Concern MA.7-1

Equipment history and predictive maintenance analysis are not being used to optimize equipment performance as required by DOE 4330.4A.

DOE Priority 2

Compliance Protocol DOE Order 4330.4A

Response Maintenance history evaluation can be a vital source of information to assure that equipment can continue to operate reliably and safely. However, predictive analysis and related maintenance programs have not been uniformly applied to major equipment and operations at the site. Areas needing improvement will be identified and corrected as part of an overall upgrade in maintenance management programs.

Related Concern MA.1-1 MA.4-1 MA.5-1 MA.6-1

Related Tasks T1327 Establish Maintenance Management Programs

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TASK T1327 *ESTABLISH MAINTENANCE MANAGEMENT PROGRAMS*
(MA.7-1)

Scheduled Completion	10/01/95
Projected Cost	$50,000
Responsible Department	AD

Maintenance activities at SLAC and SSRL will be evaluated, particularly in view of the unification of the two labs. The evaluation will include input from all organizational units with maintenance responsibilities and will result in recommendations for levels of formal integration and centralization of maintenance management appropriate to various categories of operations at SLAC.

The evaluation will consider the need for work control processes, such as a safe work permit system, work order authorization requirements for component modifications, requirements for work packages, formal authorization requirements for remedial maintenance, planning and safety procedures for preventive maintenance, and criteria for prioritizing maintenance activities. The evaluation will also assess the need for standardized recordkeeping and will consider opportunities for utilizing trend analysis and other programs for predictive maintenance.

As a result of this evaluation, SLAC will determine how elements of DOE Order 4330.4A should best be applied to identified systems, and will further determine the degree of detail and formality with which those elements are to be applied.

Responsibility for drafting maint. policy assigned	10/01/93
Maintenance Management Policy adopted	11/01/93
Appropriate elements DOE 4330.4A identified	09/01/92
Site maintenance activities inventoried	01/01/93
Maintenance Management Program defined	08/01/95
Improvement Program initiated	10/01/95

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	10	15	25			50
New ES&H Activities						
GPP						
ERWM						

Concern MA.8-1

Maintenance work is performed without the appropriate safety guidance and direction required by DOE 5480.19.

DOE Priority 2

Compliance Protocol DOE 5480.19;

Response Safety oversight and direction for SLAC maintenance work is informal in nature and is not integrated into the general operations guidelines. Insofar as responsibility for maintenance work is assigned and distributed across several maintenance groups, the safety guidance and direction for those groups is inconsistent without central and more formal controls. The proposed actions will: revise SLAC guidelines for operations, assign responsiblility for maintenance safety, audit maintenance groups for baseline status, provide safety expertise, and recruit and hire maintenance safety inspectors. Also, forms, checklists, and procedures will be created, reviewed, edited and approved; inspections and periodic audits will be performed; and basic safety training will be provided to specific maintenance groups. These steps are scheduled in advance of the development of an overall maintenance management program in recognition of immediate the need to devote resources to maintenance safety.

Related Tasks T1242 Develop & Implement Maint. Safety Procedure(s)

TASK T1242 *DEVELOP & IMPLEMENT MAINT. SAFETY PROCEDURE(S)*
(MA.8-1)

Scheduled Completion	06/01/93
Projected Cost	$235,000
Responsible Department	PAD

Review DOE Order 5480.19 requirements for maintenance safety and existing SLAC Guidelines for Operations. Perform a baseline safety audit of all maintenance groups. Modify SLAC Guidelines for Operations as required for compliance with 5480.19, and develop appropriate supporting procedure(s). Develop training program(s) for these procedures, identify applicable recipients for this training and schedule training on a prioritized basis. Training shall be developed for both SLAC employees as well as non-SLAC (contract) workers. Staffing needs for this task will be evaluated.

Maintenance groups audited for baseline status	08/01/92
Maintenance safety procedures developed	12/01/92
Guidelines for Operations revised	03/01/93
Maintenance safety training initiated	06/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	30	30				60
New ES&H Activities		175				175
GPP						
ERWM						
Ongoing Cost $250,000						

Concern AX.1-1

The Department of Energy has not provided guidelines for consistency in defining what constitutes auxiliary systems.

DOE Priority 4

Response Guidelines for consistency in the definition of auxiliary systems are required for SLAC to develop correct operating procedures for certain SLAC facilities. However, such guidelines have not yet been provided by DOE. The DOE Stanford Site Office (SSO) will request, through the DOE San Francisco Field Office, this guidance.

Related Concern AX.6-1

Related Tasks T1440 Request Auxiliary System Definition Guidance

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TASK T1440 *REQUEST AUXILIARY SYSTEM DEFINITION GUIDANCE*
(AX.1-1)

Scheduled Completion	07/31/92
Projected Cost	$
Responsible Department	DOE

DOE Stanford Site Office will formally request the Office of Energy Research (ER) for guidelines on definition of auxiliary systems applicable to accelerator facilities. General guidelines will be developed by ER to ensure the auxiliary system definition is consistently applied at all Energy Research facilities.

Guidelines requested from ER	07/31/92

Concern AX.1-2

Stanford Linear Accelerator Center has not provided definitions of what constitutes auxiliary systems.

DOE Priority 4

Response While most of the facilities at SLAC are no different from those found in many standard laboratories or light industries, the accelerators do pose unusual workplace hazards. The presence of high voltage, radiation, and some hazardous gases requires the use of supporting or auxiliary systems to ensure that worker health and safety is not jeopardized. These systems need to be identified and any new procedures and/or safety limits developed and implemented.

Related Tasks T1165 Identify and Review Auxiliary Systems

TASK T1165 *IDENTIFY AND REVIEW AUXILIARY SYSTEMS*
(AX.1-2)

Scheduled Completion	07/01/94
Projected Cost	$12,000
Responsible Department	PE

The areas involving potential hazards (accelerator housing, klystron gallery, collider experimental hall, cryogenics facility, SPEAR with injector, and SSRL beam lines) will be reviewed as part of a site-wide hazards assessment. Auxiliary systems upon which safe operation depends, such as the diesel generators that provide emergency power to cryogenic refrigeration systems, will be identified. Functional requirements for safety will be developed. Existing operational controls will be reviewed against those requirements and upgraded as appropriate.

Auxiliary systems identified	11/01/93
Functional requirements developed	01/01/94
Operational controls reviewed and upgraded	07/01/94

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support			12			12
New ES&H Activities						
GPP						
ERWM						

Concern AX.5-1

The Plating Shop ventilation system does not minimize the potential to release hazardous material to clean areas or the environment contrary to the requirements in DOE 6430.1A.

DOE Priority 2

Compliance Protocol DOE Order 6430.1A

Response Plating shop ventilation system procedures will be reviewed and revised to assure that effluent contaminants are ALARA. Preventive maintenance procedures will be written to include exhaust fan rotation checks. A GPP proposal will provide funds for updating documentation and for thorough evaluation of the existing system and its deficiencies, if any. Emission-monitoring equipment will also be evaluated and, if appropriate and required, installed regardless of the future modifications that may be recommended.

A second phase will be based on the findings of an independent consultant and review of the Safety Analysis Report (SAR). Corrective actions will be planned and budgeted in response to the recommendations of this report.

Related Tasks T1310 Review & Improve Plating Shop Ventilation

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TASK T1310 *REVIEW & IMPROVE PLATING SHOP VENTILATION*
(AX.5-1)

Scheduled Completion	07/01/94
Projected Cost	$50,000
Responsible Department	MFD

Preventive maintenance procedures which include rotation checks for the three phase exhaust fan motor will be written by the Facilities Office. The existing ventilation system prints will be verified and revised as needed to integrate the entire facility. Vents will be balanced to assure correct air flow. A complete inventory of the system's equipment will be compiled into a database along with maintenance responsibilities. The Plant Engineering Department will evaluate the types and costs of emission monitoring equipment applicable regardless of the changes eventually approved for the system. An independent consultant will be hired to provide the following:

1. Calculations of air flow for the entire space and over individual process tanks.
2. An IH survey of workers exposure against applicable PEL's.
3. Evaluation of fans for necessary exhaust flow/capacity .
4. Analysis of exhaust emissions.
5. Evaluation and recommendation of appropriate additional exhaust scrubbers.
6. Additional safety equipment recommendations.
7. Comprehensive review of and comments on the ventilation system via the SAR for Metal Finishing.

If the emission monitoring equipment evaluated by Plant Engineering is compatible

with the findings and recommendations of the consultant, it will be proposed for installation. Corrective actions will be planned and initiated based on a review of the recommendations of the consultant. Annual inspections of the ventilation system will be initiated.

Preventive maintenance procedures written	01/01/94
Ventilation equipment database compiled	03/01/94
Consultant report submitted	04/01/94
Emissions options and costs evaluated	05/01/94
Corrective actions initiated	07/01/94

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support			20			20
New ES&H Activities			30			30
GPP						
ERWM						

Concern AX.6-1

Testing of emergency diesel generators at the Stanford Linear Accelerator Center does not meet the requirements of NFPA 110 to ensure reliability of vital services.

DOE Priority 2

Compliance Protocol NFPA 110; IEEE 446-1980

Response The emergency generator power systems should provide reliable power to vital facilities at SLAC. The Plant Engineering Department will modify the existing procedures to conform to NFPA 110. Training of the testing personnel (PMS electricians) in the new procedures will be completed and then the new testing procedures will be used for future emergency generator testing.

Related Tasks T1260 Revise Diesel Generator Test Procedures

TASK T1260 *REVISE DIESEL GENERATOR TEST PROCEDURES*
(AX.6-1)

Scheduled Completion	05/01/94
Projected Cost	$10,000
Responsible Department	PE

The Plant Engineering Department will modify the existing generator testing procedures to conform to NFPA 110 requirements. Training for testing personnel will be augmented to include the new generator test procedures.

Procedures drafted	01/01/94
Procedures finalized and issued	02/01/94
First class of Electricians trained	04/01/94
First generator tested with new procedure	05/01/94

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support			10			10
New ES&H Activities						
GPP						
ERWM						

Concern EP.1-1

Stanford Linear Accelerator Center has not prepared a sitewide hazards assessment to provide the technical basis for the emergency management program as required by DOE 5500.3A.

DOE Priority 2

Compliance Protocol Draft DOE Order 5480.SAR; DOE Orders 5480.7, DOE 5480.7, DOE 5481.1B, and 5500.3A; EPG 5500.1; EPG 5430.11; CA Health & Safety Code, Chpt. 6.95, Art. 1, "Business and Area Plans"; DOE Design and Evaluation Guidelines for DOE Facilities Subjected to Natural; Phenomena Hazards, UCRL 15910, June, 1990.

Response Even though SLAC is a low-hazard facility, it will be necessary to conduct a sitewide hazards assessment in order to determine which parts of the DOE 5500-series Orders are applicable to the Emergency Management Program. The analysis of the assessment will allow the program elements to be commensurate with the hazards and consequences associated with SLAC activities.

Related Concern A/CF-1 A/CF-2 EP.1-1 EP.1-2 EP.2-1 EP.2-2 EP.3-1 EP.4-1 EP.5-1 EP.6-1 FP.3-1 IWS/BMPF-1 IWS/CF-5 NEPA/CF-3 NEPA/CF-6 OA.7-1 SW/BMPF-1 SW/CF-2 TCM/BMPF-4 WS.3-4

Related Tasks T1376 Conduct Hazards Assessment

TASK T1376 (EP.1-1) *CONDUCT HAZARDS ASSESSMENT*

Scheduled Completion	10/01/93
Projected Cost	$400,000
Responsible Department	ESH

Before conducting a hazards assessment, DOE guidance, OSHA recommendations for hazards assessment, and other helpful documents will be reviewed. A strategy for developing a common framework or baseline for determining the level of hazards posed by operations at the site will be developed. Particular consideration will be given to facilities for which no safety assessments or SARs exist. Available hazards assessments and SARs will be reviewed. The organization for conducting the survey will be selected and trained in hazards assessment. The survey will be conducted and data collected. An analysis of the hazards data will be prepared and a report issued.

DOE Orders reviewed	04/01/92
Hazard survey plan developed	06/01/92
Organizations selected and trained	09/01/92
Survey data collected	06/01/93
Analysis report completed and distributed	10/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	100	180				280
New ES&H Activities	70	50				120
GPP						
ERWM						

Concern EP.1-2

Stanford Linear Accelerator Center has not established and maintained an emergency management program that meets the requirements of DOE 5500.3A.

DOE Priority 2

Compliance Protocol DOE Order 5500.3A; EPG 5500.1

Response In order that SLAC's Emergency Management Program may be revised to meet DOE 5500.3A, a sitewide hazards assessment will first be conducted to provide the technical basis for the Program. The Program will then be revised to include the organizational structure, personnel roles and responsibilities, implementing procedures, the "Self Help Program", and a readiness assurance program. After the plan is revised and approved, training, drills, and facilities will be developed and implemented.

Related Concern EP.1-1 EP.1-2 EP.1-4 EP.2-1 EP.2-2 EP.3-1 EP.4-1 EP.5-1 EP.6-1 EP.6-2 EP.6-3 EP.7-1 MF-2 OA.7-1

Related Tasks
T1376 Conduct Hazards Assessment
T1373 Develop Emergency Management Program

TASK T1376 (EP.1-2) *CONDUCT HAZARDS ASSESSMENT*

Scheduled Completion	10/01/93
Projected Cost	$400,000
Responsible Department	ESH

Before conducting a hazards assessment, DOE guidance, OSHA recommendations for hazards assessment, and other helpful documents will be reviewed. A strategy for developing a common framework or baseline for determining the level of hazards posed by operations at the site will be developed. Particular consideration will be given to facilities for which no safety assessments or SARs exist. Available hazards assessments and SARs will be reviewed. The organization for conducting the survey will be selected and trained in hazards assessment. The survey will be conducted and data collected. An analysis of the hazards data will be prepared and a report issued.

DOE Orders reviewed	04/01/92
Hazard survey plan developed	06/01/92
Organizations selected and trained	09/01/92
Survey data collected	06/01/93
Analysis report completed and distributed	10/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	100	180				280
New ES&H Activities	70	50				120
GPP						
ERWM						

TASK T1373 *DEVELOP EMERGENCY MANAGEMENT PROGRAM*
(EP.1-2)

Scheduled Completion 02/01/95
Projected Cost $189,000
Responsible Department SAF

Emergency Management Program (EMP) requirements under DOE Orders 5500.3A and 5500.1 will be reviewed. The EMP will be developed based on the applicable requirements. The elements of the EMP will include input from hazards assessments, designation of emergency facilities, hazardous materials procedures, Emergency Classification and Action Levels, local actions and self-help, emergency response notification system, public information, and provisions for training, drills, and exercises. EMP training will be provided to personnel involved in its administration.

Requirements determined	09/15/92
Interim EM Improvement Program Developed	12/30/92
Hazard assessment reviewed	08/01/94
EM Improvement Program developed	02/01/95

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	8	8	9	9		34
New ES&H Activities			70	85		155
GPP						
ERWM						

Concern EP.1-3

An assessment by DOE-SF of all aspects of the emergency management program has not been conducted annually as required by DOE 5500.3A.

DOE Priority 3

Codes Compliance

Compliance Protocol DOE Order 5500.3A

Response DOE - SF will schedule internal independent assessment of its emergency management program on an annual basis to comply with DOE Orders.

Related Tasks

T1418 Develop SF Emergency Mgmt. Memorandum of Agreement
T1419 Schedule SF Emergency Management Self-Assessment

TASK T1418 *DEVELOP SF EMERGENCY MGMT. MEMORANDUM OF AGREEMENT*
(EP.1-3)

Scheduled Completion	06/01/92
Projected Cost	$
Responsible Department	DOE

A Memorandum of Agreement (MOA), to delineate areas of responsiblities, among DOE-SF assistant managers concerning the DOE-SF Master Emergency Plan will be developed.

MOA drafted	03/01/92
MOA finalized	06/01/92

TASK T1419 *SCHEDULE SF EMERGENCY MANAGEMENT SELF-ASSESSMENT*
(EP.1-3)

Scheduled Completion	05/01/92
Projected Cost	$
Responsible Department	DOE

A master schedule to ensure all aspects of DOE-SF Master Plan are assessed on an annual basis will be developed.

Master Schedule developed	04/01/92
Schedule Approved	05/01/92

Concern EP.1-4

A Stanford Linear Accelerator Center assessment of all aspects of the emergency management program has not been conducted annually as required by DOE 5500.3A.

