist Talk/Walk/Cleanup (TWC) Leaders have been developed by the Safety and Environmental Discussion Assistance Committee (SEDAC), who coordinate this program, and are viewable on the ES&H Division TWC 2000 Web site at <http://www.slac.stanford.edu/esh/standdown/standdown.html>

In addition, a TWC Leaders' Orientation is scheduled for Monday, 27 March, from 1:30 PM to 2:30 PM in the Auditorium. The associate directors will be asked to confirm their TWC group leaders and their activity preference for this year shortly.

We hope that the revised version of this annual safety event will freshen the process so that people will participate even more than in the past. Talk groups are encouraged to come up with new ideas, and Walk groups will have their efforts credited as one of the required building manager walkthroughs if the entire building is inspected. Cleanup groups should review the guidelines available on the Web to understand the scope of this event, and we encourage "before & after" photos for publication in a future Interaction Point!

I encourage all of you to take this annual opportunity to renew the safety & environmental awareness which should be present in your departments throughout the year. As you know, the ES&H Division, your department or division safety coordinators, and the Operating Safety Committee serve as your resources on a day-to-day basis. On April 14th, we experience a unique two-hour opportunity to upgrade the safety and environment of our laboratory together.

I look forward to hearing the results of these sessions and continuing the ongoing effort to improve our safety and environmental performance.

Attachment

STANFORD LINEAR ACCELERATOR CENTER
Operated for the Department of Energy by Stanford University

APPENDIX B
Talk Pamphlet

**TALK, WALK, CLEAN (TWC) 2000
Program**

“TALK”

Team Leader Instruction Pamphlet



<http://www.slac.stanford.edu/esh/standdown/standdown.html>

Purpose of This Pamphlet:

This instructional pamphlet is for Team Leaders who have chosen the “TALK” choice in the TWC Program. The “TALK” process is similar to the SLAC Safety and Environmental Discussions from previous years. Those interested in a “WALK” or “CLEAN” choice should see the instructions for these items.

All instructions are accessible from the Web at:
<http://www.slac.stanford.edu/esh/standdown/standdown.html>

For Team Leaders who do not have Web access, hard copy materials are available from your Divisional SEDAC representative:
ES&H/DO - Ellen Moore, TD - Janice Dabney,
SSRL - Ian Evans, BSD - Gail Gudahl, or
RD - Frank O’Neill.

Objectives of the Team “TALK”:

With reference to the Focus Topics listed below,

- Discover 2 significant deficiencies in our work habits, or our work or general site areas that, left uncorrected, may adversely affect the environment, safety or health conditions at SLAC,
- Develop a statement of cause, and
- Suggest a brief corrective action plan.

Ideally, the team will uncover at least one issue that can be corrected by the team. New issues that have not been reported in previous years are also encouraged.

Focus Topics/“TALK” Program Tools:

Focus Topics are based on the most common injuries, illnesses, and environmental issues as reported in FY99, as well as potentially high impact events (serious injury, death, chemical explosion, fire, etc.).

- Strains and Sprains from lifting
- Abrasions/Contusions/Lacerations
- Slips/Trips/Falls
- Hazardous Materials and Hazardous Waste Handling
- General Office and Ergonomic Habits

Related to this information is a detailed listing of what individuals can do to prevent the accidents suggested by the Focus Topics. Focus Topics and this detailed listing can be found under “Talk” Program Tools on the TWC Program Web site.

Pre-“TALK” Checklist for the Team Leader:

- ☐ All operations will cease between 8:00 a.m. and 10:00 a.m. Friday, April 14th. The accelerator will go into a standby condition. With Division management, determine the affect of your team’s participation on standby operations. If support problems exist, or problems with off-shift operations occur, generate an alternative time on _____ or _____.)
- ☐ Arrange a meeting place and notify your team of the place and time.
- ☐ If a blackboard is not available in your meeting room, gather flip chart style paper and marking pens so ideas can be recorded by an appointed secretary and displayed during the “TALK”.
- ☐ Encourage your team to review Dr. Dorfman’s All Hands memo of February 15, 2000, and the Focus Topic attachment pertaining to the “TALK”. A copy is available under “Director’s Memo” on the TWC Program Web site.

- ☐ Encourage your team to review the "TALK" Program Tools on the Web site.
- ☐ Encourage your team to read the S&E Discussion Information from Previous Years to provide a summary of corrective actions from the previous S&E program.
- ☐ The Team Leader should review the TWC "TALK" Phase One form on the Web to determine the information that he/she will collect during the "TALK" meeting.

Ground Rules for Conducting the "TALK" Brainstorming Activity:

1. Conduct "TALK" activity on Friday April 14th from 8:00 – 10:00 am.
2. In a brainstorming fashion, have the team think about reported/unreported accidents, near misses, incidents or unsafe behaviors experienced by your team, that relate to the Focus Topics. Try to raise new issues.
3. Think about the nature of work performed by your team and the areas where this work is done.
4. Allow each team member an opportunity to offer their issues of concern for a team vote.
5. Record all suggestions on a blackboard or paper.
6. One issue should be able to be corrected by the team.
7. Openness and candor are key to the discovery of dangerous or unsafe conditions. Respect for each persons suggestion is critical. Discussions on the merit of a suggestion should be avoided. Discussions clarifying a suggested issue should be brief.

Steps for Conducting the "TALK":

Discovery of Issues/Concerns:

- ☐ Explain the "TALK" objectives and rules for brainstorming. *(Note - If you would like a script to follow, see the TWC Program Web site.)*
- ☐ Brainstorm by polling each member in turn for a suggested issue. Continue until each member has had the opportunity to suggest three issues. Record each suggestion on the board/paper viewable by all.
- ☐ Allow for brief discussion of the suggested issues.
- ☐ Vote. Allow each member, in turn, to vote for their issue of most concern. Each member has three votes only. The two issues with the most votes become your first and second choices.
- ☐ The issue receiving the most votes is issue #1; the issue receiving the next most votes is issue #2. Hopefully one of these two issues can be addressed and corrected by the team itself.

Develop a Statement of Cause and a Suggested Corrective Action:

- ☐ Members volunteer ideas describing the condition or activity they feel resulted in the dangerous, unsafe or environmental issue.
- ☐ By polling the team members, determine which of the causes suggested is the single circumstance most likely to result in the issue being discussed. Each member has up to three votes toward the discovery of a single cause for each of the two issues under discussion.

- ☐ With the cause for each issue in mind, the team develops a suggested corrective action for each. The majority rules in the case of disagreements.
- ☐ The team assesses if "there is danger of immediate death or serious physical harm, or there is a clear and present danger of contamination of the environment" requiring immediate action.

Steps After the "TALK" Activity:

- ☐ If the team decided that immediate action is required as defined above, the Team Leader alerts their Division Associate Director and the Associate Director of ES&H, Ken Kase, ext. 2045, by phone, immediately.
- ☐ By close of business Monday, April 17th, the Team Leader is to report the two issues using the TWC "TALK" Phase One form found on the TWC Program Web site.

If the Team Leader does not have Web access, mail the "TALK" Phase One form to the Associate Director responsible for the team, and send a copy to the Associate Director for ES&H Ken Kase, MS 84, both by April 17th.

APPENDIX C
Walk Pamphlet

**TALK, WALK, CLEAN (TWC) 2000
Program**

“WALK”

Team Leader Instruction Pamphlet



Purpose of This Pamphlet:

This instructional pamphlet is for Team Leaders who have chosen the “WALK” choice in the TWC Program. The “WALK” process is similar to the bi-annual Building Manager walk-through assessments. Those interested in a “TALK” or “CLEAN” choice should see the instructions for these items.