DOE Priority 2

Compliance Protocol DOE Orders 5500.3A, 5482.1B, and 5500.10; EPG 5500.1

Response Although independent reviews of the SLAC Emergency Preparedness Plan were conducted in 1990 by an outside consulting firm and in 1991 during the SLAC Self Assessment, independent reviews are not part of the Emergency Preparedness Program normal annual work plan. In order to meet the requirements of DOE 5500.3A, SLAC will develop an Emergency Readiness Assurance Plan which will include annual reviews.

Related Concern EP.1-3 EP.1-4 MF-9 QV.1-1

Related Tasks T1378 Develop Emergency Readiness Assurance Plan

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TASK T1378 *DEVELOP EMERGENCY READINESS ASSURANCE PLAN*
(EP.1-4)

Scheduled Completion	10/01/92
Projected Cost	$55,000
Responsible Department	SAF

Current DOE requirements for annual reviews and appraisals will be reviewed. An Emergency Readiness Assurance Plan (ERAP) will be developed by the Emergency Management Coordinator. The Plan will include provision for an annual Emergency Readiness Appraisal. This Plan, once approved, will be incorporated into the Emergency Management Program. The Quality Assurance Department will review the Assurance Plan and conduct annual appraisals of its effectiveness.

Requirements reviewed	02/15/92
ERAP developed	08/15/92
First appraisal conducted	10/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	55					55
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $20,000						

Concern EP.2-1

The Stanford Linear Accelerator Center Emergency Preparedness Plan is not based on a hazards assessment and does not accurately describe the provisions for response to emergencies as required by DOE 5500.3A.

DOE Priority 2

Compliance Protocol DOE Order 5500.3A

Response The SLAC Emergency Preparedness Plan will be revised to better reflect an assessment of hazards at various operations. A new hazards assessment is needed to provide input to the Plan and to guide development of improved strategies for response to emergencies.

Related Concern EP.1-1 EP.1-2 EP.2-1 OA.7-1 OA.7-2

Related Tasks
T1376 Conduct Hazards Assessment
T1373 Develop Emergency Management Program

TASK T1376 *CONDUCT HAZARDS ASSESSMENT*
(EP.2-1)

Scheduled Completion	10/01/93
Projected Cost	$400,000
Responsible Department	ESH

Before conducting a hazards assessment, DOE guidance, OSHA recommendations for hazards assessment, and other helpful documents will be reviewed. A strategy for developing a common framework or baseline for determining the level of hazards posed by operations at the site will be developed. Particular consideration will be given to facilities for which no safety assessments or SARs exist. Available hazards assessments and SARs will be reviewed. The organization for conducting the survey will be selected and trained in hazards assessment. The survey will be conducted and data collected. An analysis of the hazards data will be prepared and a report issued.

DOE Orders reviewed	04/01/92
Hazard survey plan developed	06/01/92
Organizations selected and trained	09/01/92
Survey data collected	06/01/93
Analysis report completed and distributed	10/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	100	180				280
New ES&H Activities	70	50				120
GPP						
ERWM						

TASK T1373 *DEVELOP EMERGENCY MANAGEMENT PROGRAM*
(EP.2-1)

Scheduled Completion 02/01/95
Projected Cost $189,000
Responsible Department SAF

Emergency Management Program (EMP) requirements under DOE Orders 5500.3A and 5500.1 will be reviewed. The EMP will be developed based on the applicable requirements. The elements of the EMP will include input from hazards assessments, designation of emergency facilities, hazardous materials procedures, Emergency Classification and Action Levels, local actions and self-help, emergency response notification system, public information, and provisions for training, drills, and exercises. EMP training will be provided to personnel involved in its administration.

Requirements determined	09/15/92
Interim EM Improvement Program Developed	12/30/92
Hazard assessment reviewed	08/01/94
EM Improvement Program developed	02/01/95

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	8	8	9	9		34
New ES&H Activities			70	85		155
GPP						
ERWM						

Concern EP.2-2

Stanford Linear Accelerator Center does not have implementing procedures that contain the detailed actions and specific instructions needed to carry out the Emergency Preparedness Plan as required by DOE 5500.3A.

DOE Priority 2

Compliance Protocol DOE Order 5500.3A

Response SLAC's Emergency Management Program implementing procedures are incomplete or in draft form. They will be completed after the SLAC Emergency Management Program is revised. The implementing procedures will contain actions and specific instructions for personnel who are called on to carry out the Emergency Plan.

Related Concern EP.1-1 EP.1-2 EP.3-1 EP.4-1 EP.6-1 MF-3 MF-7

Related Tasks
T1373 Develop Emergency Management Program
T1396 Develop Emergency Plan Implementing Proc.(EPIPs)

TASK T1373 *DEVELOP EMERGENCY MANAGEMENT PROGRAM*
(EP.2-2)

Scheduled Completion	02/01/95
Projected Cost	$189,000
Responsible Department	SAF

Emergency Management Program (EMP) requirements under DOE Orders 5500.3A and 5500.1 will be reviewed. The EMP will be developed based on the applicable requirements. The elements of the EMP will include input from hazards assessments, designation of emergency facilities, hazardous materials procedures, Emergency Classification and Action Levels, local actions and self-help, emergency response notification system, public information, and provisions for training, drills, and exercises. EMP training will be provided to personnel involved in its administration.

Requirements determined	09/15/92
Interim EM Improvement Program Developed	12/30/92
Hazard assessment reviewed	08/01/94
EM Improvement Program developed	02/01/95

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support	8	8	9	9		34
New ES&H Activities			70	85		155
GPP						
ERWM						

TASK T1396 *DEVELOP EMERGENCY PLAN IMPLEMENTING PROC.(EPIPS)*
(EP.2-2)

Scheduled Completion 10/01/95
Projected Cost $66,000
Responsible Department SAF

Responsibility for developing EPIPs will be assigned to the appropriate responsible parties in the SLAC Emergency Organization. The Emergency Management Coordinator provides guidance and will facilitate EPIP reviews by other interested parties as they are developed by the responsible parties. The responsible parties will conduct drills to test their draft EPIPs. Review and maintenance of the EPIPs will be incorporated into the Emergency Management Program.

Assignments made 06/01/93
EPIPs initiated 07/01/93
EPIPs developed 10/01/95

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support						
New ES&H Activities		23	22	21		66
GPP						
ERWM						

Ongoing Cost $10,000

Concern EP.3-1

Stanford Linear Accelerator Center has not established a formal training program for emergency response personnel as required by DOE 5500.3A.

DOE Priority 2

Compliance Protocol DOE Order 5500.3A; DOE EPG 5500.1

Response Although training for various components of the Emergency Organization has been taking place in preparation for exercises or in response to exercise or disaster evaluations, a formal training plan has not been developed. Agreement in principle has been reached on joint training with the Stanford Campus, Hospital, and Medical Center on common emergency positions, particularly on an introductory emergency management course for building managers and response teams. As revision work on the SLAC Emergency Plan progresses, the training plan will be developed, with skills needed for each position identified, and testing/documentation plans developed.

Related Concern EP.1-1 EP.2-2 EP.4-1 EP.7-1 MF-5 RP.13-4

Related Tasks
T1398 Develop Emergency Management Training Program
T1399 Develop Emergency Exercise Program

TASK T1398 (EP.3-1) *DEVELOP EMERGENCY MANAGEMENT TRAINING PROGRAM*

Scheduled Completion	09/01/94
Projected Cost	$170,000
Responsible Department	SAF

DOE requirements and other applicable standards will be reviewed to determine the scope of the program. Other laboratories will be surveyed to obtain ideas for definition of roles, responsibilities, and authorities and for the design of training activities. RRAs for emergency management at SLAC will be defined and will provide the basis for a performance-based training plan. The training plan will describe methods for evaluating training needs and effectiveness, and will include an implementation schedule and documentation plan.

Requirements determined	01/01/93
Emergency management RRAs defined	06/01/93
Training plan approved for implementation	05/01/94
Training provided to staff	09/01/94

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		30	30			60
New ES&H Activities		10	100			110
GPP						
ERWM						
Ongoing Cost $50,000						

TASK T1399 *DEVELOP EMERGENCY EXERCISE PROGRAM*
(EP.3-1)

Scheduled Completion 04/01/95
Projected Cost $290,000
Responsible Department SAF

A matrix will be developed to identify organizational RRAs for various types of exercises. This will help to ensure that all elements of the organization participate in the exercises and will facilitate the planning of communication drills. Exercise programs at comparable facilities will be analyzed and an exercise program will be developed for inclusion in the EM Program, including a schedule of exercises. Responsible parties will be notified of their exercise needs. Participation in the program will be documented. Annual reviews will be conducted to ensure the effectiveness of the program and to ensure coordination with other aspects of the Emergency Management Program.

Initial Survey Complete	04/01/93
Survey completed	04/01/94
Exercise Program completed	04/01/95

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		20	20			40
New ES&H Activities			250			250
GPP						
ERWM						
Ongoing Cost $125,000						

Concern EP.4-1

Stanford Linear Accelerator Center does not have a program of drills and exercises as required by DOE 5500.1B and DOE 5500.3A

DOE Priority 2

Compliance Protocol DOE Orders 5500.1B and 5500.3A

Response Although SLAC has conducted numerous drills and exercises in the last year, they have not been documented in accordance with the requirements of DOE Orders. One of the actions that will be taken is to create an Exercise Design Committee to ensure a thorough, well coordinated program (as was recommended in the December 1990 Exercise Evaluation). The Emergency Management Program will include provisions for the planning, scheduling, preparation, conduct, control, critique, and documentation of drills and exercises.

Related Concern EP.1-1 EP.1-2 EP.2-2 EP.3-1

Related Tasks T1399 Develop Emergency Exercise Program

TASK T1399 *DEVELOP EMERGENCY EXERCISE PROGRAM*
(EP.4-1)

Scheduled Completion	04/01/95
Projected Cost	$290,000
Responsible Department	SAF

A matrix will be developed to identify organizational RRAs for various types of exercises. This will help to ensure that all elements of the organization participate in the exercises and will facilitate the planning of communication drills. Exercise programs at comparable facilities will be analyzed and an exercise program will be developed for inclusion in the EM Program, including a schedule of exercises. Responsible parties will be notified of their exercise needs. Participation in the program will be documented. Annual reviews will be conducted to ensure the effectiveness of the program and to ensure coordination with other aspects of the Emergency Management Program.

Initial Survey Complete	04/01/93
Survey completed	04/01/94
Exercise Program completed	04/01/95

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		20	20			40
New ES&H Activities			250			250
GPP						
ERWM						
Ongoing Cost $125,000						

Concern EP.5-1

The Stanford Linear Accelerator Center Emergency Operations Center does not comply with the requirements of DOE 5500.3A.

DOE Priority 2

Compliance Protocol DOE Order 5500.3A

Response The December, 1990 and October, 1991 Full Field Exercises demonstrated many of the limitations of the architecture of the Main Control Center as an EOC. The size and layout of the facility make emergency operations very difficult. Communications capabilities are inadequate, and it is not equipped and maintained to enable timely activation in an emergency. Improvements will be made in EOC communication and logistical equipment capabilities.

Related Concern EP.1-1 EP.1-2

Related Tasks T1402 Upgrade Emergency Operations Center

TASK T1402 *UPGRADE EMERGENCY OPERATIONS CENTER*
(EP.5-1)

Scheduled Completion	04/01/93
Projected Cost	$40,000
Responsible Department	DO

Several short term actions will be taken to address concerns discovered both in the December, 1990 and October, 1991 Full Field Exercises. The Accelerator Operations Department will appoint an EOC Coordinator/Facility Manager. A committee will be formed to assess the immediate Emergency Facility needs at SLAC. It will examine and make recommendations for improvements such as:

- o More telephones lines/jacks in Conference Room,
- o Direct lines to Logistics and ES&H Command Centers,
- o An expanded Radio Operator area, and
- o Nearby storage for all EOC supplies and equipment, designed for fast set-up

A longer term design process will be undertaken to determine SLAC's EOC needs (based on the Hazards Assessment) and to recommend options for meeting them .

EOC Coordinator and committee appointed	09/01/92
Needs assessment completed	10/01/92
Interim improvements installed	11/01/92
Improvement program developed	04/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	2	3				5
New ES&H Activities	15	20				35
GPP						
ERWM						

Concern EP.6-1

Stanford Linear Accelerator Center has no procedures for assessing the consequences of an emergency involving hazardous materials or procedures for determining an emergency class based on emergency action levels as required by DOE 5500.3A.

DOE Priority 2

Compliance Protocol DOE Order 5500.3A; Draft DOE Order 5480.SAR; DOE Order 5480.7; DOE Order 5481.1B; DOE Order 5500.3A; DOE Order 5500.1; DOE Order 5430.11; California Health & Safety Code, Chpt. 6.95, Article 1 "Business & Area Plans"

Response In order for responding emergency organizations to correctly classify emergencies, assess consequences and decide on appropriate actions, SLAC will develop procedures to assess consequences and determine emergency class. An Emergency Classification and Action Level Procedure will be developed as a part of the Emergency Management Program.

Related Concern EP.1-1 EP.1-2 EP.2-1 EP.2-2 IWS/CF-5 WM/CF-6

Related Tasks T1373 Develop Emergency Management Program

TASK T1373 *DEVELOP EMERGENCY MANAGEMENT PROGRAM*
(EP.6-1)

Scheduled Completion	02/01/95
Projected Cost	$189,000
Responsible Department	SAF

Emergency Management Program (EMP) requirements under DOE Orders 5500.3A and 5500.1 will be reviewed. The EMP will be developed based on the applicable requirements. The elements of the EMP will include input from hazards assessments, designation of emergency facilities, hazardous materials procedures, Emergency Classification and Action Levels, local actions and self-help, emergency response notification system, public information, and provisions for training, drills, and exercises. EMP training will be provided to personnel involved in its administration.

Requirements determined	09/15/92
Interim EM Improvement Program Developed	12/30/92
Hazard assessment reviewed	08/01/94
EM Improvement Program developed	02/01/95

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	8	8	9	9		34
New ES&H Activities			70	85		155
GPP						
ERWM						

Concern EP.6-2

Stanford Linear Accelerator Center has not established a method for prompt initial notification of emergency response personnel and for initial and followup notifications to offsite organizations as required by DOE 5500.3A.

DOE Priority 2

Compliance Protocol DOE Order 5500.3A; California Health & Safety Code, Chapter 6.95, Article 1 "Business & Area Plans"

Response In order to obtain maximum benefit from emergency response organizations, prompt notification procedures are needed for onsite personnel and offsite organizations. The requirements of DOE 5500.3A will be reviewed and the SLAC Emergency Management Program revised.

Related Concern EP.1-1 EP.1-2 EP.2-2 EP.6-1 IWS/CF-5 WM/CF-6

Related Tasks T1373 Develop Emergency Management Program

TASK T1373 *DEVELOP EMERGENCY MANAGEMENT PROGRAM*
(EP.6-2)

Scheduled Completion	02/01/95
Projected Cost	$189,000
Responsible Department	SAF

Emergency Management Program (EMP) requirements under DOE Orders 5500.3A and 5500.1 will be reviewed. The EMP will be developed based on the applicable requirements. The elements of the EMP will include input from hazards assessments, designation of emergency facilities, hazardous materials procedures, Emergency Classification and Action Levels, local actions and self-help, emergency response notification system, public information, and provisions for training, drills, and exercises. EMP training will be provided to personnel involved in its administration.

Requirements determined	09/15/92
Interim EM Improvement Program Developed	12/30/92
Hazard assessment reviewed	08/01/94
EM Improvement Program developed	02/01/95

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	8	8	9	9		34
New ES&H Activities			70	85		155
GPP						
ERWM						

Concern EP.6-3

Stanford Linear Accelerator Center has not established an emergency public information program consistent with the requirements of DOE 5500.3A and 5500.4.

DOE Priority 2

Compliance Protocol DOE Orders 5500.3A and 5500.4

Response Provisions for an emergency public information program need to be improved. In particular, SLAC has not established a formal method for providing timely and accurate emergency-related information to the media and the public.

The Emergency Management Program will be revised to include relevant reporting criteria, directions, and current lists of media contacts and responsible officials of the local communities to whom emergency notifications are to be sent. Pre-formatted message forms will be developed for this purpose.

Related Tasks T1373 Develop Emergency Management Program

TASK T1373 *DEVELOP EMERGENCY MANAGEMENT PROGRAM*
(EP.6-3)

Scheduled Completion	02/01/95
Projected Cost	$189,000
Responsible Department	SAF

Emergency Management Program (EMP) requirements under DOE Orders 5500.3A and 5500.1 will be reviewed. The EMP will be developed based on the applicable requirements. The elements of the EMP will include input from hazards assessments, designation of emergency facilities, hazardous materials procedures, Emergency Classification and Action Levels, local actions and self-help, emergency response notification system, public information, and provisions for training, drills, and exercises. EMP training will be provided to personnel involved in its administration.

Requirements determined	09/15/92
Interim EM Improvement Program Developed	12/30/92
Hazard assessment reviewed	08/01/94
EM Improvement Program developed	02/01/95

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	8	8	9	9		34
New ES&H Activities			70	85		155
GPP						
ERWM						

Concern EP.7-1

An effective method for personnel accountability is not in place as required by DOE 5500.3A.

DOE Priority 2

Compliance Protocol DOE Order 5500.3A

Response Most SLAC Building Managers, safety committees, and operating staff have not been trained in how to effectively sweep-search buildings during evacuation to ensure that they are empty and all personnel are accounted for.

The method to be used for personnel accountability will be part of the Emergency Management Program and will be incorporated into the training matrix, and the exercises and drills.

Related Concern EP.1-2 EP.2-2 EP.3-1 EP.4-1

Related Tasks

T1396 Develop Emergency Plan Implementing Proc.(EPIPs)
T1373 Develop Emergency Management Program
T1398 Develop Emergency Management Training Program
T1399 Develop Emergency Exercise Program

TASK T1396 (EP.7-1) *DEVELOP EMERGENCY PLAN IMPLEMENTING PROC.(EPIPS)*

Scheduled Completion	10/01/95
Projected Cost	$66,000
Responsible Department	SAF

Responsibility for developing EPIPs will be assigned to the appropriate responsible parties in the SLAC Emergency Organization. The Emergency Management Coordinator provides guidance and will facilitate EPIP reviews by other interested parties as they are developed by the responsible parties. The responsible parties will conduct drills to test their draft EPIPs. Review and maintenance of the EPIPs will be incorporated into the Emergency Management Program.

Assignments made	06/01/93
EPIPs initiated	07/01/93
EPIPs developed	10/01/95

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support						
New ES&H Activities		23	22	21		66
GPP						
ERWM						
Ongoing Cost $10,000						

TASK T1373 *DEVELOP EMERGENCY MANAGEMENT PROGRAM*
(EP.7-1)

Scheduled Completion 02/01/95
Projected Cost $189,000
Responsible Department SAF

Emergency Management Program (EMP) requirements under DOE Orders 5500.3A and 5500.1 will be reviewed. The EMP will be developed based on the applicable requirements. The elements of the EMP will include input from hazards assessments, designation of emergency facilities, hazardous materials procedures, Emergency Classification and Action Levels, local actions and self-help, emergency response notification system, public information, and provisions for training, drills, and exercises. EMP training will be provided to personnel involved in its administration.

Requirements determined	09/15/92
Interim EM Improvement Program Developed	12/30/92
Hazard assessment reviewed	08/01/94
EM Improvement Program developed	02/01/95

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	8	8	9	9		34
New ES&H Activities			70	85		155
GPP						
ERWM						

TASK T1398 *DEVELOP EMERGENCY MANAGEMENT TRAINING PROGRAM*
(EP.7-1)

Scheduled Completion 09/01/94
Projected Cost $170,000
Responsible Department SAF

DOE requirements and other applicable standards will be reviewed to determine the scope of the program. Other laboratories will be surveyed to obtain ideas for definition of roles, responsibilities, and authorities and for the design of training activities. RRAs for emergency management at SLAC will be defined and will provide the basis for a performance-based training plan. The training plan will describe methods for evaluating training needs and effectiveness, and will include an implementation schedule and documentation plan.

Requirements determined	01/01/93
Emergency management RRAs defined	06/01/93
Training plan approved for implementation	05/01/94
Training provided to staff	09/01/94

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		30	30			60
New ES&H Activities		10	100			110
GPP						
ERWM						
Ongoing Cost $50,000						

TASK T1399 *DEVELOP EMERGENCY EXERCISE PROGRAM*
(EP.7-1)

Scheduled Completion	04/01/95
Projected Cost	$290,000
Responsible Department	SAF

A matrix will be developed to identify organizational RRAs for various types of exercises. This will help to ensure that all elements of the organization participate in the exercises and will facilitate the planning of communication drills. Exercise programs at comparable facilities will be analyzed and an exercise program will be developed for inclusion in the EM Program, including a schedule of exercises. Responsible parties will be notified of their exercise needs. Participation in the program will be documented. Annual reviews will be conducted to ensure the effectiveness of the program and to ensure coordination with other aspects of the Emergency Management Program.

Initial Survey Complete	04/01/93
Survey completed	04/01/94
Exercise Program completed	04/01/95

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		20	20			40
New ES&H Activities			250			250
GPP						
ERWM						
Ongoing Cost $125,000						

Concern PT.1-1

Stanford Linear Accelerator Center has not developed a program or procedures to ensure shipments comply with DOE 1540.1, DOE 1540.2 and DOE 5480.3, and applicable DOT and EPA regulations.

DOE Priority 2

Compliance Protocol DOE Orders 1540.1, 1540.2, and 5480.2; Applicable DOT and EPA regulations

Response Hazardous materials are transported on-site between the shipping and receiving office and the users. Hazardous wastes are transported between Waste Accumulation Areas and the Hazardous Waste Storage Area. Various procedures are in place for reference by individuals involved in these transportation activities. However, there is no single source of policies, guidance and procedures for these activities.

Corrective action of this concern will require an analysis of the applicable regulations and orders and development of appropriate laboratory policies governing transportation of hazardous materials and wastes on-site. Those policies will be implemented through the issuance of guidance and procedures.

Related Concern PT.4-1 PT.9-1

Related Tasks T1239 Develop Guidance on Hazardous Transportation

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TASK T1239 *DEVELOP GUIDANCE ON HAZARDOUS TRANSPORTATION*
(PT.1-1)

Scheduled Completion	10/01/94
Projected Cost	$15,000
Responsible Department	EPWM

In order to develop policy and guidance governing transportation of hazardous materials and wastes, the DOE and regulatory requirements regarding this issue must be well understood. Those requirements must then be interpreted in the context of transportation operations as they apply to SLAC. Upon completion of the analysis, a policy will be developed and issued, providing the basis for further promulgation of guidance and procedures related to specific transportation activities. The policy and guidelines may be incorporated as a chapter in the ES&H Manual or as a separate handbook.

Requirements analyzed	05/01/94
Policy issued	07/01/94
Guidelines for implementation issued	10/01/94

	Detailed Costs ($K)					
	92	93	94	95	96	Total
Existing ES&H Support			15			15
New ES&H Activities						
GPP						
ERWM						

Concern PT.1-2

Stanford Linear Accelerator Center has no transportation safety manual for onsite transfers.

DOE Priority 3

Compliance Protocol DOE Order 5480.X

Response Hazardous materials are transported on site between the shipping and receiving office and the users. Hazardous wastes are transported between Waste Accumulation Areas and the Hazardous Waste Storage Area. Various procedures are in place for reference by individuals involved in these transportation activities. However, there is no single source of policies, guidance and procedures for these activities.

Corrective action of this concern will require an analysis of the applicable regulations and orders and development of appropriate laboratory policies governing transportation of hazardous materials and wastes on-site. Those policies will be implemented through the issuance of guidance and procedures.

Related Concern PT.2-1

Related Tasks T1239 Develop Guidance on Hazardous Transportation

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TASK T1239 *DEVELOP GUIDANCE ON HAZARDOUS TRANSPORTATION*
(PT.1-2)

Scheduled Completion	10/01/94
Projected Cost	$15,000
Responsible Department	EPWM

In order to develop policy and guidance governing transportation of hazardous materials and wastes, the DOE and regulatory requirements regarding this issue must be well understood. Those requirements must then be interpreted in the context of transportation operations as they apply to SLAC. Upon completion of the analysis, a policy will be developed and issued, providing the basis for further promulgation of guidance and procedures related to specific transportation activities. The policy and guidelines may be incorporated as a chapter in the ES&H Manual or as a separate handbook.

Requirements analyzed	05/01/94
Policy issued	07/01/94
Guidelines for implementation issued	10/01/94

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support			15			15
New ES&H Activities						
GPP						
ERWM						

Concern PT.1-3

Hazardous waste data for the DOE Shipment Mobility/Accountability Concept system is not reported at the frequency required by DOE 1540.1, Chapter I, Section 10.b.

DOE Priority 2

Compliance Protocol DOE Order 1540.1, Chapter I, Section 10.b

Response The Purchasing Department is responsible for reporting on outbound shipments of hazardous materials and hazardous waste to the DOE shipment Mobility/Accountability Concept (SMAC) system . Reporting has not been within the required time frame established by DOE 1540.1, Chapter 1, Section 10.b. The Purchasing Department will establish a procedure that requires both EP&WM and Shipping to submit data in a timely manner to the SLAC official responsible for reporting to the SMAC system. Reporting will be done manually on a monthly basis to assure that SMAC receives data by the 11th working day of each month for shipments made during the previous month.

Related Tasks T1008 Develop Procedure for SMAC Reporting

TASK T1008 *DEVELOP PROCEDURE FOR SMAC REPORTING*
(PT.1-3)

Scheduled Completion	Completed
Projected Cost	$1,000
Responsible Department	PUR

Write a procedure that applies to both EP&WM for hazardous waste shipments and to Shipping for hazardous materials shipments. The procedure will require submission of copies of all hazardous waste manifests and/or hazardous materials shipping orders to the Purchasing Department SMAC reporting official immediately after each shipment so as to allow for timely reporting to the SMAC system.

Procedure written and implemented 01/15/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	1					1
New ES&H Activities						
GPP						
ERWM						

Concern PT.2-1

Training requirements for the job functions of packaging and transportation personnel have not been established, and existing training is not documented.

DOE Priority 3

Compliance Protocol DOE Order 5480.3; 29 CFR 1910

Response A formal training program for personnel involved with packaging and transportation at SLAC does not exist. The ES&H Training Program (under development) will, upon completion, address the identification of training requirements, identification of staff to be trained, evaluation methods for on- and off-site training, maintenance of centralized records, evaluation of the effectiveness of training, and on-the-job training requirements.

Related Concern MF-5 PT.2-1 PT.2-2

Related Tasks T1409 Develop ES&H Training Plan

TASK T1409 *DEVELOP ES&H TRAINING PLAN*
(PT.2-1)

Scheduled Completion	01/01/93
Projected Cost	$60,000
Responsible Department	SAF

An ES&H training plan will be developed to guide improvements in SLAC's ES&H training programs. The plan will be based on the existing DRAFT ES&H Training Program Outline and the 1991 Job Task/Hazard Survey. The survey will be reviewed for completeness and additional surveying will be performed as indicated. The Outline will be enhanced and expanded into an overall plan describing the training programs and resources necessary to provide a satisfactory level of ES&H training to the SLAC workforce. This plan will address both in-house training and training provided by outside contractors.

Concurrently with the development of the training plan, a number of interim actions will be taken to address significant noncompliances and to develop the resources necessary for implementation of the plan. These interim measures include initiation of training in such key areas as hazard communication and hazardous materials handling; training of line managers to increase their awareness and understanding of their roles, responsibilities, and authorities; examination and development of systems to assess job effectiveness to provide feedback on needed modifications for training programs; expansion to all courses, as they are given, of the formal evaluations of attained proficiency; and completion and initial implementation of the database/recordkeeping system.

Task/Hazard Survey Institutionalized	08/01/92
Training Needs Indentification Systems Initiated	07/01/92
Database system implementation initiated	09/01/92
Training plan finalized	01/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	33	7				40
New ES&H Activities	14	6				20
GPP						
ERWM						
Ongoing Cost $50,000						

Concern PT.2-2

Regulatory compliance training provided by offsite contractors for Stanford Linear Accelerator Center packaging and transportation personnel is not effective.

DOE Priority 3

Compliance Protocol DOE Orders 5480.18 and 5480.20; 29 CFR 1910,1926

Response No formal method has been established to evaluate the effectiveness of compliance training provided by off-site contractors for SLAC personnel. The ES&H Training Program will address this issue.

Related Concern EA.1-1 EP.3-1 MF-5 OP.1-1 PT.2-1 PT.2-2 QV.1-3 QV.8-1 RP.10-1 RP.13-1 RP.13-2 RP.13-3 RP.13-4 WS.3-2

Related Tasks T1409 Develop ES&H Training Plan

TASK T1409 *DEVELOP ES&H TRAINING PLAN*
(PT.2-2)

Scheduled Completion	01/01/93
Projected Cost	$60,000
Responsible Department	SAF

An ES&H training plan will be developed to guide improvements in SLAC's ES&H training programs. The plan will be based on the existing DRAFT ES&H Training Program Outline and the 1991 Job Task/Hazard Survey. The survey will be reviewed for completeness and additional surveying will be performed as indicated. The Outline will be enhanced and expanded into an overall plan describing the training programs and resources necessary to provide a satisfactory level of ES&H training to the SLAC workforce. This plan will address both in-house training and training provided by outside contractors.

Concurrently with the development of the training plan, a number of interim actions will be taken to address significant noncompliances and to develop the resources necessary for implementation of the plan. These interim measures include initiation of training in such key areas as hazard communication and hazardous materials handling; training of line managers to increase their awareness and understanding of their roles, responsibilities, and authorities; examination and development of systems to assess job effectiveness to provide feedback on needed modifications for training programs; expansion to all courses, as they are given, of the formal evaluations of attained proficiency; and completion and initial implementation of the database/recordkeeping system.

Task/Hazard Survey Institutionalized	08/01/92
Training Needs Indentification Systems Initiated	07/01/92
Database system implementation initiated	09/01/92
Training plan finalized	01/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	33	7				40
New ES&H Activities	14	6				20
GPP						
ERWM						
Ongoing Cost $50,000						

Concern PT.3-1

The Quality Assurance audits of packaging and transportation operations have not been performed as required by DOE 5480.3 to meet the guidelines of DOE 5700.6B.

DOE Priority 2

Compliance Protocol DOE Orders 5480.3 and 5700.6C

Response SLAC will review the applicable DOE orders to determine where SLAC has been deficient in performing QA audits of packaging and transportation operations. New procedures will be established to bring the site in compliance with applicable DOE Orders. These procedures will be included in the audit plan for ES&H activities.

Related Tasks

T1293 Develop Comprehensive Audit Plan for ES&H Act.
T1294 Define Audit Roles & Responsibilities
T1295 Develop a Detailed Procedure for Audits

TASK T1293 *DEVELOP COMPREHENSIVE AUDIT PLAN FOR ES&H ACT.*
(PT.3-1)

Scheduled Completion	Completed
Projected Cost	$20,000
Responsible Department	QA&C

A global plan for auditing will be developed. This plan will include identification of the audit to be undertaken including surveillance, routine audits, and special audits, identification of the appropriate audit staff/teams, training requirements as applicable prior to undertaking auditing, and the appropriate frequency of audits. The appraisals will be undertaken by Quality Assurance and Compliance Department personnel, independent internal experts, outside technical experts from other laboratories, or consulting firms, depending on the technical requirements and nature of the audit activity. The audit program will proceed with audits and activities explicitly called out in DOE Orders such as 5400.1 in advance of the formal plan development.

Requirements reviewed	06/01/92
Staffing needs to support audits identified	09/01/92
Audit plan prepared	11/01/92
SLAC approval of audit plan obtained	12/01/92
Implementation of audit plan begun	12/31/92

	Detailed Costs ($K)					
	92	93	94	95	96	Total
Existing ES&H Support	10	10				20
New ES&H Activities						
GPP						
ERWM						

TASK T1294 *DEFINE AUDIT ROLES & RESPONSIBILITIES*
(PT.3-1)

Scheduled Completion 11/15/92
Projected Cost $5,000
Responsible Department QA&C

The roles, responsibilities, and authorities (RRAs) for audit resolution, follow-up, corrective action, implementation, and oversight will be detailed in the audit section of the revised Institutional QA Manual.