All instructions are accessible from the Web at:
<http://www.slac.stanford.edu/esh/standdown/standdown.html>

For Team Leaders who do not have Web access, hard copy materials are available from your Divisional SEDAC representative:
ES&H/DO - Ellen Moore, TD - Janice Dabney,
SSRL - Ian Evans, BSD - Gail Gudahl, or
RD - Frank O’Neill.

Objectives of the Team “WALK”:

To conduct a walk-through inspection of pre-defined indoor and/or outdoor areas for environment, safety and health concerns. This walk-through if applied to the entire building, may also fulfill one of the two bi-annual Building Manager walk-throughs. The output from this activity will be a list of facility-related issues requiring attention, with corrective actions to be coordinated by the organizations involved in the “Walk”.

Focus Topics/“WALK” Program Tools:

Focus Topics are intended to suggest general items that may be worth considering in walking through the facility or outside areas. These Focus Topics have been developed in part based on known problems that have been discovered on previous walk-throughs. There are four major categories of Focus Topics:

1. Building/Outdoor area (generally applicable topics):

Earthquake readiness, electrical safety, fire safety, general workplace environment, ventilation, noise, eating areas /food storage, warning and hazard signs.

2. Building/Outdoor area (special topics - may not be applicable to all areas):

Abandoned materials and facilities, chemical storage, hazardous waste, compressed gases, compressors and compressed air, cranes and hoists, material handling, oxygen deficiency and confined space, personal protective equipment, radiation and radioactive materials, and welding, cutting, and brazing.

3. Storm Water, Creek & Bay Protection:

Leaking chemicals, protection of storm drains, spill readiness.

4. Hazards unique to your building/outdoor area (team defined):

A detailed listing of suggestions for what to look for related to the Focus Topics can be found under “WALK” Program Tools on the TWC Program Web site.

Pre-“WALK” Checklist for the Team Leader:

- ☐ All operations will cease between 8:00 a.m. and 10:00 a.m. Friday, April 14th. The accelerator will go into a standby condition. With Division management, determine the affect of your team’s participation on standby operations. If support problems exist, or problems with off-shift operations occur, generate an alternative time on _____ or _____.)

<http://www.slac.stanford.edu/esh/standdown/standdown.html>

- ☐ Define an area that the "WALK" activity will cover. Consider including an outside area closest to your building if ES&H problems are anticipated.
- ☐ Consider coordinating with other teams that may be planning a "WALK" activity, especially in the same building. For a list of leaders choosing the "WALK", see the TWC Program Web site.
- ☐ If you inspect the entire building, this can serve as one of the required bi-annual Building Manager inspections. Plan to cover an area that can be inspected in approximately two hours.
- ☐ Encourage your team to review Dr. Dorfan's All Hands memo of February 15, 2000, and the Focus Topic attachment pertaining to the "WALK". A copy is available under "Director's Memo" on the TWC Program Web site.
- ☐ Encourage your team to review the detailed "WALK" checklist found under "WALK" Program Tools on the TWC Program Web site. This is an important document and offers guidance on what to consider when reviewing buildings. Determine in advance what items from this checklist might apply to your circumstances and plan accordingly. Define any unique hazards that you may want to look for during your activity.
- ☐ Print several hard copies of the "WALK" Checklist to be used as a reference for your team as you perform your "WALK" activity.
- ☐ Consider the safety of the "WALK" activity you intend to perform. Hazardous activities including but not limited to entering confined spaces, inspecting items at height, entering electrical substations, and the like should be avoided. Consider inspection

risks against rewards and err on the side of safety. If work includes inspecting grassy outdoor areas take precautions against ticks.

- ☐ Appoint a secretary to take notes on what you find during the course of your area walk-through.

Steps for Conducting the "WALK":

- ☐ Walk the areas defined in the scope of your inspection using the Focus Topics and the detailed "WALK" Checklist as a guide. (Note: Do not feel required to systematically go through all checklist items in all areas; use the checklists as a reference only).
- ☐ Introduce yourself if necessary to anyone you may encounter in the area inspected, and state your purpose.
- ☐ Have the secretary note any ES&H deficiencies, and the area where they occur.
- ☐ The team assesses if "there is danger of immediate death or serious physical harm, or there is a clear and present danger of contamination of the environment" requiring immediate action.

Steps After the "WALK" Activity:

- ☐ If the team decided that immediate action is required as defined above, the Leader alerts their Division Associate Director and the Associate Director of ES&H, Ken Kase, ext. 2045, immediately by telephone.
- ☐ By close of business Monday, April 17th, the Team Leader is to summarize the scope of the "WALK" activity using the TWC "WALK or CLEAN" Report Submittal Form found on the TWC Program Web site

If the Team Leader does not have Web access, mail the Report Submittal Form to

the Associate Director responsible for the team, and send a copy to the Associate Director for ES&H, Ken Kase, MS: 84, both by April 17th.

APPENDIX D
Clean Pamphlet

TALK, WALK, CLEAN (TWC) 2000
Program

"CLEAN"

Team Leader Instruction Pamphlet



<http://www.slac.stanford.edu/esh/standdown/standdown.html>

Purpose of This Pamphlet:

This instructional pamphlet is for Team Leaders who have chosen the "CLEAN" choice in the TWC Program. The "CLEAN" choice is a site wide team clean up activity. Those interested in a "TALK" or "WALK" choice should see the instructions for these items.

All instructions are accessible from the Web at:
<http://www.slac.stanford.edu/esh/standdown/standdown.html>

For Team Leaders who do not have Web access, hard copy materials are available from your Divisional SEDAC representative:
ES&H/DO - Ellen Moore, TD - Janice Dabney,
SSRL - Ian Evans, BSD - Gail Gudahl, or
RD - Frank O' Neill.

Objectives of the Team "CLEAN":

With Reference to the Focus Topics listed below,

- *Perform* hands-on team clean ups of pre-designated indoor and/or outdoor areas at SLAC,
- *Summarize* briefly, and *document* the scope of the "CLEAN" activity, and
- *Generate* before and after photos of areas (optional), for sharing with SLAC staff.

"CLEAN" Focus Topics:

Focus Topics have been developed to offer suggestions for "CLEAN" program projects. These Focus Topics are:

- **Improve safety**
Clear walkways, trip hazards and remove potentially falling objects.
- **Improve workspace utilization and productivity in work or office area.**

- **Improve to meet environmental objectives**

Organize for recycling, allow for inspection of potentially leaking or overdue hazardous material/waste containers, etc.

- **Improve appearance of facility**

To maintain pride in the lab and good image to visitors.

- **Areas of interest to the team.**

Pre-"CLEAN" Checklist for the Team Leader:

- ☐ All operations will cease between 8:00 a.m. and 10:00 a.m., Friday, April 14th. The accelerator will go into a standby condition. With Division management, determine the affect of your team's participation on standby operations. If support problems exist, or problems with off-shift operations occur, generate an alternative time on _____ or _____.)
- ☐ Encourage your team to review Dr. Dorfan's All Hands memo of February 15, 2000, and the Focus Topic attachment pertaining to the "CLEAN". A copy is available under "Director's Memo" on the TWC Program Web site.
- ☐ Considering the Focus Topics, and confirming with your team, define an area inside or outside buildings at SLAC that will be the focus of your team's "CLEAN" effort. Cleanup time should be limited to the 2-hour session or at the discretion of the team and management.
- ☐ Select a staging area for collection of solid wastes or recyclable materials (not hazardous or radioactive wastes).