Audit RRAs documented 11/15/92

	Detailed Costs ($K)					
	92	93	94	95	96	Total
Existing ES&H Support	5					5
New ES&H Activities						
GPP						
ERWM						

TASK T1295 *DEVELOP A DETAILED PROCEDURE FOR AUDITS*
(PT.3-1)

Scheduled Completion Completed
Projected Cost $7,000
Responsible Department QA&C

A detailed audit procedure which addresses items such as resolution of audit findings, audit types, audit documentation requirements, and other issues related to auditing will be developed.

Draft procedures developed 05/01/92
Management approval of document obtained 06/01/92

	Detailed Costs ($K)					
	92	93	94	95	96	Total
Existing ES&H Support	7					7
New ES&H Activities						
GPP						
ERWM						

Concern PT.3-2

There is no documented program of packaging vendor qualification and no verification that packagings meet DOT specifications as required by DOE 5480.3, Sections 9.a and b.

DOE Priority 2

Compliance Protocol DOE Order 5480.3, Sections 9.a and b

Response SLAC has not established a method to verify that purchased packaging for radioactive materials conform to DOT specifications. Although approved packaging materials are specified on purchase orders, SLAC does not verify that the vendors are qualified to meet DOT specifications. SLAC will establish a documented procedure that requires buyers to only purchase radioactive materials packaging from qualified vendors. The procedure will also require proper certification for all such purchases.

Related Tasks T1005 Write Procedure for Qualifying Vendors

TASK T1005 *WRITE PROCEDURE FOR QUALIFYING VENDORS*
(PT.3-2)

Scheduled Completion	02/01/93
Projected Cost	$5,000
Responsible Department	PUR

The Purchasing Department will write a procedure that requires all buyers to deal only with vendors that are qualified to meet DOT specifications for packaging radioactive materials as required by DOE Order 5480.3, Section 9.a and 9.b. The QA and Compliance Department will conduct inspections of packaging and audits of vendors.

Audits and inspections initiated	09/01/92
Procedure written	12/01/92
Buyers and receiving personnel trained	02/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		5				5
New ES&H Activities						
GPP						
ERWM						

Concern PT.4-1

The Stanford Linear Accelerator Center does not provide 24-hour emergency contact that meets the requirements of 49 CFR 172.604.

DOE Priority 2

Compliance Protocol 49 CFR 172.604

Response The Shipping Department was using a pager in lieu of a telephone as the 24-hour emergency telephone number required for hazardous material shipments. The use of a pager is not in compliance with 49 CFR 172.604. This problem was immediately corrected by the establishment of an emergency response procedure and the purchase of a portable, cellular telephone for use as the 24 hour emergency response number.

Related Concern PT.9-1

Related Tasks T1014 Emergency Response for Hazardous Material Shipment

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TASK T1014 *EMERGENCY RESPONSE FOR HAZARDOUS MATERIAL SHIPMENT*
(PT.4-1)

Scheduled Completion	Completed
Projected Cost	$3,000
Responsible Department	PUR

A procedure for Emergency Response has been written for hazardous material shipments. A portable, cellular telephone was purchased while the Tiger Team was on site.

Cellular telephone procured	11/04/91
Procedure completed	11/27/91

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	3					3
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $2,000						

Concern PT.6-1

The absence of proper vehicle maintenance at the Stanford Linear Accelerator Center compromises vehicle safety.

DOE Priority 3

Response The annual maintenance of DOE vehicles has not been performed on time for 25% of the SLAC vehicles. To rectify this the Facilities Office will verify the condition of all vehicles overdue for annual maintenance to assure that they are safe to operate, review existing vehicle maintenance requirements and schedule all vehicles overdue for annual maintenance for immediate maintenance, and d evelop procedures to assure that the status of vehicle maintenance activities is reported monthly.

Related Tasks T1082 Review Records and Schedule Vehicle Maintenance

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TASK T1082 *REVIEW RECORDS AND SCHEDULE VEHICLE MAINTENANCE*
(PT.6-1)

Scheduled Completion	09/15/92
Projected Cost	$12,000
Responsible Department	FAC

Inspect vehicles and schedule vehicle maintenance. Review the maintenance records and schedule all overdue vehicles for annual maintenance and surveillance for operational safety. Establish procedures for monthly reporting of status of vehicle maintenance activities.

Overdue vehicles inspected	09/15/92
Procedure developed	04/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	12					12
New ES&H Activities						
GPP						
ERWM						

Concern PT.6-2

There are no safety and accountability procedures to ensure that all radioisotopes brought onsite are inventoried.

DOE Priority 3

Compliance Protocol DOE Order No. 5480.11

Response Site-wide operations involving packaging and transportation of hazardous materials should be conducted in a safe, consistent, and accountable manner, following approved procedures in conformance with applicable standards and accepted practices. To ensure that all radioisotopes brought on-site are inventoried and handled in a safe, consistent, and accountable manner, procedures will be developed and integrated into SLAC's procurement program to tie-in shipping and receiving to the OHP database. A policy statement will be generated and integrated into the ES&H manual in the radiation safety section and in the section concerning requisition requirements for outside vendor usage at SLAC.

In addition, the requirements for inventorying all sources will be covered in training sessions for managers and supervisors so they will be alert to sources that may be brought on-site without authorization.

Related Concern RP.3-4

Related Tasks

T1323 Develop Procedure for Rad. Sources Brought Onsite
T1325 Provide Training for Radioactive Source Handling

TASK T1323 (PT.6-2) *DEVELOP PROCEDURE FOR RAD. SOURCES BROUGHT ONSITE*

Scheduled Completion	03/01/93
Projected Cost	$10,000
Responsible Department	OHP

Identify requirements for purchasing personnel, researchers/users and OHP personnel. Write section for ES&H Manual on requirements for bringing radioactive sources onto the SLAC site. Ensure agreement between purchasing, shipping and receiving, and OHP procedures.

Requirements defined	08/01/92
ES&H Manual section on rad. sources completed	10/01/92
All related documents updated	03/01/93

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support		10				10
New ES&H Activities						
GPP						
ERWM						

TASK T1325 *PROVIDE TRAINING FOR RADIOACTIVE SOURCE HANDLING*
(PT.6-2)

Scheduled Completion 01/01/94
Projected Cost $9,000
Responsible Department OHP

Requirements for training managers and supervisors on the transporting of radioactive materials and responsibilities for the inventory of radioactive materials on-site will be identified. A training package for radioactive source handling will be developed and training on radioactive source handling for managers and supervisors will be provided.

Requirements for managers & supervisors defined	10/01/93
Responsibilities for inventorying identified	11/01/93
Radioactive sources training package completed	12/01/93
Training of target supervisors initiated	01/01/94

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support		3	6			9
New ES&H Activities						
GPP						
ERWM						

Concern PT.8-1

The Department of Energy, San Francisco Operation Office did not inform the Stanford Linear Accelerator Center of the Department of Transportation interpretation regarding public roads as requested by the Department of Energy Headquarters.

DOE Priority 4

Compliance Protocol DOT, 49 CFR 171; DOE Order 5490.3

Response The DOE-SF Environmental Restoration and Waste Management (ERWM) Division typically provides information on packaging and transportation (P&T) to SLAC. In particular for on-site transportation, the draft DOE Order 5480.X was transmitted to SLAC for comment, letters announcing various DOE P&T meetings, and participate in the Contractors Traffic Management Association. In the case of the interpretation of DOT (April 23, 1991), a memo issued by DOE-EM50.1 on May 8, 1991, with the DOT interpretation attached, was submitted to SLAC directly from DOE-HQ. SF-ERWM did not transmit the EM50.1 memo to SLAC since they were on distribution from DOE-HQ.

Related Tasks T1423 Implement New SF/ERWM Branch

TASK T1423 *IMPLEMENT NEW SF/ERWM BRANCH*
(PT.8-1)

Scheduled Completion	01/13/92
Projected Cost	$
Responsible Department	DOE

The SF-ERWM division has increased the packaging and transportation staff to two FTE and created a new branch within the division to allow more emphasis on P&T. Appropriate implementation of DOE-HQ P&T guidance will be transmitted to SF contractors.

Increase P&T staffing to two FTEs	01/01/92
Implement new ERWM branch	01/13/92

Concern PT.8-2

Transfers of hazardous materials and wastes on roads accessible to the public on the Stanford Linear Accelerator Center property do not comply with the hazardous materials regulations of Department of Transportation as required by DOE Order 1540.1.

DOE Priority 2

Compliance Protocol DOE Order 1540.1

Response According to the DOE Stanford Site Office report dated January 10, 1992, finding PT.8-2 has been formally dropped from further consideration. SLAC will therefore take no further action on this concern.

Related Tasks

Concern PT.9-1

Shipping papers are not prepared in accordance with 49 CFR 172.

DOE Priority 2

Compliance Protocol 49 CFR 172

Response Shipping papers for hazardous materials and manifests for hazardous waste are often carelessly and incompletely prepared. Data required by 49 CFR 172 is omitted. SLAC will develop written procedures to cover the proper preparation of shipping papers and hazardous waste manifests.

Related Concern PT.4-1

Related Tasks T1004 Prepare Procedure for Hazardous Waste Manifests

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TASK T1004 (PT.9-1) *PREPARE PROCEDURE FOR HAZARDOUS WASTE MANIFESTS*

Scheduled Completion	Completed
Projected Cost	$5,000
Responsible Department	PUR

The Shipping and Receiving Office and the Environmental Protection and Waste Management Department will prepare written procedures for properly filling out shipping papers and hazardous waste manifests.

Shipping paper procedures completed	01/17/92
Manifest procedures completed	08/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	5					5
New ES&H Activities						
GPP						
ERWM						

Concern PT.11-1

The Department of Energy San Francisco Operation Office does not have a formal program to appraise packaging and transportation safety as required by DOE 5482.1B, Section 8.e.2, and DOE 5480.3, Section 6.c.5.

DOE Priority 3

Compliance Protocol DOE Order 5482.1B, Section 8.e.2; DOE Order 5480.3, Section 6.c.5; ; DOT 49 CFR 171; DOE Order 1540.1

Response Due to staffing constraints, appraisals of the smaller DOE contract sites had been scheduled for a triennial basis.

1. SF/ERWM has assigned a second FTE to Transportation, Hazardous Waste.
2. The FY 92 Plan and Budget requests another hazardous materials FTE.

Related Tasks T1417 Hazardous Materials Transportation Appraisals

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TASK T1417 *HAZARDOUS MATERIALS TRANSPORTATION APPRAISALS*
(PT.11-1)

Scheduled Completion	03/01/92
Projected Cost	$
Responsible Department	DOE

The San Francisco Field Office has increased staffing to two FTE for hazardous waste transportation oversight, set an annual transportation appraisal schedule for SLAC and created a new environmental planning and assurance branch at DOE-SF which will have more transportation emphasis.

Additional person assigned to transportation	01/01/92
New environmental SF branch implemented	01/13/92
Annual appraisals scheduled	03/01/92

Concern PT.12-1

Packaging and storage of hazardous waste is not conducted in compliance with DOT regulations of 49 CFR 177, Subparts B, C, and D.

DOE Priority 2

Compliance Protocol 49 CFR 177, Subparts B, C, and D; DOE Order 5480.3; 40 CFR;

Response Packaging and storage of hazardous waste is not always conducted in conformance with the identified compliance protocols. Compliance protocols will be reviewed to identify applicable requirements, and existing procedures will be revised to ensure proper packaging and storage of hazardous waste. This will include inspection of storage practices in waste accumulation areas, procedures to properly fill drums, and pre-transport inspection of drums moved from SLAC to the Chemical Storage Area.

Related Concern PP.5-1

Related Tasks T1285 Revise Haz. Waste Packaging & Storage Procedures

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TASK T1285 (PT.12-1) *REVISE HAZ. WASTE PACKAGING & STORAGE PROCEDURES*

Scheduled Completion	01/01/93
Projected Cost	$10,000
Responsible Department	EPWM

The existing procedures for packaging and storage of hazardous waste will be revised to ensure conformance with DOE 5480.3, 49 CFR 177, and 40 CFR. A procedure for waste generators to properly fill drums will be developed, and a more formal inspection of filled drums transported at SLAC to the Chemical Storage Area will be conducted.

Compliance protocols reviewed	07/15/92
Haz. waste packaging & storage procedures revised	01/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	8	2				10
New ES&H Activities						
GPP						
ERWM						

Concern EA.1-1

No disciplined system is in place to ensure that all experimenters are given health and safety training and indoctrination as required by DOE 5480.11, Section 9.0, and DOE 5480.10, Section 9.b.5.

DOE Priority 2

Compliance Protocol DOE Order 5480.11, Section 9.0; DOE Order 5480.10, Section 9.b.5

Response In order that experimenters receive proper health and safety indoctrination at each experimental facility at SLAC and SSRL, safety training policies for the facilities will be reviewed and revised to assure that they meet the requirements of DOE 5480.11, Section 9.0, and DOE 5480.10, Section 9.b.(5). These policies will require each facility to provide a mechanism for establishing who the experimenters are and how they are to be trained in general health and safety and facility-specific safety.

Related Concern RP.13-1

Related Tasks T1316 Provide Experimenter Safety Training

TASK T1316 *PROVIDE EXPERIMENTER SAFETY TRAINING*
(EA.1-1)

Scheduled Completion	04/01/93
Projected Cost	$50,000
Responsible Department	RD

A policy will be developed which requires each facility to formally identify and document who their experimenters are and how they are being trained in general health and safety and facility-specific safety matters. This policy will specify that each facility review the requirements of DOE 5480.11, Section 9.0, and DOE 5480.10, Section 9.b.(5) and modify their safety documents and training as needed. The facilities will then revise their safety manuals to require identification of their experimenters, and as otherwise needed. Each facility will then develop training materials specific to the facility and begin training of experimenters.

Policy on experimenter training written & issued	08/01/92
Safety manuals & training programs revised	02/01/93
Training initiated	04/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	10	10				20
New ES&H Activities	15	15				30
GPP						
ERWM						

Concern FR.2-1

Stanford Linear Accelerator Center's safety review process does not include all elements required by DOE 5482.1B.

DOE Priority 2

Compliance Protocol DOE Order 5482.1B

Response Several safety committees at SLAC review safety questions and the safety impact of experiments. The charters and activities of these committees will be reviewed to assure compliance with all applicable parts of DOE Order 5482.1B. Areas that will be specifically addressed include the performance of technical reviews of experimental proposals and significant equipment configuration changes, documentation of significant safety issues that were considered and the criteria applied, specification of operational safety requirements, and the adequacy of technical operating procedures.

Related Concern FR.2-1 FR.2-2 FR.5-1 OP.3-1

Related Tasks T1314 Revise Safety Review Policy

TASK T1314 *REVISE SAFETY REVIEW POLICY*
(FR.2-1)

Scheduled Completion	10/01/93
Projected Cost	$35,000
Responsible Department	DO

The ES&H Coordinating Council (ES&HCC) will coordinate the review of charters and practices of all relevant safety committees. The ES&HCC will review the charters and revise and modify them per applicable sections of DOE Order 5482.1B. Areas that will be specifically addressed include broadening the scope of the Safety Committee to include the performance of technical reviews of experimental proposals and significant equipment configuration changes and reviews of facility modifications. Documentation of the Citizen's Committees reviews will be expanded to include the significant safety issues that were considered and the rationale used to determine their acceptability and evaluation of technical adequacy of operating procedures during the course of safety reviews. The ES&HCC will then approve the revised charters and issue them to the committees for implementation. The Committee charters and procedures will be communicated to relevant personnel to ensure that those involved with operations and facility design, modification, and management are informed of committee review requirements.

Citizen committee charters reviewed	04/01/93
Charters revised as appropriate	05/01/93
Committee procedures developed	09/01/93
Committee procedures communicated	10/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		35				35
New ES&H Activities						
GPP						
ERWM						

Concern FR.2-2

There is no formal mechanism to ensure all facility modifcations and experiments receive appropriate safety reviews, as required by DOE Order 5482.1B.

DOE Priority 2

Compliance Protocol DOE Order 5482.1B

Response SLAC safety committees should review modifications to existing facilities before they occur in order to assure continued safe operation. This will require that the charters of the review committees be revised to include facility modifications and that various people involved with the operation, design, modification, or building management be informed of these review requirements.