- ☐ Arrange for extra containers, if needed, to collect trash or recyclable materials.

- ☐ By March 30, 2000:

- Call Site Engineering & Maintenance (SEM) Department for extra containers or dumpsters to collect trash or recyclable paper/beverage cans/bottles, ext. 8901,
- Call Property Control for collection containers to collect scrap metals, ext. 2329, and to plan for their pick up of other salvage items.
- Locate your staging area for collected materials so that normal operations are not disrupted while Property Control and/or Labor Pool schedule removal.

- ☐ For recycling information, consult web page <http://www-group.slac.stanford.edu/fac/recycling/body.html> to develop plans to properly segregate and dispose of recyclables (cardboard, papers, cans/bottles, etc.)

- ☐ If planning to clean an area to prevent storm water pollution and storm drain plugging, check Storm Water Best Management Practices Consult Web Page. <http://www.slac.stanford.edu/esh/reference/Stormwater/stormwaterBMP.html>.

- ☐ Due to regulatory constraints, do not plan to clean up any hazardous or radioactive wastes or materials during the "CLEAN" period. Do not plan on removing materials from RMMA's during the "CLEAN" period.

Contact the Waste Management department, ext. 2399 for hazardous waste disposal and Operational Health Physics (OHP), ext. 4299 for radioactive waste disposal before

or after, but not during the "CLEAN" period.

- ☐ Specify a team assembly point/time and notify each participant.
- ☐ Work must be safe and must not require respiratory protection, involve confined spaces, or require working at heights. Arrange for any brooms, gloves, eyewear and other protective equipment as appropriate. Contact Industrial Hygiene (IH) at ext. 4105 if you have questions regarding protective equipment.
- ☐ Arrange for a camera to take before and after photographs if acceptable to the team. These photos may be shared with SLAC. Contact your SEDAC representative mentioned above if you don't have access to a camera.
- ☐ Take "before" photograph(s) of the area(s) to be cleaned. (Optional)

Steps for Conducting the "CLEAN" Activity:

- ☐ Have members put on any appropriate personal protective equipment,
- ☐ Have the team clean the area, placing solid waste, recyclables, and salvage items at the preplanned staging areas (not hazardous or radioactive waste or materials),
- ☐ Take an "after" photo (optional).

After The "CLEAN" Activity:

- ☐ By close of business Monday, April 17th, the Team Leader is to summarize the scope of the "CLEAN" activity using the TWC "WALK or CLEAN" Report Submittal Form found on the TWC Program Web site.

If the Team Leader does not have Web access, mail the Report Submittal Form to the Associate Director responsible for the team, and send a copy to the Associate Director for ES&H, Ken Kase, MS: 84, both by April 17th.

Also mail any photos to the Program Planning Office at MS: 84.

APPENDIX E

Talk Issues List

Talk, Walk, Clean 2000 Issues List (Talk Program)

Issue ID	Issue Description
SLSAFT00-001	Leaking roof in Bldg. 084
SLSAFT00-002	Broken pavement on sidewalk between main gate and auditorium
SLSAFT00-003	Bookcases and file cabinets not bolted down in rooms 310, 314, 316, 318, 322, 324, 327, 329, 328, 332, 332A, 347, 306, 361, 363, 349, 351, 353, 355
SLSAFT00-004	#1 Hedges at parking area entrances and exits (throughout the site) obstruct driver's view.
SLSAFT00-005	#2 Exercisers using north & south Gallery Road are a traffic hazard.
SLSAFT00-006	Workers in offices located near B41, Room 107, Printer/Copier Room (more than half the offices on this floor) complained about the loud noise coming from the printing/copying machines. The noise is very distracting and leads to reduced productivity. Loosely speaking, this could be considered a health hazard, as the people affected become quite irritable, depressed, and in general bad-tempered.
SLSAFT00-007	Over-all lighting on exit path and bridge very dim in evening. Also, the path is very uneven. These could lead to a slip or fall accident.
SLSAFT00-008	Lack of sidewalks on the main loop road, especially between Central Lab area and the TCC building, so people walking to training sessions in the TCC have to walk on the road. In other places there are sidewalks but they have never been tarmac'd, they are compacted dirt and become muddy and slippery when it rains.
SLSAFT00-010	In response to previous safety standdowns, during which outside wooden steps were identified as slip hazards, many such steps had a "corner bead" open metal mesh added to their edges. But this correction in fact has problems: people trip up when their shoes catch on the metal, they are slippery when wet, people wearing sandals have gotten their toes slashed by the sharp metal mesh.
SLSAFT00-011	There is a metal containment provided, but there is no shield to prevent rain from flooding the containment device.
SLSAFT00-012	Due to inadequate storage space, equipment tends to be left setting (overflow) into undesignated areas. Sometimes attention is not given to clutter in and around the area.
SLSAFT00-013	Linac Modulator cabinets: AMW maintenance crew cannot safely lock off the 120 VAC control power circuit breakers which feed these power supplies, when working on the units. The old circuit breakers cannot be mechanically locked off, only tagged. Technicians and supervisors feel this is a significant electrical hazard.

Talk, Walk, Clean 2000 Issues List (Talk Program)

Issue ID	Issue Description
SLSAFT00-014	When technicians and engineers are working on hazardous equipment, we are supposed to surround the area with special yellow tape to warn others not to enter the area. However, there is usually no sign or indication of what exactly the hazard is (electrical, chemical, spilled oil, water leak, rotating machine, radiation, components at high temperatures, etc.) We felt that this might be a hazard to people who walk by and are unfamiliar with the equipment being worked on, who might not know exactly what the hazard is.
SLSAFT00-015	Falling florescent lights. Recently, a florescent light fell about 50 feet onto a work bench we often work at (B26, central high bay)
SLSAFT00-016	Some generators of hazardous waste are having difficulties understanding the current generic descriptions used on "Hazardous Waste Identification Labels" (i.e. Non-Halogenated Solvents). Therefore, it may not be clear as to what type of waste is to be placed in the container(s).
SLSAFT00-017	We need to cut a notch in our fence for the crane box. Now the crane operator typically stands outside the fence and is not close enough to the piece he is lifting.
SLSAFT00-018	Deer population/Lyme disease/ticks
SLSAFT00-019	Site traffic patterns around Cent. Lab need to be evaluated. Islands from parking areas should not have been replaced.
SLSAFT00-020	Pedestrian Sidewalks: There are many places with no sidewalks. There are sidewalks behind parking spaces and gateways that are dangerous. There are still speeding cars. Entrance to gate 17 is too tight. When walking from gate 17 to Bldg 120, pedestrians are hidden from drivers backing out of parking spaces. Pedestrians must go out into PEP Ring Road to skirt Bldgs 725, 726 and 727. People speed by Bldg 120 and pedestrian walkways. Need sidewalks between gate 17 and the Training Center.
SLSAFT00-021	SPEAR ring: wooden ladders: Ladders are not secured or well marked.
SLSAFT00-022	Lack of walk ways around PEP Loop road (near IR12) and the campus loop near computer building and SSRL present a hazard for pedestrians.
SLSAFT00-023	Lighting on walk ways near training center and between sector 30 guard gate and MCC should be improved.
SLSAFT00-024	Close off B137 shelter/doors swing open with wind gusts
SLSAFT00-025	All B120 stairs need to be skid proof (2 accidents in our group alone)
SLSAFT00-026	Because the computer support staff offices are located in trailers 292 & 293 (up several steep stairs) they are forced to haul heavy computer equipment up and down on a regular basis. This was considered a very high-level concern.
SLSAFT00-027	Hanging pictures with heavy frames & glass need to be secured.