Related Concern FR.2-1

Related Tasks T1314 Revise Safety Review Policy

TASK T1314 *REVISE SAFETY REVIEW POLICY*
(FR.2-2)

Scheduled Completion	10/01/93
Projected Cost	$35,000
Responsible Department	DO

The ES&H Coordinating Council (ES&HCC) will coordinate the review of charters and practices of all relevant safety committees. The ES&HCC will review the charters and revise and modify them per applicable sections of DOE Order 5482.1B. Areas that will be specifically addressed include broadening the scope of the Safety Committee to include the performance of technical reviews of experimental proposals and significant equipment configuration changes and reviews of facility modifications. Documentation of the Citizen's Committees reviews will be expanded to include the significant safety issues that were considered and the rationale used to determine their acceptability and evaluation of technical adequacy of operating procedures during the course of safety reviews. The ES&HCC will then approve the revised charters and issue them to the committees for implementation. The Committee charters and procedures will be communicated to relevant personnel to ensure that those involved with operations and facility design, modification, and management are informed of committee review requirements.

Citizen committee charters reviewed	04/01/93
Charters revised as appropriate	05/01/93
Committee procedures developed	09/01/93
Committee procedures communicated	10/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		35				35
New ES&H Activities						
GPP						
ERWM						

Concern FR.4-1

Periodic, comprehensive operating reviews of the facility are not performed.

DOE Priority 3

Compliance Protocol DOE Order 5480.5; DOE Order 5480.6

Response Performance of an annual operating review would provide management with assurance that appropriate safety considerations have been afforded to experiments, administrative and operating procedures, operating limits, unusual occurrences, and modifications to facilities and equipment. A comprehensive review of this nature is presently not being performed. Responsibility for performing such a review will be assigned to the ES&H Coordinating Council. The ES&HCC will include as the basis for its review currently compiled accident reports, occurrence reports, and committee reports.

Related Tasks T1336 Perform Regular Operating Reviews

TASK T1336 *PERFORM REGULAR OPERATING REVIEWS*
(FR.4-1)

Scheduled Completion	10/01/95
Projected Cost	$25,000
Responsible Department	DO

Establish the scope of operating reviews required to meet the requirements of the applicable DOE Orders and management needs. Determine which existing information sources will provide the information necessary to perform these reviews. Where necessary, modify the nature of information being generated from those sources or initiate new information sources. Establish and implement a schedule for these reviews, utilizing the SLAC Self Assessment program until implementation begins.

Scope of operating reviews defined	01/01/95
Information inputs to operating reviews determined	03/01/95
Schedule of operating reviews defined	06/01/95
First scheduled operating review conducted	10/01/95

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support				10		10
New ES&H Activities				15		15
GPP						
ERWM						
Ongoing Cost $70,000						

Concern FR.5-1

A triennial appraisal to assess the effectiveness of the Stanford Linear Accelerator Center safety review system has not been performed although required by DOE 5482.1B.

DOE Priority 2

Compliance Protocol DOE Order 5482.1B

Response Triennial formal reviews of SLAC's safety review system will provide management with feedback on the effectiveness of the system for the purpose of assuring that the system generates useful measurements of progress and compliance, and for making improvements to the system. This review will be performed by the ES&H Coordinating Council.

Related Concern FR.2-1

Related Tasks
T1314 Revise Safety Review Policy
T1337 Perform Triennial Review System Appraisals

TASK T1314 *REVISE SAFETY REVIEW POLICY*
(FR.5-1)

Scheduled Completion	10/01/93
Projected Cost	$35,000
Responsible Department	DO

The ES&H Coordinating Council (ES&HCC) will coordinate the review of charters and practices of all relevant safety committees. The ES&HCC will review the charters and revise and modify them per applicable sections of DOE Order 5482.1B. Areas that will be specifically addressed include broadening the scope of the Safety Committee to include the performance of technical reviews of experimental proposals and significant equipment configuration changes and reviews of facility modifications. Documentation of the Citizen's Committees reviews will be expanded to include the significant safety issues that were considered and the rationale used to determine their acceptability and evaluation of technical adequacy of operating procedures during the course of safety reviews. The ES&HCC will then approve the revised charters and issue them to the committees for implementation. The Committee charters and procedures will be communicated to relevant personnel to ensure that those involved with operations and facility design, modification, and management are informed of committee review requirements.

Citizen committee charters reviewed	04/01/93
Charters revised as appropriate	05/01/93
Committee procedures developed	09/01/93
Committee procedures communicated	10/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		35				35
New ES&H Activities						
GPP						
ERWM						

TASK T1337 *PERFORM TRIENNIAL REVIEW SYSTEM APPRAISALS*
(FR.5-1)

Scheduled Completion	07/01/94
Projected Cost	$75,000
Responsible Department	DO

Determine the safety review system components that will be the subject of triennial appraisals. Develop a schedule and procedures for performing the appraisals. Conduct the first scheduled appraisal.

Appraisal procedures and schedule established	04/01/94
First appraisal performed	07/01/94

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support			5			5
New ES&H Activities			70			70
GPP						
ERWM						

Concern FR.6-1

Several corrective actions resulting from the investigation of unusual occurrences have not been implemented in a timely manner as required by DOE 5000.3A.

DOE Priority 2

Compliance Protocol DOE Order 5000.3A

Response This concern addresses a lack of timeliness in filing Final Occurrence Reports, which define the proposed corrective actions, as well as the specifically stated lack of timeliness in implementing the corrective actions. The concern will be addressed by improving the information flow between participants in the reporting process and by increasing the formality of the process by steps such as:
1. Making sure that the requirements for filing final reports are well understood.
2. Providing improved summary management information as to the outstanding reports and the status of corrective actions.
3. Ensuring that the information resulting from investigative reports is presented in such a manner as to satisfy the requirements for entry into the DOE Occurrence Reporting and Processing System (ORPS).
4. Formalizing the decision making process in cases where commitments to corrective action require agreements across divisional boundaries.
5. Generating standards for the timeliness of investigations and corrective action definition.

Related Concern FR.6-2

Related Tasks
T1132 Close Out Occurrence Reports Cited in FR.6-1
T1133 Improve Timeliness of Filing Final REP.DOE 5000.3A

TASK T1132 *CLOSE OUT OCCURRENCE REPORTS CITED IN FR.6-1*
(FR.6-1)

Scheduled Completion	Completed
Projected Cost	$2,000
Responsible Department	TD

Interim measures task: Review reasons why the four specific occurrences cited in concern FR.6-1 were not closed out; solve problems; close out reports.

Problems assessed	02/01/92
Reports closed out	05/01/92
Solutions implemented	05/01/92

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support	2					2
New ES&H Activities						
GPP						
ERWM						

TASK T1133 *IMPROVE TIMELINESS OF FILING FINAL REP.DOE 5000.3A*
(FR.6-1)

Scheduled Completion Completed
Projected Cost $10,000
Responsible Department TD

Take steps to standardize and formalize procedures for incident investigation, such as:
1. Clarify criteria for filing final reports; establish within SLAC a standard response time for investigations, filing of final report.
2. Revise investigation procedures to ensure that the reports are provided in a form which will lend itself to being entered into DOE Occurrence Reporting and Processing Systems (ORPS).
3. Establish standard protocols for sign off and commitment to corrective action: a) within a particular Division, and b) across Divisional boundaries.
4. Generate procedures which embody the above, train necessary staff.

Problem assessment completed	12/15/92
Policies & procedures for solution drafted	05/01/92
Approval for policy package obtained	06/01/92
Procedures published	07/01/92
Staff training initiated	08/01/92

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support	10					10
New ES&H Activities						
GPP						
ERWM						

Concern FR.6-2

Corrective actions resulting from the investigation of some unusual occurrences have not been effective in correcting the root causes of the events.

DOE Priority 3

Compliance Protocol DOE Order 5000.3A

Response Most managers involved in incident investigations are not familiar with DOE root cause categories, and are not accustomed to analyzing incidents for their root causes.

Related Concern FR.6-1

Related Tasks T1131 Implement Training in Root Cause Analysis

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TASK T1131 *IMPLEMENT TRAINING IN ROOT CAUSE ANALYSIS*
(FR.6-2)

Scheduled Completion	04/01/93
Projected Cost	$30,000
Responsible Department	TD

Obtain and review training material in root cause analysis of reportable occurrences, to determine the staff that requires this training. The Facility Manager will make arrangements to obtain and provide training.

Staff to be trained determined	12/01/92
Root cause analysis training material obtained	03/01/93
Training of first group initiated	04/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		15				15
New ES&H Activities		15				15
GPP						
ERWM						
Ongoing Cost $5,000						

Concern FR.6-3

The Stanford Linear Accelerator Center has not established a program for using industry experience to improve facility safety.

DOE Priority 4

Compliance Protocol DOE Order 5000.3A

Response To meet this concern, SLAC will identify and train staff to:
1. Review the Operational Reporting and Processing (ORPS) database of reportable occurrences to find reports from other similar facilities which may have relevance to accelerator operations.
2. Disseminate this information to the appropriate SLAC managers.
3. Establish a method for tracking and reviewing the data to improve facility safety.

Related Tasks T1129 Develop Operating Experience Information System

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TASK T1129 (FR.6-3) *DEVELOP OPERATING EXPERIENCE INFORMATION SYSTEM*

Scheduled Completion	10/01/94
Projected Cost	$10,000
Responsible Department	TD

Establish a system for review of relevant occurrence report data from other accelerator laboratories, identification of events, conditions and lessons learned which have similarity to SLAC experience, dissemination of information to SLAC management.

Review ORPS data from other labs	10/01/93
Organize and disseminate data	10/01/94

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		5	5			10
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $5,000						

Concern RP.2-1

The frequency and scope of the internal audits of the Radiation Protection Program do not comply with DOE 5480.11, Section 9.r, and DOE 5482.1B, Section 9.d.

DOE Priority 2

Compliance Protocol DOE Order 5480.11, Section 9.r; DOE Order 5482.1B, Section 9.d

Response In order to assure periodic performance assessments of operations involving radiation, SLAC will develop a program for auditing the Radiation Protection Program which is consistent with the requirements of DOE 5480.11 Section 9.r.

This program will include dosimetry, instrumentation, procedures, training, labeling and recordkeeping. The audits will be performed by QA personnel and technical consultants as required.

Related Tasks T1220 Establish Radiation Protection Audit Program

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TASK T1220 *ESTABLISH RADIATION PROTECTION AUDIT PROGRAM*
(RP.2-1)

Scheduled Completion	10/01/93
Projected Cost	$23,000
Responsible Department	QA&C

An audit of the Radiation Protection program will be undertaken consistent with the requirements of DOE Order 5480.11 Section 9.r. This program will include external dosimetry, internal dosimetry, portable and fixed instrumentation, respirators, contamination control, radiological monitoring, the ALARA program, source material control, X-ray protection, training, posting, and recordkeeping. A series of audits will be undertaken by a combination of independent internal experts, Quality Assurance personnel, and outside technical experts from other laboratories or consulting firms.

QA Source Material Control Audit	02/01/93
QA Rad Training Audit	04/01/93
Health Physics (HP) Experts Identified	06/01/93
Complete other RP audits with HP assistance	10/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		3				3
New ES&H Activities		20				20
GPP						
ERWM						
Ongoing Cost $20,000						

Concern RP.3-1

The documented radiation protection policy is not consistent with the requirements of DOE 5480.11.

DOE Priority 2

Compliance Protocol DOE Order 5480.11

Response SLAC will revise and combine its radiation policies to be consistent with the requirements of DOE Order 5480.11 by writing a chapter in the ES&H Manual on radiation protection. This chapter will include dosimetry and training requirements and SLAC's radiation protection policy, as well as dosimetry and training policies. Procedures will be developed or revised as necessary to implement these policies and will be reviewed to verify that they are consistent with SLAC policy.

Related Concern RP.3-2 RP.5-2 RP.9-1

Related Tasks T1091 Revise Radiation Protection Policy

TASK T1091 *REVISE RADIATION PROTECTION POLICY*
(RP.3-1)

Scheduled Completion	08/01/93
Projected Cost	$25,000
Responsible Department	OHP

The requirements of DOE Order 5480.11 for a radiation protection policy will be reviewed. Several existing radiation policy books at SLAC will be combined and revised as a chapter of the SLAC ES&H Manual. This chapter will cover the safe operation of radiation generating devices and the handling and use of radioactive materials. The chapter will be approved and issued as updates to the manual.

DOE requirements reviewed	10/01/92
Radiation Protection policy drafted	06/01/93
Radiation Protection policy issued	08/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	17	8				25
New ES&H Activities						
GPP						
ERWM						

Concern RP.3-2

Radiation protection procedures are incomplete and inconsistent with the requirements of DOE 5480.11.

DOE Priority 2

Compliance Protocol DOE Order 5480.11

Response SLAC is in the process of developing a system for the development, review, approval and revision of radiation protection procedures. The procedures currently contained in the SLAC Radiation Safety Procedures Manual will become part of the relevant department procedures (Operational Health Physics, Accelerator Department, etc.). The draft procedures will be reviewed and approved by the designated officials.

Related Concern RP.11-1 RP.13-1 RP.13-3 RP.3-4 RP.4-1 RP.5-4 RP.8-1

Related Tasks T1107 Develop Radiation Protection Procedures

TASK T1107 *DEVELOP RADIATION PROTECTION PROCEDURES*
(RP.3-2)

Scheduled Completion	06/01/94
Projected Cost	$160,000
Responsible Department	OHP

Existing procedures will be reviewed and a plan developed for revising those procedures to meet regulatory and operational requirements. Procedures will be revised or developed in accordance with the plan. The ES&H Division Documentation Guidelines will be updated to provide the basic procedures for development, revision, and control of these procedures.

Among the subjects to be addressed by these procedures are: control and oversight of X-ray equipment, radiation worker training, radiation protection instrumentation, personnel dosimetry, ALARA, posting of controlled areas, radioactive material handling and labeling, radiological surveys, and records maintenance.

Procedures plan developed	08/01/92
Procedures required by Rad Con issued	03/01/93
All procedures identified in plan issued	06/01/94

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	30	35	35			100
New ES&H Activities	20	20	20			60
GPP						
ERWM						

Concern RP.3-3

Posting of radiological controlled areas and labeling of radioactive material are not consistent with the requirements of DOE 5480.11, Section 9.k.

DOE Priority 2

Compliance Protocol DOE Order 5480.11, Section 9.k

Response Procedures for survey posting requirements and radioactive material labeling requirements will be revised to meet DOE Order 5480.11 requirements.

Related Tasks
T1107 Develop Radiation Protection Procedures
T1100 Restrict Access to Klystrons

TASK T1107 *DEVELOP RADIATION PROTECTION PROCEDURES*
(RP.3-3)

Scheduled Completion	06/01/94
Projected Cost	$160,000
Responsible Department	OHP

Existing procedures will be reviewed and a plan developed for revising those procedures to meet regulatory and operational requirements. Procedures will be revised or developed in accordance with the plan. The ES&H Division Documentation Guidelines will be updated to provide the basic procedures for development, revision, and control of these procedures.

Among the subjects to be addressed by these procedures are: control and oversight of X-ray equipment, radiation worker training, radiation protection instrumentation, personnel dosimetry, ALARA, posting of controlled areas, radioactive material handling and labeling, radiological surveys, and records maintenance.

Procedures plan developed	08/01/92
Procedures required by Rad Con issued	03/01/93
All procedures identified in plan issued	06/01/94

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	30	35	35			100
New ES&H Activities	20	20	20			60
GPP						
ERWM						

TASK T1100 *RESTRICT ACCESS TO KLYSTRONS*
(RP.3-3)

Scheduled Completion	Completed
Projected Cost	$10,000
Responsible Department	OHP

The ropes around all klystrons will be placed 360 degrees around to restrict access. These are not designated radiation area ropes, but ALARA boundary ropes. Postings will be added to the rope if the klystron is determined to be a radiation area. Routine surveys will be performed to verify proper posting. The Klystron Gallery Area Manager will inform all workers that ropes around klystrons are permanent.

Personnel informed of rope requirements	01/02/92
Ropes installed around all klystrons	04/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	10					10
New ES&H Activities						
GPP						
ERWM						

Concern RP.3-4

An accurate inventory of radioactive sources is not maintained and is not consistent with all applicable elements of ANSI N542.

DOE Priority 2

Compliance Protocol ANSI N542

Response An inventory of all radioactive sources at SLAC that is consistent with all applicable elements of ANSI N542 must be maintained to ensure that these sources are properly managed. The Operational Health Physics Department currently maintains such an inventory, however, a site-wide survey must be performed to validate the inventory. Procedures will be developed to ensure that receipt and removal of sources from SLAC are tracked in the inventory database. Inspections will be conducted periodically to ensure the accuracy of the database.