APPENDIX F
Worker Initiated Process Results or BBS Observation Results

START Data Reports

▣ CBI® TABULAR REPORT [all records]

From 10/01/1999 to 07/31/2000

Total number of sheets used in this report 164
 Average number of items marked per sheet 9.3

		BEHAVIORS			SHEETS	
		Safe	At Risks	% Safe	Sheets	% Sheets
P.P.E.						
1. 1	Head	57	13	81	70	42
1. 2	Eyes/Face	90	13	87	103	62
1. 3	Ears	33	11	75	44	26
1. 4	Hands	77	18	81	95	57
1. 5	Fall Protection	16	5	76	21	12
1. 6	Body	38	7	84	45	27
1. 7	Respiratory	20	4	83	24	14
1. 8	Foot	74	24	75	98	59
		405	95	81		
Body Position						
2. 1	Ascending/Descending	29	7	80	35	21
2. 2	Extension/Cramping	32	10	76	42	25
2. 3	Line of Fire	15	7	68	22	13
2. 4	Pinch Point	24	4	85	28	17
2. 5	Posture	72	24	75	89	54
		172	52	76		
Body Use						
3. 1	Eyes on Hands/Task	113	11	91	124	75
3. 2	Lifting/Lowering	43	9	82	52	31
3. 3	Pushing/Pulling	26	15	63	37	22
3. 4	Eyes on Path	74	10	88	82	50
3. 5	Work Pace	85	16	84	97	59
		341	61	84		
Work Environment						
4. 1	Communication	78	10	88	85	51
4. 2	Housekeeping	102	42	70	123	75
4. 3	Other	3	15	16	15	9
		183	67	73		
Tools/Equipment						

START Data Reports

▣ CBI® TABULAR REPORT [all records]

From 10/01/1999 to 07/31/2000

Total number of sheets used in this report 164
 Average number of items marked per sheet 9.3

		BEHAVIORS			SHEETS	
		Safe	At Risks	% Safe	Sheets	% Sheets
5. 1	Condition	69	13	84	78	47
5. 2	Lockout-Tagout	21	2	91	23	14
5. 3	Selection	64	10	86	70	42
5. 4	Use	24	7	77	27	16
		178	32	84		
Other						
		Safe	At Risks	% Safe	Sheets	% Sheets
20. 1	Other	1	6	14	3	1
		1	6	14		
GRAND TOTALS		1,280	313	80		

APPENDIX G
CY 2000 ES&H Performance Measures

FY00 ES&H Outcome Performance Measures

Total Available Points: 110

Note: 25 points have been reserved for the FY00 Process Measures that are being developed.

1. Performance Objective

SLAC will perform its work so that personnel hazards are anticipated, identified, evaluated and controlled.

1.1 Performance Criteria:

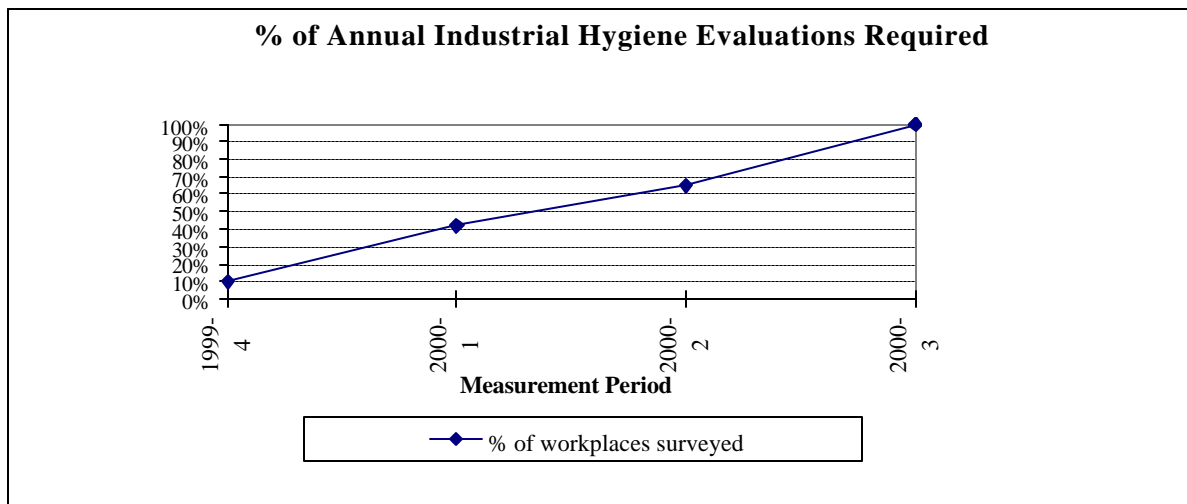
Exposures of personnel to chemical, physical, and biological hazards will be adequately controlled.

1.1.a Performance Measure

Available Points: 10

An Industrial Hygiene exposure prevention program is in place such that:

- Potential exposures greater than 1/4 of an Occupational Exposure Limit (or heat stress exposure greater than the ACGIH “heavy-continuous work” TLV) are anticipated and monitored yearly.
- OSHA-required substance-specific sampling is planned and conducted yearly as required.
- Vulnerable systems are evaluated yearly.



For FY00, the performance period is 10/1/99 through 9/30/00. This is the fourth quarter this data has been required by Performance Measure.

Performance Summary: Outstanding

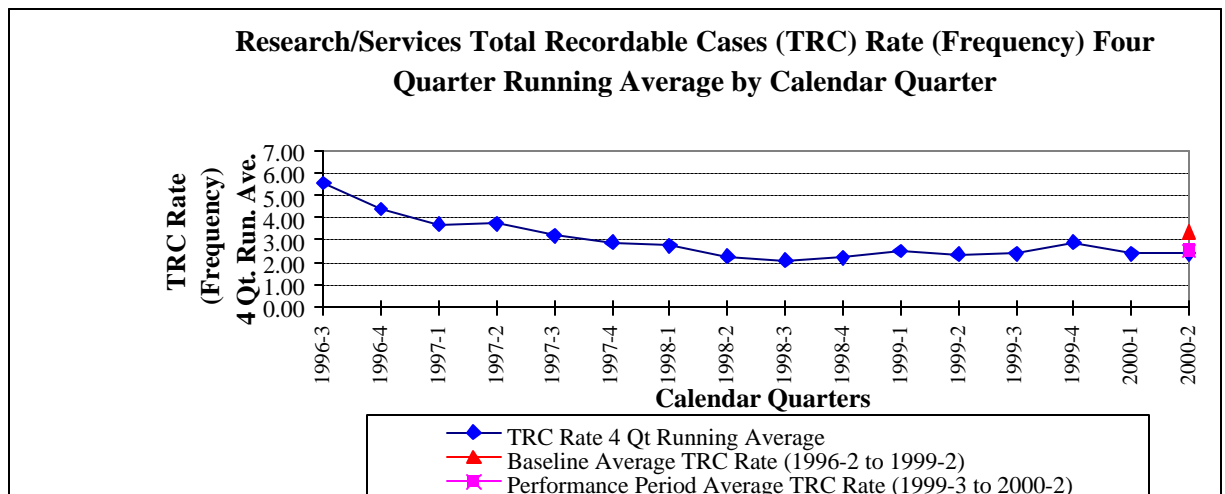
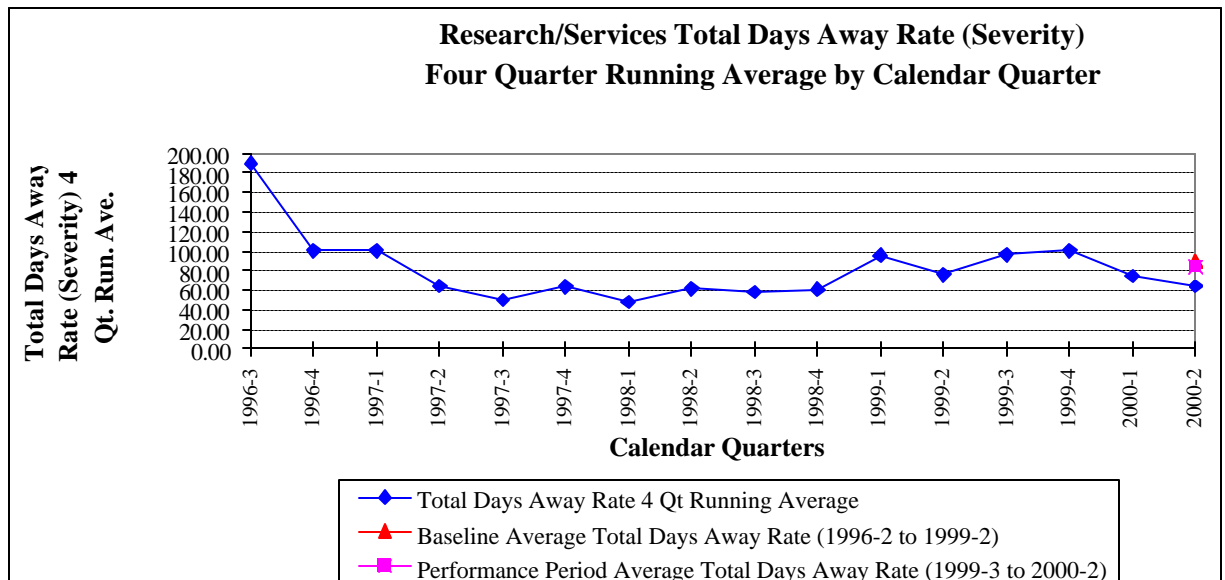
1.2 Performance Criteria:

Accident and injury rates lost workday rates and the DOE injury cost index are adequately controlled.

1.2.a Performance Measure

Available Points: 10

The period for comparison with the current performance period will be the average of the five previous years (baseline). The lab's frequency (Total Recordable Cases) and severity (Lost Work Days) rates for the Research/Services composite and Construction functions will be compared to the SLAC baseline average. A downward trend is expected.



Note: Data as of the second quarter of Calendar Year 2000.

Performance Summaries for Research/Services

Total Days Away (Severity) Rate for Research/Services: Good

The Total Days Away (Severity) rate for the Research /Services performance period shows a 6.1% decrease when compared to the SLAC baseline average.

Total Recordable Case (Frequency) Rate for Research/Services: Outstanding

The Total Recordable Case (Frequency) rate for the Research/Services performance period shows a 25.9% decrease when compared to the SLAC baseline average.

% Decrease when compared to the SLAC baseline average.

Performance Gradient:

Outstanding

When the Performance Period Frequency Rate for the Research/Services composite and Subcontractor function is compared to their Baseline rate, a 78.2% decrease is shown.

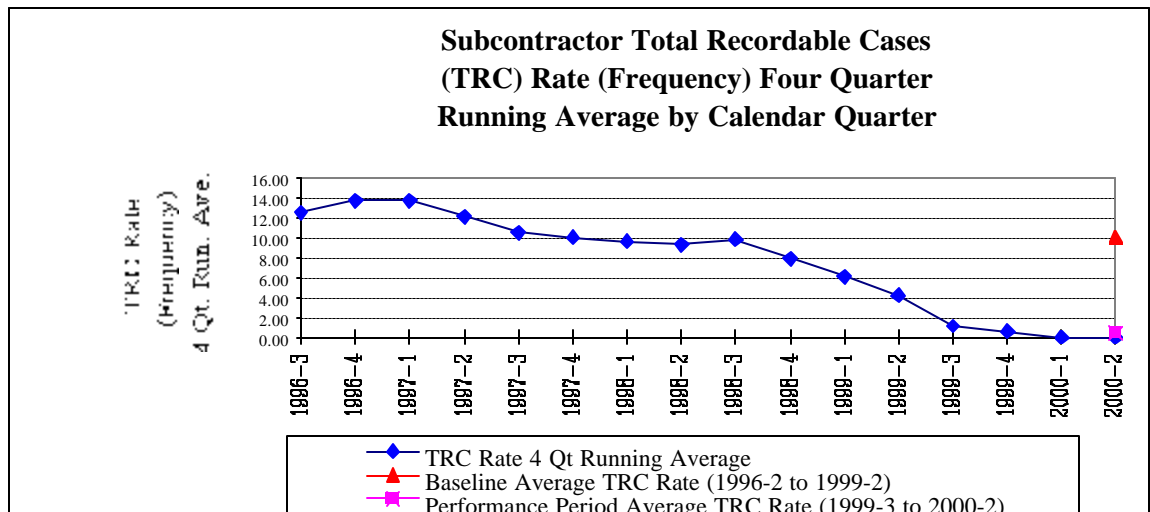
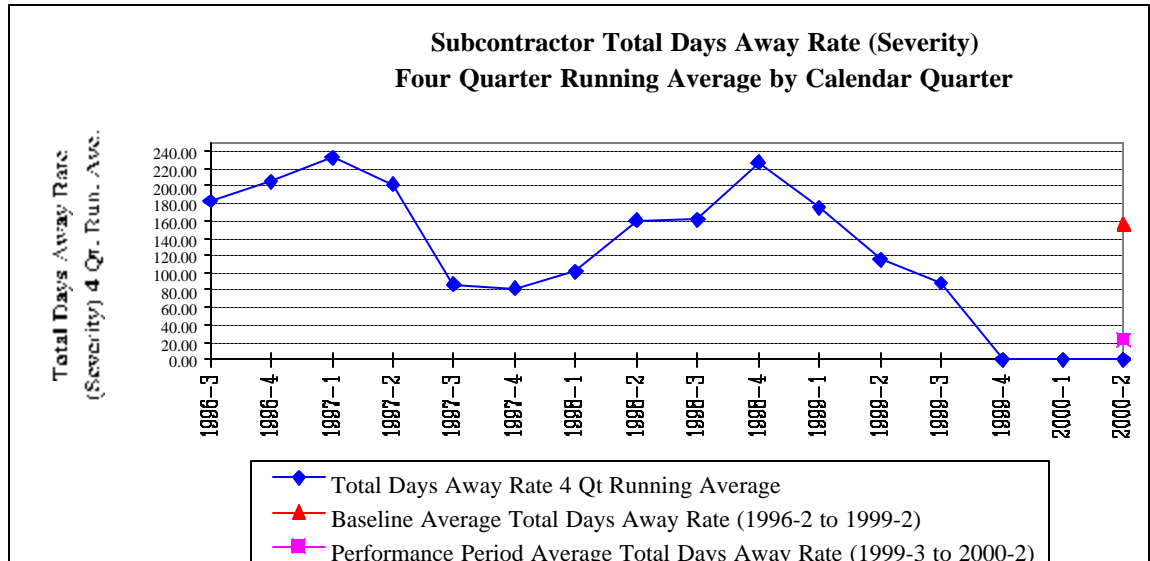
Outstanding

When the Performance Period Severity Rate for the Research/Services composite and Subcontractor function is compared to their Baseline rate, a 57.0% decrease is shown

Performance Assumptions:

1. For FY00 the performance period is July 1, 1999 through June 30, 2000.
2. Each frequency and severity rate in the Research/Services and Construction category will be given a weighted factor in calculating the final evaluation gradient. The weighted factor is based on the amount of person-hours accumulated within each function divided by the total person-hours during the rating period.
3. It is recognized that an initial increase or minimal decrease in rates may be experienced whenever a new prevention program is introduced and that some variability is expected which may not be indicative of a trend.
4. Workers' Compensation costs will be considered during the self-assessment.
5. For FY00 and future years, the accident/injury types and baseline years will be updated by mutual agreement of the DOE site office and the Laboratory.