Related Concern PT.6-2

Related Tasks T1321 Develop Radioactive Source Inventory Program

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TASK T1321 *DEVELOP RADIOACTIVE SOURCE INVENTORY PROGRAM*
(RP.3-4)

Scheduled Completion	10/01/92
Projected Cost	$15,000
Responsible Department	OHP

The radioactive materials manager will develop a plan for conducting a site-wide inventory of all radioactive sources, including sources that may be considered exempt. The plan will include the following:

1. All SLAC site personnel will be instructed to notify OHP if they have in their possession any radioactive source material of any activity.
2. A site-wide survey will be conducted, to seek out radioactive sources that personnel may not be aware of.
3. All radioactive sources not being used in an experiment will be returned to OHP or, if necessary, will be inventoried and left in the possession of the user.
4. All radioactive sources that do not have date of origin, original activity, name of the radionuclide, or traceable serial number will be returned to OHP for disposal.
5. All radioactive sources returned to OHP and available for re-issue will be re-issued in compliance with ANSI N542.
6. Procedures for radioisotope source inventory will be developed and implemented in compliance with ANSI N542. These procedures will be coordinated with procurement and shipping and receiving procedures and those that govern the actions by subcontractors to ensure that the inventory reflects all sources brought on-site.

Inventory procedures developed	04/01/92
Radioactive sources inventoried	10/01/92
Non-ANSI approved sources disposed of	10/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	15					15
New ES&H Activities						
GPP						
ERWM						

Concern RP.3-5

Radiological protection controls for x-ray generating devices are not in full compliance with DOE 5480.11, the mandatory standards in DOE 5480.4, Attachment 1, Item 2.d1, and DOE 5482.1B, Section 9.d.

DOE Priority 2

Compliance Protocol DOE Order 5480.11; DOE Order 5480.4, Attachment 1, Item 2.d1; DOE Order 5482.1B, Section 9.d

Response SLAC will revise its radiological protection controls for x-ray generating devices to comply with applicable DOE requirements. This will include warning lights and postings, interlock tests, radiation characterization, audits, and oversight.

Related Tasks T1107 Develop Radiation Protection Procedures

TASK T1107 *DEVELOP RADIATION PROTECTION PROCEDURES*
(RP.3-5)

Scheduled Completion	06/01/94
Projected Cost	$160,000
Responsible Department	OHP

Existing procedures will be reviewed and a plan developed for revising those procedures to meet regulatory and operational requirements. Procedures will be revised or developed in accordance with the plan. The ES&H Division Documentation Guidelines will be updated to provide the basic procedures for development, revision, and control of these procedures.

Among the subjects to be addressed by these procedures are: control and oversight of X-ray equipment, radiation worker training, radiation protection instrumentation, personnel dosimetry, ALARA, posting of controlled areas, radioactive material handling and labeling, radiological surveys, and records maintenance.

Procedures plan developed	08/01/92
Procedures required by Rad Con issued	03/01/93
All procedures identified in plan issued	06/01/94

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	30	35	35			100
New ES&H Activities	20	20	20			60
GPP						
ERWM						

Concern RP.4-1

The posting and external radiation exposure controls at the calibration facility do not comply with DOE 5480.11.

DOE Priority 1

Compliance Protocol DOE Order 5480.11

Response SLAC will revise external radiation exposure controls at the calibration facility to minimize radiation exposure to personnel in accordance with DOE Order 5480.11. Particular attention will be paid to the handling of unattended sources, the use of instrumentation in the vicinity of sources of radiation, signage and warning lights around radiation areas, and the storage of activated materials.

Related Concern RP.5-2 RP.8-1

Related Tasks T1270 Revise Calibration Facility Exposure Controls

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TASK T1270 *REVISE CALIBRATION FACILITY EXPOSURE CONTROLS*
(RP.4-1)

Scheduled Completion	Completed
Projected Cost	$25,000
Responsible Department	OHP

The requirements of DOE Order 5480.11 will be reviewed and applied to radiation exposure control at the instrumentation calibration facility. Access to radiation areas will be controlled with signage and warning lights. The procedures for the use of instrumentation near radiation sources will be revised to minimize exposure.

Signage and warning lights installed	11/20/91
Review of regulations completed	02/15/92
Instrumentation procedures revised	07/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	25					25
New ES&H Activities						
GPP						
ERWM						

Concern RP.5-1

The whole body dosimeter does not measure all the types and energies of radiation anticipated at the Stanford Linear Accelerator Center as required in DOE 5480.11, Section 9.g.1 and DOE 5480.15.

DOE Priority 2

Compliance Protocol DOE Order 5480.11, Section 9.g.1 ; DOE Order 5480.15; DOELAP Accreditation Manual

Response SLAC should ensure that the personnel dosimetry accurately measures radiation exposure. The present system in use at SLAC is designed for high energy photons and beta radiation, however previous studies have shown that less than 20% of the surface radiation observed at SLAC derives from beta and low energy radiation. The data on low energy photons and beta radiation will be measured again in order to assess the adequacy of the SLAC dosimetry system. If necessary, the SLAC dosimetry system will be revised. These measurements will also be used to review the criteria for setting the DOELAP accreditation category.

Related Concern RP.5-2 RP.5-3

Related Tasks T1054 Review SLAC Dosimetry System

TASK T1054 *REVIEW SLAC DOSIMETRY SYSTEM*
(RP.5-1)

Scheduled Completion	03/01/93
Projected Cost	$15,000
Responsible Department	OHP

The radiation dosimetry requirements of DOE Orders will be reviewed. An empirical database to validate exposure potentials and beta to gamma ratios will be completed by taking data from the surfaces of components and sources in use at SLAC. An analysis of the data will be reviewed by the ALARA committee in order to determine the correct DOELAP accreditation category. If necessary the SLAC dosimetry system will be revised to meet DOELAP accreditation requirements.

DOE Orders reviewed	04/01/92
Data collected	11/01/92
Survey report submitted to ALARA	12/01/92
ALARA recommendations issued	02/01/93
Recommended actions initiated	03/01/93

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support	13	2				15
New ES&H Activities						
GPP						
ERWM						

Concern RP.5-2

Stanford Linear Accelerator Center practices for whole body and extremity dosimetry are not in compliance with DOE 5480.11, Section 9.g.1.

DOE Priority 2

Compliance Protocol DOE Order 5480.11, Section 9.g.1

Response SLAC's policy on the wearing of whole body personal dosimeters is not consistent with the standard industry practive of wearing the dosimeters on the upper torso. Radiation Protection documentation will be reviewed and revised to be consistent with the standard industry practice. This old and new practice will be evaluated in a study.

SLAC has also not used extermity dosimeters in recent years. A study will be conducted to establish the conditions under which extremity dosimeters are needed. Those workers who need them will be identified and trained in their use.

Related Concern RP.4-1 RP.8-1

Related Tasks
T1114 Improve Whole Body Dosimetry Practices
T1145 Improve Extremity Dosimetry Practices

TASK T1114 *IMPROVE WHOLE BODY DOSIMETRY PRACTICES*
(RP.5-2)

Scheduled Completion	10/01/94
Projected Cost	$65,000
Responsible Department	OHP

All radiation protection documentation will be reviewed to ensure consistent whole body dosimetry policies. A study to evaluate the effects of wearing the SLAC personal dosimeter in various configurations will be conducted. This will entail some phantom studies and issuance of multiple dosimeters to selected individuals. A "necklace" option (in addition to the standard clip) for wearing the whole body dosimeter will be provided for individuals not working with exposed rotating machinery. An ES&H Bulletin has been issued to provide instructions regarding the proper way to wear the personal dosimeter.

ES&H Bulletin on wearing dosimeters issued	12/16/91
Optional necklace hangers issued	04/01/92
Documentation updated as necessary	03/01/93
Study on wearing of dosimeters completed	10/01/94

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	20	10	10			40
New ES&H Activities		15	10			25
GPP						
ERWM						

TASK T1145 *IMPROVE EXTREMITY DOSIMETRY PRACTICES*
(RP.5-2)

Scheduled Completion 10/01/94
Projected Cost $65,000
Responsible Department OHP

All radiation protection documentation will be reviewed to ensure provisions are identified for extremity dosimetry. A study will be conducted to evaluate the difference between actual contact dose rates and instrument measurements with reference to activated materials. This study will involve actual use of extremity dosimeters, portable survey instruments, and whole body dosimeter results (see T1114). Individuals who will regularly require extremity dosimetry will be identified and provided extremity dosimeters. An ES&H Bulletin will be issued to communicate requirements for extremity dosimetry.

Documentation updated as necessary	08/01/92
Study relating mat. readings w/dose completed	08/01/94
ES&H Bulletin on extremity dosimetry issued	10/01/94
Extremity dosimetry issued as applicable	10/01/94

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	20	10	10			40
New ES&H Activities		15	10			25
GPP						
ERWM						

Concern RP.5-3

The Personnel Dosimetry Program has not been accredited by the DOE Laboratory Accreditation Program for Personnel Dosimetry as required by DOE 5480.15 and is not in compliance with DOE 5480.11, Section 9.g.1.

DOE Priority 2

Compliance Protocol DOE Order 5480.15; DOE Order 5480.11, Section 9.g.(1); DOELAP Accreditation Manual

Response To ensure that personnel radiation exposures are accurately determined and recorded at SLAC, the Personnel Dosimetry Program (PDP) should be in compliance with applicable portions of DOE Order 5480.15 and 5480.11. However, SLAC's PDP has not yet received accreditation. After a review of the requirements the procedures governing the PDP, including appropriate quality assurance procedures, will be developed and or revised, and implemented. An accreditation field audit will then be requested.

Related Concern QA/CF-1 RP.5-1 RP.5-2

Related Tasks T1243 Secure DOELAP Accreditation

TASK T1243 *SECURE DOELAP ACCREDITATION*
(RP.5-3)

Scheduled Completion	05/01/93
Projected Cost	$47,000
Responsible Department	OHP

A review of the requirements for Personnel Dosimetry Program accreditation and compliance with DOE Orders 5480.15 and 5480.11 section 9.g. (1) will be performed. Procedures will be revised and implemented. Procedures will address assigning dose to lost dosimeters so that a conservative but reasonable estimate of radiation exposure to personnel can be assessed. Blind audit dosimeters will be issued and processed. The accreditation field audit will then be requested.

DOELAP requirements reviewed	04/01/92
Procedures developed	03/01/93
DOELAP Field site assessment completed	04/01/93
DOELAP accreditation requested	05/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	35	12				47
New ES&H Activities						
GPP						
ERWM						

Concern RP.5-4

The unsupervised use and unrecorded results of direct-reading pocket dosimeters negate their value and is contrary to the As Low As Reasonably Achievable ALARA policy of DOE 5480.11, Section 9.a.

DOE Priority 2

Compliance Protocol DOE Order 5480.11; ANSI N13.5

Response SLAC will evaluate the applicability of the As Low As Reasonably Achievable (ALARA) Policy of DOE Order 5480.11, Section 9.a, with regard to the value of unrecorded results of direct pocket dosimeters. This will be used to develop a policy to enhance the value of supervised use and recorded results of pocket dosimeters.

Related Tasks T1273 Develop Policy/Procedures for Pocket Dosimeters

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TASK T1273 *DEVELOP POLICY/PROCEDURES FOR POCKET DOSIMETERS*
(RP.5-4)

Scheduled Completion	03/01/93
Projected Cost	$10,000
Responsible Department	OHP

DOE Order 5480.11, Section 9.a, will be reviewed and used to develop a policy for the use of direct-read pocket dosimeters. Procedures for supervised use and recording results will be developed, including a means of controlling exposures within the TLD cycling period, and estimating doses in the case of a lost badge.

Requirements evaluated	10/01/92
Policy and procedures developed	03/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		10				10
New ES&H Activities						
GPP						
ERWM						

Concern RP.8-1

The radiation protection instrumentation program is not in compliance with the mandatory standards of DOE 5480.4, Attachment 1, Item 2.d.1 and DOE 5480.11, Section 9.g.3b.

DOE Priority 2

Compliance Protocol DOE Orders 5480.4, Attachment 1, Item 2.d.1, 5480.11, Section 9.g.3b

Response SLAC will update the existing calibration program to ensure that personnel dosimetry and radiological protection instrumentation used to obtain measurements of radioactivity are appropriately calibrated, used, and maintained. This will address instrument selection criteria, instrument acceptance testing, instrument calibration procedures, and remotely operated instrument positioning systems.

Related Concern QV.4-2 QV.4-3 RP.4-1 RP.5-2

Related Tasks

T1230 Develop Continuous Instrument Calibration Proc.
T1231 Develop Portable Instrument Calibration Program
T1270 Revise Calibration Facility Exposure Controls

TASK T1230 *DEVELOP CONTINUOUS INSTRUMENT CALIBRATION PROC.*
(RP.8-1)

Scheduled Completion	10/01/93
Projected Cost	$55,000
Responsible Department	OHP

The acceptance, maintenance, and testing program will be formalized for continuous monitoring instruments. Procedures will be developed and relevant personnel will be trained.

Procedures developed	07/01/93
Training plan developed and initiated	10/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	5	10				15
New ES&H Activities	10	30				40
GPP						
ERWM						

TASK T1231 *DEVELOP PORTABLE INSTRUMENT CALIBRATION PROGRAM*
(RP.8-1)

Scheduled Completion	10/01/93
Projected Cost	$55,000
Responsible Department	OHP

Draft procedures will be revised to be consistent with ANSI N323 and N43.1. They will include the determination of how the performance specifications in N42.17 will be met.

Procedures will provide for electronic checks of instruments, a database structured in such a way as to ensure a current inventory and annual calibration of instruments, criteria for instrument selection, maintenance logs for instruments, and training.

Procedures developed	07/01/93
Training plan developed and initiated	10/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	5	10				15
New ES&H Activities	10	30				40
GPP						
ERWM						

Ongoing Cost $20,000

TASK T1270 *REVISE CALIBRATION FACILITY EXPOSURE CONTROLS*
(RP.8-1)

Scheduled Completion	Completed
Projected Cost	$25,000
Responsible Department	OHP

The requirements of DOE Order 5480.11 will be reviewed and applied to radiation exposure control at the instrumentation calibration facility. Access to radiation areas will be controlled with signage and warning lights. The procedures for the use of instrumentation near radiation sources will be revised to minimize exposure.

Signage and warning lights installed	11/20/91
Review of regulations completed	02/15/92
Instrumentation procedures revised	07/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	25					25
New ES&H Activities						
GPP						
ERWM						

Concern RP.9-1

Stanford Linear Accelerator Center does not have sufficient air monitoring data to demonstrate compliance with DOE 5480.11, Section 9.g.3a.

DOE Priority 1

Compliance Protocol DOE Order 5480.11, Section 9.g.3a

Response Proper selection, location, calibration, and maintenance of air monitoring systems should ensure reliable estimates of air activity for radiological control purposes. SLAC will review and enhance its performance in these areas to determine the need for radiological controls and develop an air monitoring strategy.

Related Tasks T1272 Develop Air Monitoring Strategy

TASK T1272 *DEVELOP AIR MONITORING STRATEGY*
(RP.9-1)

Scheduled Completion	03/01/93
Projected Cost	$10,000
Responsible Department	OHP

The need for radiological controls and an internal dosimetry program will be evaluated by air monitoring studies. A maximum anticipated induced activity material will be used to develop an air monitoring strategy for all cutting and welding conditions. The air monitoring data will determine compliance with DOE 5480.11, Section 9.g.(3)(a).

Air monitoring studies completed	09/01/92
Air monitoring strategy developed	03/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support						
New ES&H Activities						
GPP						
ERWM		10				10

Concern RP.10-1

The training provided to operations personnel who perform radiation surveys is not in compliance with DOE 5480.11, Section 9.o.

DOE Priority 2

Compliance Protocol DOE Order 5480.11, Section 9.o

Response SLAC will revise the existing radiation monitoring and contamination control program to ensure worker protection from radiation exposures. This will include job specific training for radiation survey staff and controlled use of survey instruments.

Related Tasks T1275 Revise Radiation Survey Training

TASK T1275 *REVISE RADIATION SURVEY TRAINING*
(RP.10-1)

Scheduled Completion	03/01/93
Projected Cost	$15,000
Responsible Department	OHP

Radiation survey training will be revised to comply with DOE 5480.11, Section 9.0. This will include job specific survey training for each radiation source. The Radiation Rule Book will be revised to require personnel to be trained in the use of survey instruments, and training in the use of instruments will be documented. Training records will be used to ensure instruments are not made available to unqualified personnel.