6. Subcontractor operations/personnel are included in the Construction function. Subcontractor statistics will be maintained separately only for those subcontractors reporting hours worked to the Laboratory. Subcontractors are excluded if they are "servicing" the Laboratory (e.g., copy machine vendors or other transient workers).



Note: Data as of the second quarter Calendar Year 2000.

Performance Summaries for Subcontractors

Total Days Away (Severity) Rate for Subcontractors: Outstanding

The Total Days Away (Severity) rate for the Subcontractors performance period shows an 85.9% decrease when compared to the SLAC baseline average.

Total Recordable Case (Frequency) Rate for Subcontractors: Outstanding

The Total Recordable Case (Frequency) rate for the Subcontractors performance period shows a 95.8% decrease when compared to the SLAC baseline average.

1.3 Performance Criteria:

Exposures of personnel to ionizing radiation will be adequately controlled.

1.3.a Performance Measure

Available Points: 5

Unplanned radiation exposures (both internal and external), and ORPS reportable occurrences of skin or personal clothing contamination are managed and minimized.

Performance Assumptions:

1. For FY2000, the performance period is January 1, 1999 to December 31, 1999; i.e., calendar year 1999 (CY1999).
2. Radiation doses to non-radiological workers in excess of 100 mrem/yr are considered as unplanned exposures.
3. The number of occurrences is considered to be the number of individuals who experience ORPS-reportable radiation doses or contamination, plus unplanned doses as defined in the above performance assumption.
4. The current projection of the number of radiation doses to non-radiological workers in excess of 100 mrem in CY2000, based on best available information, is four (4).
5. In any event, the most recent three- (3) calendar year running average will be calculated for application to the latest Performance Gradients at such time that appropriate information is available.

Performance Summary:

Outstanding

There were no ORPS-reportable exposures in CY 1999 and no non-radiological workers with an occupational dose exceeding 100 mrem in CY 1999.

1.3.b Performance Measure

Available Points: 5

Occupational radiation doses to individuals (excluding accidental exposures) from DOE activities will be managed to assure that applicable 10 CFR 835 limits are not exceeded.

Performance Assumptions:

1. For FY2000, the performance period is January 1, 1999 to December 31, 1999; i.e., calendar year 1999 (CY1999).
2. Any actual or anticipated significant changes in workloads; i.e., collective dose, will be brought to the attention of SLAC management and DOE so that appropriate adjustments will be made. Significant change in collective radiation dose is defined to be an increase or decrease of 20% or more.

Performance Summary:

Excellent

No radiological worker at SLAC received a dose in excess of 1 rem.

Maximum individual dose for CY 1999: 0.115 rem

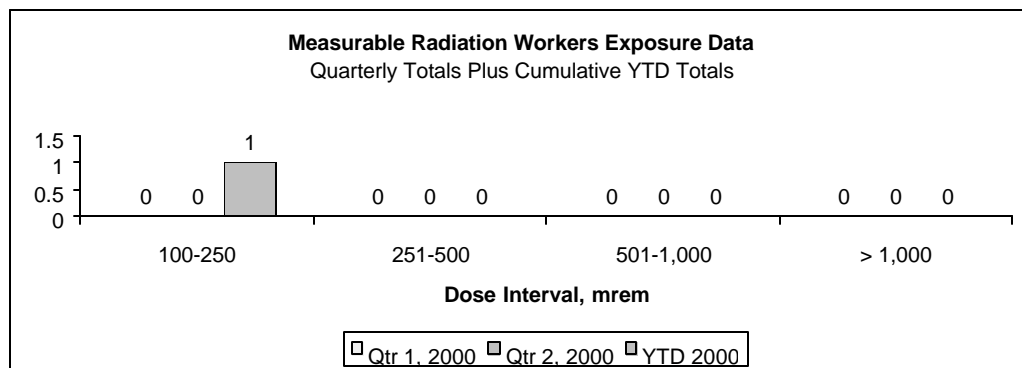
The number of individuals with annual measurable doses between 100 mrem and 250 mrem, between 251 mrem and 500 mrem, between 501 mrem and 1 rem, and in excess of 1 rem, do not exceed the laboratory's previous three (3) year running average in two of these dose categories.

	CY 1997-1999	CY 2000
Dose Interval	RWT Average	RWT (complete)
100-250 mrem	19	1
251-500 mrem	11	0
501-1,000 mrem	2	0
>1,000 mrem	0	0

The total collective dose is less than 90% of the previous three- (3) calendar year running average.

3 Year Average Collective Dose (RWT only, by calendar year) – 11.0 Person-rem

CY1999 Collective Dose (RWT only) – 0.89 rem.



Calendar Year 2000 RWT Dose Summary

1.3.c Performance Measure**Available Points: 2**

Lost or unreturned dosimeter investigations and dose assignments are carried out in a timely manner (within 90 days of the monitoring period).

Performance Summary:

Outstanding

No investigation and dose assignment from a given monitoring period is more than ninety days old.

All second quarter calendar year 2000 investigations were completed by September

30, 2000.

1.4 Performance Criteria

Radioactive material will be adequately controlled.

1.4.a Performance Measure:

Available Points: 3

Radioactive materials, including contaminated and/or activated materials, are controlled at all times so that the number of reportable occurrences as defined in SLAC Workbook for Occurrence Reporting does not exceed the current three year running average. The current three-year running average is one (1).

Performance Gradient:

Outstanding: The weighted number of occurrences is equal to zero.

Excellent: The weighted number of occurrences greater than zero and less than or equal to 1.5.

Good: The weighted number of occurrences is greater than 1.5 and less than or equal to 3.

Marginal: The weighted number of occurrences is greater than 3.0 and less than or equal to 4.5.

Unsatisfactory: The weighted number of occurrences is greater than 4.5.

Performance Summary:

Exceeds Expectations

One off-normal occurrence of inadequate control over a pair of non-accountable sealed sources was determined to have taken place in the 1st Quarter of FY2000. The occurrence was formally reported to DOE. The Performance Gradient score for FY2000 to date there for is 1.0.