Training requirements determined	09/01/92
Radiation survey training plan revised	03/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		15				15
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $1,000						

Concern RP.11-1

The Stanford Linear Accelerator Center As Low As Reasonably Achievable ALARA Program does not comply with DOE 5480.11, Sections 9.a. and 9.m.1.

DOE Priority 2

Compliance Protocol DOE Order 5480.11, Sections 9.a. and 9.m.1; DOE Guide PNL-6577

Response SLAC will modify the existing ALARA Program so that it meets the requirements of DOE 5480.11 and incorporates the guidance in PNL 6577. The review will be conducted in the following stages:

(1) Review the ALARA Committee's charter and recommend changes necessary to meet the requirements of DOE 5480.11, Sections 9.a. and 9.m.l.

(2) Draft procedures for the committee to implement the provisions of the committee charter.

(3) The use of direct-reading pocket ionization chambers (PIC) and the recording of readings will be reviewed.

Related Concern RP.3-1 RP.3-2 RP.3-2 RP.5-4 RP.5-5

Related Tasks
T1052 Revise the ALARA Program
T1273 Develop Policy/Procedures for Pocket Dosimeters

TASK T1052 *REVISE THE ALARA PROGRAM*
(RP.11-1)

Scheduled Completion	03/01/93
Projected Cost	$35,000
Responsible Department	ESH

The ALARA committee's charter and implementation plan will be reviewed and revised as necessary. Procedures will be developed for the implementation of ALARA objectives.

ALARA committee's charter updated	10/01/92
ALARA committee procedures issued	03/01/93
PIC procedures issued	03/01/93

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support		35				35
New ES&H Activities						
GPP						
ERWM						

TASK T1273 *DEVELOP POLICY/PROCEDURES FOR POCKET DOSIMETERS*
(RP.11-1)

Scheduled Completion	03/01/93
Projected Cost	$10,000
Responsible Department	OHP

DOE Order 5480.11, Section 9.a, will be reviewed and used to develop a policy for the use of direct-read pocket dosimeters. Procedures for supervised use and recording results will be developed, including a means of controlling exposures within the TLD cycling period, and estimating doses in the case of a lost badge.

Requirements evaluated	10/01/92
Policy and procedures developed	03/01/93

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support		10				10
New ES&H Activities						
GPP						
ERWM						

Concern RP.12-1

Radiation exposures to visitors are not reported as required by DOE 5484.1, Change 6, Chapter IV, Section d.1.

DOE Priority 2

Compliance Protocol DOE Orders 5480.11, 5484.1

Response DOE Order 5484.1, Change 6, Chapter IV, Section d.1. requires contractors to report positive external and internal radiation exposures recorded for visitors during the period of their visit. SLAC will generate a notice for SLAC personnel and visitors outlining SLAC's policy on providing exposure information.

Related Tasks T1183 Clarify Requirements for Providing Dosimetry Info.

TASK T1183 *CLARIFY REQUIREMENTS FOR PROVIDING DOSIMETRY INFO.*
(RP.12-1)

Scheduled Completion	11/01/92
Projected Cost	$2,000
Responsible Department	OHP

SLAC will generate a notice outlining SLAC's policy on providing exposure information for visitors and workers, consistent with the requirements of DOE Order 5484.1.

Notice generated based on response 11/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	2					2
New ES&H Activities						
GPP						
ERWM						

Concern RP.12-2

Records of previous occupational exposure are not requested as required by DOE 5480.11, Section 9.m.2.

DOE Priority 2

Compliance Protocol DOE Order 5480.11, Section 9.m.2

Response Requests for records of previous occupational exposure received prior to badge issuance at SLAC have not been made as required by DOE Order 5480.11, Section 9.m.2. Records should be maintained in a manner that permits easy retrievability, allows trend analysis, and aids in the protection of an individual and control of radiation exposure. This requirement will be incorporated into the Operational Health Physics (OHP) Standard Operating Procedures. A policy statement will be developed to ensure that all employees' and visitors' dosimetry history prior to badging at SLAC will be in compliance with DOE 5480.11, Section 9.m.2 and that current employees' exposure history is entered into the database as applicable.

Related Tasks T1322 Obtain Records of Previous Radiation Exposure

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TASK T1322 *OBTAIN RECORDS OF PREVIOUS RADIATION EXPOSURE*
(RP.12-2)

Scheduled Completion	07/01/94
Projected Cost	$30,000
Responsible Department	OHP

SLAC will comply with the applicable requirements of DOE 5480.11, Section 9.m.2 by developing a requirement for all personnel working at SLAC to provide or make available previous radiation exposure history. A policy statement will be developed and badging requirements will be modified to require this information. The necessary procedures will be developed. Implementation of these procedures will be on a phased basis, to initially cover new personnel and visitors, then current employees. A form will be generated and the OHP dosimetry database will be expanded to accommodate the required information. Appropriate personnel will be trained on these procedures to ensure implementation. An ALARA review of current year and life-time dose histories will be performed and the results will be used to better manage radiation exposure and the dosimetry database system.

DOE 5480.11 and RadCon Manual reviewed	09/01/92
Policies and procedures developed	03/01/93
Data collection requirements addressed	07/01/93
ALARA review process initiated	07/01/94

	Detailed Costs ($K)					
	92	93	94	95	96	Total
Existing ES&H Support						
New ES&H Activities		5	25			30
GPP						
ERWM						
Ongoing Cost $10,000						

Concern RP.12-3

Records of the radiation protection program are not maintained in accordance with the requirements of DOE 5480.11, Section 9.m.

DOE Priority 2

Compliance Protocol DOE Order 5480.11, Section 9.m

Response Records of the radiation protection program will be maintained in accordance with the identified compliance protocols. Compliance protocols will be reviewed to identify applicable requirements and a procedure to ensure proper maintenance of radiation protection program records will be developed.

Related Concern RP.10-1 RP.3-2 RP.3-4 RP.5-2 RP.5-4 RP.5-5 RP.8-1 RP.9-1

Related Tasks T1107 Develop Radiation Protection Procedures

TASK T1107 *DEVELOP RADIATION PROTECTION PROCEDURES*
(RP.12-3)

Scheduled Completion	06/01/94
Projected Cost	$160,000
Responsible Department	OHP

Existing procedures will be reviewed and a plan developed for revising those procedures to meet regulatory and operational requirements. Procedures will be revised or developed in accordance with the plan. The ES&H Division Documentation Guidelines will be updated to provide the basic procedures for development, revision, and control of these procedures.

Among the subjects to be addressed by these procedures are: control and oversight of X-ray equipment, radiation worker training, radiation protection instrumentation, personnel dosimetry, ALARA, posting of controlled areas, radioactive material handling and labeling, radiological surveys, and records maintenance.

Procedures plan developed	08/01/92
Procedures required by Rad Con issued	03/01/93
All procedures identified in plan issued	06/01/94

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	30	35	35			100
New ES&H Activities	20	20	20			60
GPP						
ERWM						

Concern RP.13-1

Stanford Linear Accelerator Center does not provide Radiation Worker Training for some occupational workers entering radiological areas including High Radiation Areas as required by DOE 5480.11, Section 9.o 2.

DOE Priority 2

Compliance Protocol DOE Order 5480.11, Section 9.o 2

Response SLAC will review its training program to determine the compliance status with DOE 5480.11. This will be done in the following stages:

(1) A letter will be drafted to DOE requesting clarification of the order. SLAC believes it does not prohibit occupational workers from entering a high radiation area.

(2) If clarification is not received by the end of 60 days after submittal to DOE, SLAC will proceed to review visitor training requirements and control measures to keep personnel from entering high radiation areas.

(3) As an interim measure, SLAC will issue a bulletin describing the training requirements for entry into radiological areas.

Related Concern PT.6-2 RP.13-4 RP.3-2

Related Tasks
T1121 Review Training for Radiological Areas
T1409 Develop ES&H Training Plan

TASK T1121 *REVIEW TRAINING FOR RADIOLOGICAL AREAS*
(RP.13-1)

Scheduled Completion	03/01/93
Projected Cost	$26,000
Responsible Department	OHP

The requirements for employee and visitor training will be reviewed. The short-term dosimeter request form will be updated to include signature acknowledgement of receipt of the "SLAC Outline of Radiation Safety" brochure.

The "SLAC Outline of Radiation Safety" brochure will be updated to include examples of radiological signs and a statement regarding fetal dose limits. The controls on entry into radiologicial areas will be reviewed. Procedures regarding controls on entry, including the Radiation Rule Book, Radiation Safety Digest, and SLAC Radiation Safety Procedures Manual will be updated. Training to SLAC staff regarding awareness of limitations on visitor activities based on their level of training will be scheduled. Standardized training materials for accelerator facilities will be used for visitors and occupational workers.

Revised procedures regarding controls issued	10/01/92
Staff training scheduled	03/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	13	13				26
New ES&H Activities						
GPP						
ERWM						

TASK T1409 *DEVELOP ES&H TRAINING PLAN*
(RP.13-1)

Scheduled Completion	01/01/93
Projected Cost	$60,000
Responsible Department	SAF

An ES&H training plan will be developed to guide improvements in SLAC's ES&H training programs. The plan will be based on the existing DRAFT ES&H Training Program Outline and the 1991 Job Task/Hazard Survey. The survey will be reviewed for completeness and additional surveying will be performed as indicated. The Outline will be enhanced and expanded into an overall plan describing the training programs and resources necessary to provide a satisfactory level of ES&H training to the SLAC workforce. This plan will address both in-house training and training provided by outside contractors.

Concurrently with the development of the training plan, a number of interim actions will be taken to address significant noncompliances and to develop the resources necessary for implementation of the plan. These interim measures include initiation of training in such key areas as hazard communication and hazardous materials handling; training of line managers to increase their awareness and understanding of their roles, responsibilities, and authorities; examination and development of systems to assess job effectiveness to provide feedback on needed modifications for training programs; expansion to all courses, as they are given, of the formal evaluations of attained proficiency; and completion and initial implementation of the database/recordkeeping system.

Task/Hazard Survey Institutionalized	08/01/92
Training Needs Indentification Systems Initiated	07/01/92
Database system implementation initiated	09/01/92
Training plan finalized	01/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	33	7				40
New ES&H Activities	14	6				20
GPP						
ERWM						
Ongoing Cost $50,000						

Concern RP.13-2

Documentation of Health Physics Technician Training and Radiation Worker Training is not maintained as required by DOE 5480.11, Section 9.m.5.

DOE Priority 2

Compliance Protocol DOE Order 5480.11, Section 9.m.5

Response SLAC has not historically retained all of the examinations given for Health Physics Technician initial training and Radiation Worker initial training. There has also been no program to document specific on-the-job training (OJT) using Training & Certification (T&C) forms. It was also noted that lesson plans do not exist for all of the programs used. In 1991, Health Physics Technician formal initial training was initiated and signed attendance sheets and examinations are available for some 42 training hours given to date. T&C forms began to be used in October 1991, specifically for training on new working procedures in the Radioactive Material Storage Areas. Further development of training packages, including training plans, will take place. Much of the OJT T&C training will be dependent on completion of relevant radiological protection procedures.

Related Concern RP.13-1 RP.13-3 RP.13-4 RP.3-1 RP.3-2

Related Tasks

T1030 Formalize Health Physics Tech.Train. Documentation
T1032 Formalize Radiation Worker Training Documentation

TASK T1030 (RP.13-2) *FORMALIZE HEALTH PHYSICS TECH.TRAIN. DOCUMENTATION*

Scheduled Completion	08/31/92
Projected Cost	$15,000
Responsible Department	OHP

All new Health Physics Technology Course (HPTC) attendance sheets and completed examinations will be retained. A signature card for all attendees of the HPTC course to ensure initials can be verified will be developed. Training & Certification (T&C) forms for OJT training will be completed and retained in department archives. A signature card for all attendees of OJT training to ensure initials can be verified will be developed.

Master signature card file completed	07/01/92
Archiving plan for training info. implemented	05/01/92
Lesson plans issued for remainder of HPTC	08/31/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	15					15
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $10,000						

TASK T1032 *FORMALIZE RADIATION WORKER TRAINING DOCUMENTATION*
(RP.13-2)

Scheduled Completion 11/01/92
Projected Cost $15,000
Responsible Department OHP

Lesson plan review for Radiation Worker Training (RWT) will be completed. Revise SLAC Radiation Safety Training Manual. The video script for the RWT will be reviewed and revised. RWT tests will be revised and retained. Formal RWT attendance sheets will be maintained.

Lesson plans for RWT training completed 09/01/92
Archiving plan for RWT info implemented 11/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	15					15
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $10,000						

Concern RP.13-3

Retraining for Health Physics Technicians and for Radiation Workers is not being done, contrary to DOE 5480.11, Sections 9.o.2 and .3.

DOE Priority 2

Compliance Protocol DOE Order 5480.11, Section 9.o.2 and .3

Response SLAC will retrain health physics technicians and radiation workers in accordance with DOE 5480.11, Section 9.o (2) and (3) and the Radiological Control Manual as necessary

Related Concern RP.13-1 RP.13-2

Related Tasks T1279 Retrain Health Physics Technicians & Rad. Workers

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TASK T1279 *RETRAIN HEALTH PHYSICS TECHNICIANS & RAD. WORKERS*
(RP.13-3)

Scheduled Completion	12/01/92
Projected Cost	$86,000
Responsible Department	OHP

Health physics technicians and radiation workers requiring retraining will be identified. A radiation protection retraining plan will be developed and implemented. Training records will be evaluated for completeness.

Radiation safety training plan developed	10/01/92
Implementation begun	12/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	86					86
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $35,000						

Concern RP.13-4

The scope of the Health Physics Technician Training Program does not include all of the elements required by DOE 5480.11, Section 9.o 3.

DOE Priority 2

Compliance Protocol DOE Order 5480.11, Section 9.o 3

Response SLAC will include training elements required by 5480.11.

Related Concern RP.3-2

Related Tasks T1124 Develop Health Physics Technician Training Plan

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TASK T1124 *DEVELOP HEALTH PHYSICS TECHNICIAN TRAINING PLAN*
(RP.13-4)

Scheduled Completion	03/01/93
Projected Cost	$82,000
Responsible Department	OHP

A formalized curriculum for complete course content for the Health Physics Technology Course (HPTC) will be developed. A section on emergency procedures will be included. A section on responsibilities of employees and management will be written. The plan for formal tracking of OJT Training & Certification will be documented. Activities for Health Physics Technicians will be described. The minimum requirements for performing specific tasks by Health Physics Technicians will be specified. A long term schedule for HPTC training will be defined.

HPTC training schedule defined and initiated	12/01/92
Formalized HPTC curriculum completed	03/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	82					82
New ES&H Activities						
GPP						
ERWM						

Concern PP.1-1

Stanford Linear Accelerator Center does not ensure the implementation of the personnel protection programs that effectively maintain the workplace free of health and safety concerns, as required by DOE 5480.4, DOE 5480.10, 29 CFR 1910, and others.

DOE Priority 2

Compliance Protocol DOE Orders 5480.4, and 5480.10; 29 CFR 1910

Response SLAC has not fully implemented the requisite range of site-wide personnel protection programs. A primary cause for SLAC's lack of program implementation is inadequate staffing levels. Additional staff will be added to support the development of procedures to establish a personnel protection program that stresses the elimination of industrial hygiene deficiencies and their root causes. Outside consultants will be used as needed to maintain reasonable compliance with regulatory and programmatic requirements. The finalized program procedures will be included in the SLAC ES&H Manual. Training and implementation of each program component will be conducted.

Related Concern PP.4-1 PP.5-1 WS.1-1 WS.1-1 WS.3-1

Related Tasks
T1335 Integrate Personnel Protection Program
T1414 Increase Industrial Hygiene Staffing

TASK T1335 *INTEGRATE PERSONNEL PROTECTION PROGRAM*
(PP.1-1)

Scheduled Completion	12/01/93
Projected Cost	$110,000
Responsible Department	SAF

A site-wide SLAC personnel protection program will be developed, integrating elements addressing industrial hygiene (IH), respiratory protection, carcinogens, confined space entry, and site IH surveys/monitoring (developed elsewhere in this Plan), and developing new elements to address noise, asbestos, lead and other topics. All elements of this program will be developed per applicable requirements of DOE Orders 5480.4, 5480.10, 5482.1B and 5483.1A, and 29 CFR 1910, 1926 and others. Existing procedures will be revised, and new procedures will be developed as necessary. As each component is completed and approved, it will be included in the SLAC ES&H Manual for implementation. Training and additional staffing (or consulting) needs will be surveyed and identified as programmatic requirements are defined.