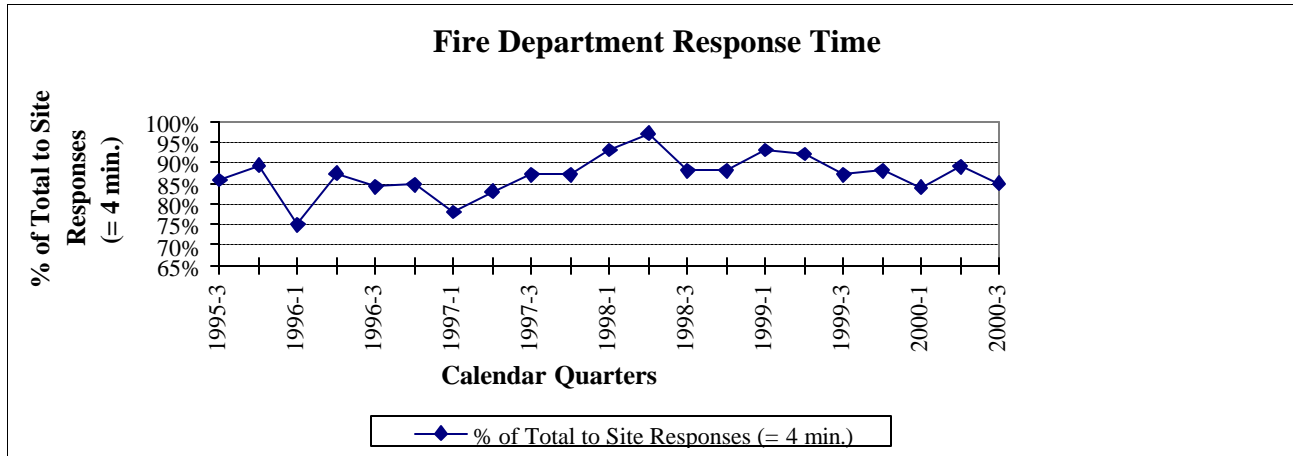
1.5 Performance Criteria

Fire Department response time and the rate of completion of required fire protection will be adequately controlled and accomplished.

1.5.a Performance Measure

Available Points: 2

Fire Department will record all fire apparatus response time. All response time will be measured against the pre-fire plan response time.



Note: Various conditions exist which will cause a delay in response times. Some examples are: weather conditions, distance of travel, responding from inside tunnel areas, & equipment deployed during a drill. Comment: Performance goal to be established based on data collected.

Performance Summary:

85% - Good.

1.5.b Performance Measure

Available Points: 4

SLAC conducts fire protection surveys per the SLAC Fire Protection Program list to ensure its facilities meet DOE fire protection goals and requirements.

Period: 07/01/00 –09/30/00

Surveys conducted: 22

Surveys scheduled in 2000 and 2001: 352

Performance Summary: 6% completion rate. Rating to be determined at end of year.

1.5.c Performance Measure**Available Points: 4**

A documented design review program shall be in place to ensure all designs for new construction and modification projects are reviewed and approved by SLAC's Fire Protection Engineer in a timely manner with adequate records and documentation.

Performance Summary: 100% design reviews were completed.
Outstanding.

1.5.d Performance Measure - Design Review Program

Period: July 1, 2000 – September 30, 2000

Design Reviews:

Conducted 3rd quarter CY2000:13

Eligible 3rd quarter CY2000: 13

Performance Summary: 100% design reviews were completed.
Outstanding

Date	Project Description
06/08/00	Main Quad Pathway Lighting Project*
06/10/00	Mount Seatrains MSS
06/14/00	B113 Electrical Modifications
06/15/00	B131 Sample Lab HVAC
06/19/00	B621 Electronics Alcove Air Handler*
06/27/00	Re-roofs Multiple buildings*
06/27/00	B050 Move Hot Water Pumps
08/02/00	B033 Seismic Upgrade*
08/02/00	B083 Main Guard Shack*
08/10/00	B131 Structural Molecular Biology X-Ray Laboratory
08/10/00	B084 Room 245 HVAC Addition
08/10/00	ESA_SSRL, Seismic Barrier Wall*
Ongoing	Site Stairway Handrails

*Indicate projects over \$50,000.

2. Performance Objective:

SLAC will perform its work in a manner that does not present a threat of harm to the public or the environment and will identify, control, and respond to environmental hazards.

2.1 Performance Criteria:

Exposures to members of the public to ionizing radiation and radiological emissions to the environment will be adequately controlled.

2.1.a Performance Measure Available Points: 10

Public ionizing radiation exposure monitoring and calculations are accomplished to assure that the dose to the maximally exposed

individual in the public from DOE operations will be controlled and will not exceed Federal limits. Radiological emissions to the environment are monitored or calculated and controlled such that applicable limits are not exceeded.

Performance summary: On schedule. Will be completed upon receipt of the fourth quarter calendar year 2000 Environmental TLD results.

2.2 Performance Criteria:

Environmental violations and releases will be adequately controlled.

2.2a Performance Measure: Available Points: 10

Environmental incidents will be tracked and measured. These will include:

1. Formal violations noted by regulatory inspections, regulatory reports or non-compliance with agreements made with regulatory agencies;
2. Spills which exceed established local, state, or federal reporting requirements; and
3. Releases, which exceed regulatory permit limits.

Performance Summary:

Number of Environmental incidents since 10/1/99 (Air) 0

Performance Summary: Far exceeds Expectations

Number of Environmental incidents since 10/1/99 (Surface Water) 0

Performance Summary: Exceeds Expectations

3. Performance Objective:

SLAC demonstrates sound stewardship of its site through safe and effective hazardous and radioactive waste minimization and management and through restoration of the site where degradation has occurred.

3.1 Performance Criteria:

SLAC has a program in place to reduce both the amounts of waste generated and pollutant emissions. The program will reduce as much as is practical the volume of municipal solid waste and hazardous waste generated in accordance with SLAC's Waste Minimization Plan. In addition, as long as benefits exceed costs, SLAC will plan and perform its work in a manner that prevents pollution in to the environment.

3.1.a Performance Measure: Available Points: 5

SLAC completes tasks identified in the Annual Performance Objective Plan. Progress continues towards meeting the DOE pollution prevention goals for the year 2000.

Performance Summary: The performance measurement period for FY00 is October 1, 1999 through September 30, 2000. Data for the FY00 performance period will be available in early November 2000.

3.2 Performance Criteria:

SLAC will manage hazardous and radioactive wastes in a manner that meets regulatory requirements and is cost effective.

3.2.a Performance Measure: Available Points: 5

Hazardous waste generated will be managed in compliance with applicable regulations of CCR, Title 22, Division 4.5, applicable parts, and the budget expended cost effectively.

Performance Summary: The performance measurement period for FY00 is October 1, 1999 through September 30, 2000. Data for the FY00 performance period will be available in early November 2000.

3.2.b Performance Measure: Available Points: 5

Low-level waste generated will be managed in compliance with applicable DOE Orders and regulatory requirements and the budget expended cost effectively.

Performance Summary: The performance measurement period for FY00 is October 1, 1999 through September 30, 2000. Data for the FY00 performance period will be available in November 2000.

3.3 Performance Criteria:

SLAC will maintain the scheduled rate of progress toward completion of the Remedial Investigation/Feasibility Study and source mitigation activities

designed to achieve a level of restoration acceptable to cognizant regulatory agencies by September 30, 2002.

3.3.a Performance Measure: Available Points: 5

Performance will be determined based on points earned in three categories. The successful completion of selected major tasks/milestones in the Environmental Restoration Program Current Year Work Plan, the

efficient management of the budget, and project management effectiveness will be evaluated and awarded points. There will be a maximum of 60 points possible.

Task Completion Points (40 max):

By October 15, 1999, SLAC and DOE will agree on the tasks to be performed and the number of points to be awarded for each. As conditions change throughout the year, DOE and SLAC may agree on task substitution. Forty (40) points will be the maximum amount credited in this category even though total task points available may be more than forty. Five points will be awarded for the completion of each task. Tasks must be fully completed within the performance period to received points (i.e., no partial credit).

Budget Points (10 max):

The budget shall be managed to take advantage of the fiscal year funds available to maximize the amount of work performed in the current performance/fiscal year (i.e., funds available from completing tasks under budget should be used to accelerate work planned in future years). The point increments are based on managing funds to keep the year-end carryover to 8% or less, consistent with EM HQ guidance.

Percent of Budget Spent	Points	Percent of Budget Spent	Points
92% or Greater	10	87%	5
91%	9	86%	4
90%	8	85%	3
89%	7	84%	2
88%	6	83%	1

Project Management Effectiveness Points (10 max):

Quality, earned value, responsiveness, innovation, and flexibility factors will be used to evaluate project management effectiveness. This item will be more subjective than the other two categories and there is no intention to distribute the available points evenly among the identified factors. Typical indicators of the effectiveness are:

- Post project evaluations for cost and quality
- Nature of stakeholder, regulator, DOE, etc. comments on environmental restoration projects/documents and resolution to the comments
- Compliance to project documents
- Recommendations and development of solutions to problems or obstacles
- Regulator issued fine, penalties, notice of violations, etc.

Performance Gradient/Basis for Rating:

Outstanding: 54 or greater points earned.

Excellent: 45 to 53 points earned.
Good: 36 to 44 points earned.
Marginal: The budget has been overspent or 28 to 35 points earned.
Unsatisfactory: The budget has been overspent and < 28 points earned.

Performance Summary: SLAC and DOE are currently negotiating the FY00 rating. It will be Outstanding or Excellent.

FY00 ES&H Process Performance Measures

The following Performance Objective, Criteria, and Measures are linked to the Guiding Principles and Key Functions of Integrated Safety Management. They include process-oriented measures that enhance the existing ES&H systems to further integrate ES&H into the Laboratory's activities.

4.0 Performance Objective

The Laboratory systematically integrates ES&H into management and work practices at all levels so that missions are accomplished while protecting the worker, the public and the environment.

4.1 Performance Criteria:

A Safety Management System (SMS) will be implemented in accordance with the Guiding Principles and Core Functions of Integrated Safety Management.

Note: The numbers in brackets indicate the Guiding Principles (GP) and Core Functions (CF) of the Integrated Safety Management System (ISMS) that are monitored by the particular measure.

4.1a Performance Measure: **Total available points: 25 points**

The SLAC SMS will be enhanced through implementation of the following opportunities:

- a. The Laboratory Director will establish annual ES&H expectations with each Associate Director for inclusion in their annual performance evaluations. [GP #1, #2 & #4; CF #1 & #5]

Schedule: Expectations will be developed with the 2000 performance appraisals (for the period April 1, 1999 to March 31, 2000) by May 1, 2000.

Status Q3CY00: Expectations were delivered to Associate Directors in September.

- b. On a quarterly basis each Associate Director will review and discuss progress against their individual ES&H expectations with the Environment, Safety & Health Coordinating Council (ES&HCC). The deliverables are the quarterly reports, which will be included in the records of the ES&HCC meetings. [GP #1 & #4; CF #1 & #5]

Schedule: The ES&HCC will continue to receive quarterly divisional safety reports, which will include a section for ES&H expectations.

Status Q3CY00: All Associate Directors have delivered quarterly reports on schedule.

- c. Phase I of the Behavior Based Safety Program is evaluated to determine the quality of the observational data, the impact of the program on the workers involved and potential of this program to improve workplace safety at SLAC. Continuation and expansion of the program will be based on the results of the evaluation. If it is decided to continue and expand the program, pending available funding, it will be extended to Phase II, to include the Mechanical Fabrication Department. [CF #2, #4 & #5]

Schedule:

1. Phase I evaluation report is delivered to the ES&HCC. 4/25/00

Status Q3CY00: Completed as scheduled

2. Assuming a decision to extend the Program, Phase II is implemented. 7/19/00

Status Q3CY00: Decision was postponed to September pending additional data. Plans are being developed to extend program in FY01.

- d. A systematic process is developed and implemented to identify hazards and implement controls for experiments, manufacturing tasks and construction projects performed by SLAC staff that meets specified criteria. [GP #1, #6 & #7; CF #2 & #3]

Schedule:

- a. Develop guidance for the hazard identification and control process. 1/31/00

Status Q3CY00: Completed.

2. Develop tools for implementing the process. 3/2/00

Status Q3CY00: Completed.

3. Implement the process. 3/30/00

Status Q3CY00: Completed. Hazard assessment tools are available on the SLAC Web. Links will be developed through the ES&H Web Page.

- e. Audits and reviews, including Safety & Environmental (S&E) Discussions, are conducted in accordance with an approved plan (providing feedback). Deliverables are audit and review reports and SLAC responses to findings. [GP #3, #6 & #7; CF #3 & #5]

Schedule:

1. Two independent audits are scheduled during the fiscal year to cover portions of the ES&H program. 9/30/00

Status Q3CY00: Both scheduled audits were completed

2. The S & E Discussions will be conducted. 4/30/00

Status Q3CY00: Completed (TWC held on April 14, 2000).

- f. The Self-Assessment Program is further developed and defined to integrate line management inspections and assessments with internal and external independent audits. [GP #1; CF #5]

Schedule:

1. Develop and implement an extension to the annual S & E Discussions to incorporate facility inspections as an option. 4/30/00

Status Q3CY00: Completed (the "Walk" portion of the TWC done on April 14, 2000).

2. Continue program of upper management "walkthroughs" and quarterly reporting to the ES&HCC.

Status Q3CY00: Management walkthroughs are continuing and the results are reported in the Associate Director quarterly reports to the ES&HCC.

1. To ensure greater line management accountability, metrics will be established to ensure ISMS is being effectively implemented. 9/30/00

Status Q3CY00: Specific metrics have not been developed.

- g. The ES&H training program is continually monitored and modified as needed to address all hazards and enable participation. Qualifications and training requirements are developed for individuals who are assigned specific ES&H responsibilities, such as Building Managers (BM), University Technical Representatives (UTR), Safety Officers (SO) and new supervisors. Deliverable is the training program for FY2001. [GP #3]

Schedule:

1. Qualifications and training requirements are developed for UTR. 2/25/00

Status Q3CY00: Completed (January 31, 2000, pilot training completed in March 2000).

2. Qualifications and training requirements are developed for SO. 4/1/00

Status Q3CY00: Complete

3. Qualifications and training requirements are developed for BM. 6/1/00

Status Q3CY00: Complete

4. Qualifications and training requirements are developed for supervisors. 9/30/00

Status Q3CY00: Complete

5. Recommendations of the ES&H Training Subcommittee of the Operating Safety Committee are incorporated into a revised ES&H Training Program. 9/30/00

Status Q3CY00: Training program revision is not complete.

- h. A process is developed and implemented to recommend to SLAC management a chemical management and use-tracking system to assist with the requirements for compliance under enhanced air emission regulations. [GP #1; GP #6; CF #3]

Schedule:

1. Appoint Working Group. 1/10/00

Status Q3CY00: Completed.

2. Recommendations developed and reported. 5/1/00

Status Q3CY00: Completed. Process was established as an interim solution. Permanent management system development has been incorporated into ES&H Management Plan.

Performance Assumptions:

- 1 Rating period is October 1, 1999 to September 30, 2000.
- 2 The schedules provide a basis for monitoring the progress toward attaining the measure.
- 3 The final rating is based on the completion of all deliverables identified in the "Schedule" section of each Opportunity.

- 4 SLAC will evaluate and report on the Process Measures annually as part of its Self-Assessment process.

Performance Gradient:

Far Exceeds Expectations:	7 to 8 Opportunities are completed as scheduled
Exceeds Expectations:	6 Opportunities are completed as scheduled
Meets Expectations:	5 Opportunities are completed as scheduled
Needs Improvement:	Less than 5 Opportunities are completed as scheduled