Requirements reviewed	08/01/92
Existing procedures revised	04/01/93
New procedures completed	08/01/93
Training/staffing req'ts assessed	12/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	30	40	40			110
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $40,000						

TASK T1414 *INCREASE INDUSTRIAL HYGIENE STAFFING*
(PP.1-1)

Scheduled Completion Completed
Projected Cost $40,000
Responsible Department SAF

At present, there is insufficient professional industrial hygiene staff at SLAC to provide a thorough, proactive program for identifying, evaluating, and recommending methods of controlling workplace hazards throughout the laboratory. One additional Industrial Hygienist will be added to the ES&H Division staff.

Industrial Hygienist hired 05/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	40					40
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $70,000						

Concern PP.1-2

Necessary industrial hygiene information is not readily communicated to Stanford Linear Accelerator Center management, and to all segments of the organization as required by DOE 5480.8 and DOE 5480.10, Section b.1.

DOE Priority 2

Compliance Protocol DOE Orders 5480.8 and 5480.10, Section b.1

Response Policies, procedures, and documentation should provide appropriate direction, record generation, and essential peripheral support for the industrial hygiene (IH) program at SLAC. Policies and procedures for communicating information to management and to all segments of the organization should conform to DOE 5480.8 and DOE 5480.10, Section b.1. Various aspects of the IH program at SLAC, including asbestos, ventilation control, medical surveillance, and personnel protection are not clearly defined in SLAC policies and procedures. The root cause of these nonconformances is SLAC's inadequate response to increasing ES&H requirements, primarily due to staffing levels. In order to provide clear direction and appropriate documentation for the IH program, SLAC's IH staff will be augmented, and the personnel protection program formalized to clarify roles, responsibilities, and authorities and enhance lines of communication.

Related Concern MS.3-1 MS.3-1 WS.1-2 WS.1-2 WS.6-1

Related Tasks

T1018 Formalize Industrial Hygiene RRAs
T1335 Integrate Personnel Protection Program
T1414 Increase Industrial Hygiene Staffing

TASK T1018 *FORMALIZE INDUSTRIAL HYGIENE RRAS*
(PP.1-2)

Scheduled Completion	08/01/93
Projected Cost	$30,000
Responsible Department	SAF

A number of references currently address the responsibilities of line management and the professional industrial hygiene staff for identifying, evaluating, and controlling workplace hazards. These include both approved and draft documents, such as ES&H Manual Chapter 1, which outlines individual and organizational responsibilities, Chapter 5, which describe the Industrial Hygiene Program and Chapter 19, regarding Personal Protective Equipment. These references will be reviewed, to assure that they adequately identify the lines of authority and responsibility for control of hazards, and will be issued in final form. Following issuance of these policies and guidelines, training will be provided for the laboratory's key managers to assure their understanding of the program and to assist them in fulfilling their responsibility to in turn inform and train their subordinates.

ES&H Manual revised to address IH RRAs	12/01/92
Key managers instructed	08/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	15	15				30
New ES&H Activities						
GPP						
ERWM						

TASK T1335 *INTEGRATE PERSONNEL PROTECTION PROGRAM*
(PP.1-2)

Scheduled Completion	12/01/93
Projected Cost	$110,000
Responsible Department	SAF

A site-wide SLAC personnel protection program will be developed, integrating elements addressing industrial hygiene (IH), respiratory protection, carcinogens, confined space entry, and site IH surveys/monitoring (developed elsewhere in this Plan), and developing new elements to address noise, asbestos, lead and other topics. All elements of this program will be developed per applicable requirements of DOE Orders 5480.4, 5480.10, 5482.1B and 5483.1A, and 29 CFR 1910, 1926 and others. Existing procedures will be revised, and new procedures will be developed as necessary. As each component is completed and approved, it will be included in the SLAC ES&H Manual for implementation. Training and additional staffing (or consulting) needs will be surveyed and identified as programmatic requirements are defined.

Requirements reviewed	08/01/92
Existing procedures revised	04/01/93
New procedures completed	08/01/93
Training/staffing req'ts assessed	12/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	30	40	40			110
New ES&H Activities						
GPP						
ERWM						

Ongoing Cost $40,000

TASK T1414 *INCREASE INDUSTRIAL HYGIENE STAFFING*
(PP.1-2)

Scheduled Completion	Completed
Projected Cost	$40,000
Responsible Department	SAF

At present, there is insufficient professional industrial hygiene staff at SLAC to provide a thorough, proactive program for identifying, evaluating, and recommending methods of controlling workplace hazards throughout the laboratory. One additional Industrial Hygienist will be added to the ES&H Division staff.

Industrial Hygienist hired 05/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	40					40
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $70,000						

Concern PP.1-3

Stanford Linear Accelerator Center Management does not establish specific goals and objectives for reducing the frequency and severity of occupational accidents, injuries, and illnesses and does not comply with DOE 5480.10, DOE 5482.1B, and DOE 5480.19.

DOE Priority 2

Compliance Protocol DOE Orders 5480.10, 5482.1B, and 5480.19

Response The establishment of specific goals and objectives and the implementation of an effective personnel protection program are key to reducing the incidence of occupational injuries, illnesses and accidents. SLAC does not presently have either a formalized set of such goals and objectives, or a formalized surveillance program to ensure their achievement. This concern will be addressed by establishing goals and objectives, and by instituting an integrated personnel protection program.

Related Concern OA.3-1 PP.1-2 WS.2-1 WS.2-3

Related Tasks
T1358 Establish Measurable Health and Safety Objectives
T1335 Integrate Personnel Protection Program

TASK T1358 (PP.1-3) *ESTABLISH MEASURABLE HEALTH AND SAFETY OBJECTIVES*

Scheduled Completion	10/01/93
Projected Cost	$10,000
Responsible Department	DO

Laboratory management will review the available data on safety-related incidents and trends to determine where improvements can be made. Appropriate objectives will be defined and communicated throughout the laboratory. Surveillance methods will be implemented to measure performance.

Incident data review completed	03/01/93
Objectives established and communicated	07/01/93
Surveillance methods implemented	10/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		10				10
New ES&H Activities						
GPP						
ERWM						

TASK T1335 *INTEGRATE PERSONNEL PROTECTION PROGRAM*
(PP.1-3)

Scheduled Completion	12/01/93
Projected Cost	$110,000
Responsible Department	SAF

A site-wide SLAC personnel protection program will be developed, integrating elements addressing industrial hygiene (IH), respiratory protection, carcinogens, confined space entry, and site IH surveys/monitoring (developed elsewhere in this Plan), and developing new elements to address noise, asbestos, lead and other topics. All elements of this program will be developed per applicable requirements of DOE Orders 5480.4, 5480.10, 5482.1B and 5483.1A, and 29 CFR 1910, 1926 and others. Existing procedures will be revised, and new procedures will be developed as necessary. As each component is completed and approved, it will be included in the SLAC ES&H Manual for implementation. Training and additional staffing (or consulting) needs will be surveyed and identified as programmatic requirements are defined.

Requirements reviewed	08/01/92
Existing procedures revised	04/01/93
New procedures completed	08/01/93
Training/staffing req'ts assessed	12/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	30	40	40			110
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $40,000						

Concern PP.2-1

Stanford Linear Accelerator Center's policies and management directives do not define the lines of authority and management responsibility for the control and support of occupational health and safety hazards as required by DOE 5480.10, and DOE 5482.1B.

DOE Priority 2

Compliance Protocol DOE Orders 5480.10 and 5482.1B; DOE 5482.1B

Response Deficiencies in industrial hygiene practices at SLAC are attributable in some measure to lack of clear guidance on the roles, responsibilities, and authorities for industrial hygiene. Training programs need to be reviewed with the industrial hygiene staff, and feedback mechanisms are needed to improve training and performance where needed. Procedures and management directives need to be developed that better state the requirements in this area. Since the basic management directives for ES&H performance are undergoing review and revision, personnel-protection-related revisions will be made at the same time. The revised directives will be included in the ES&H Manual.

Related Concern MF-2 MF-3 MF-9 MS.1-2 OA.1-1 OA.1-2 WS.1-1 WS.1-2 WS.3-1

Related Tasks T1018 Formalize Industrial Hygiene RRAs

TASK T1018 *FORMALIZE INDUSTRIAL HYGIENE RRAS*
(PP.2-1)

Scheduled Completion	08/01/93
Projected Cost	$30,000
Responsible Department	SAF

A number of references currently address the responsibilities of line management and the professional industrial hygiene staff for identifying, evaluating, and controlling workplace hazards. These include both approved and draft documents, such as ES&H Manual Chapter 1, which outlines individual and organizational responsibilities, Chapter 5, which describe the Industrial Hygiene Program and Chapter 19, regarding Personal Protective Equipment. These references will be reviewed, to assure that they adequately identify the lines of authority and responsibility for control of hazards, and will be issued in final form. Following issuance of these policies and guidelines, training will be provided for the laboratory's key managers to assure their understanding of the program and to assist them in fulfilling their responsibility to in turn inform and train their subordinates.

ES&H Manual revised to address IH RRAs	12/01/92
Key managers instructed	08/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	15	15				30
New ES&H Activities						
GPP						
ERWM						

Concern PP.2-2

Stanford Linear Accelerator Center has not effectively closed out identified health and safety deficiencies.

DOE Priority 3

Response SLAC does not have a system for tracking and follow-up for recommendations on improving personnel protection systems. In order to effectively close out identified health and safety deficiencies, a Corrective Action Management system will be developed and implemented.

Related Concern MF-8 OA.3-1 WS.3-2

Related Tasks

T1176 Revise SLAC Hazard Communication Program
T1335 Integrate Personnel Protection Program
T1345 Institute Regular IH Monitoring
T1361 Implement a Corrective Action Management System

TASK T1176 (PP.2-2) *REVISE SLAC HAZARD COMMUNICATION PROGRAM*

Scheduled Completion	03/01/93
Projected Cost	$100,000
Responsible Department	SAF

Review 29 CFR 1910 requirements for applicability to the existing SLAC Hazard Communication Program (HCP). Identify and revise appropriate parts of the HCP to ensure compliance with 29 CFR 1910, including sections or procedures concerning the hazard evaluation/communication aspects of contents of unlabelled piping, container labelling, maintenance of Materials Safety Data Sheets (MSDS), performance of non-routine tasks, potential exposure to substances including asbestos, lead, and formaldehyde, and hazards information communication with subcontractors. The approved HCP will be communicated to appropriate supervisory and management personnel for interim implementation, and a training program will be developed and scheduled for appropriate personnel.

Hazard Communication Program revised	10/01/92
HCP written program approved	11/01/92
Lessons plans/handouts/training aids revised	03/01/93

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support	45	35				80
New ES&H Activities	10	10				20
GPP						
ERWM						
Ongoing Cost $10,000						

TASK T1335 *INTEGRATE PERSONNEL PROTECTION PROGRAM*
(PP.2-2)

Scheduled Completion 12/01/93
Projected Cost $110,000
Responsible Department SAF

A site-wide SLAC personnel protection program will be developed, integrating elements addressing industrial hygiene (IH), respiratory protection, carcinogens, confined space entry, and site IH surveys/monitoring (developed elsewhere in this Plan), and developing new elements to address noise, asbestos, lead and other topics. All elements of this program will be developed per applicable requirements of DOE Orders 5480.4, 5480.10, 5482.1B and 5483.1A, and 29 CFR 1910, 1926 and others. Existing procedures will be revised, and new procedures will be developed as necessary. As each component is completed and approved, it will be included in the SLAC ES&H Manual for implementation. Training and additional staffing (or consulting) needs will be surveyed and identified as programmatic requirements are defined.

Requirements reviewed	08/01/92
Existing procedures revised	04/01/93
New procedures completed	08/01/93
Training/staffing req'ts assessed	12/01/93

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support	30	40	40			110
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $40,000						

TASK T1345 *INSTITUTE REGULAR IH MONITORING*
(PP.2-2)

Scheduled Completion 08/01/92
Projected Cost $7,000
Responsible Department SAF

Key operations which warrant IH monitoring will be identified and the hazard potential categorized. An IH monitoring priority will be established, according to hazard categories, for IH monitoring at appropriate SLAC facilities. Facilities categorization information will be documented. A policy will be established to ensure that SLAC facilities will be inspected periodically, according to priority.

IH hazards identified and categorized 05/01/92
IH monitoring scheduled 08/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	7					7
New ES&H Activities						
GPP						
ERWM						

TASK T1361 *IMPLEMENT A CORRECTIVE ACTION MANAGEMENT SYSTEM*
(PP.2-2)

Scheduled Completion 10/01/93
Projected Cost $260,000
Responsible Department PAD

Planning for a sitewide corrective action management system (CAMS) will require consideration of a number of factors. SLAC will identify the end users of the system, determine which assessments and programs will provide inputs to the system, and determine objectives for trending deficiencies and corrective actions. Appropriate forms, software, manuals, and training will be developed in order to implement a corrective action management system. Appropriate staffing plans and administrative procedures will be developed for ongoing maintenance and management of the system. A sample of inputs and outputs will be selected for a pilot test of the system. Based on that pilot test, necessary refinements will be made before final implementation.

CAMS plan approved by SLAC management 07/01/92
CAMS implemented 10/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	20	40				60
New ES&H Activities	140	60				200
GPP						
ERWM						
Ongoing Cost $160,000						

Concern PP.2-3

The Department of Energy, San Francisco Operations Office has not consistently enforced the requirements of DOE 5482.1B and DOE 5480.10 at the Stanford Linear Accelerator Center to ensure identified health and safety non-compliances are corrected.

DOE Priority 3

Compliance Protocol DOE Orders 5482.1B and 5480.10

Response DOE-SF does request action plans for identified environment, safety, and health non-complinaces in accordance with DOE 5482.1B; however, DOE-SF has not adequately followed-up on action plans to ensure timely correction of deficiencies. This inadequacy was in part due to the lack of sufficient Stanford Site Office (SSO) staff to conduct day-to-day oversight of SLAC/SSRL, no established tracking system to maintain status, and no formal mechanism for oversight. In the case of the three recommendations of the 1989 Multidiscipline Safety appraisal, an action plan was requested; however, SLAC did not adequately address the three recommendations. DOE-SF requested additional corrective actions to these recommendations. Several iterations were necessary since the initial request for an action plan. In July 1991, an Industrial Hygiene (IH) appraisal identified these same findings. The three 1989 recommendations will be tracked by the 1991 IH appraisal.

Related Tasks

T1425 Develop Oversight Plan
T1428 Develop SSO Corrective Action Tracking System
T1429 Close-out Past Appraisal Recommendations

TASK T1425 *DEVELOP OVERSIGHT PLAN*
(PP.2-3)

Scheduled Completion	11/30/92
Projected Cost	$
Responsible Department	DOE

An Oversight Plan will be developed that will define all aspects of SF/SSO oversight of the laboratory and will describe the breadth and frequency of oversight, such as the listing of functional appraisals in the Institutional Appraisal Plan. The intent of the oversight plan will be to provide unencumbered site access for walkthroughs and surveillance inspections.

Generic Oversight Plan Completed	06/30/92
Oversight Plan finalized and implemented	11/30/92

TASK T1428 *DEVELOP SSO CORRECTIVE ACTION TRACKING SYSTEM*
(PP.2-3)

Scheduled Completion	09/30/93
Projected Cost	$
Responsible Department	DOE

Develop SSO Corrective Action Tracking System
Obtain training
Purchase hardware/software
Begin pilot program
Completed procedures for tracking system
Implement full SSO tracking system program

Obtain Training	05/01/92
Purchase hardware/software	11/01/92
Begin Pilot Program	04/01/93
Completed procedures for tracking system	07/01/93
Implemented Full SSO Tracking system program	09/30/93

TASK T1429 *CLOSE-OUT PAST APPRAISAL RECOMMENDATIONS*
(PP.2-3)

Scheduled Completion	10/30/92
Projected Cost	$
Responsible Department	DOE

In preparation for the Tiger Team Assessment (TTA), SF and SSO conducted functional appraisals at SLAC. SF and SSO will be comparing each appraisal recommendation with the findings of the TTA to identify SF recommendations that were not identified by the TTA. These outstanding recommendations will be formally transmitted to SLAC for response. The three 1989 Multidiscipline Safety Appraisal recommendations will be included in the comparison. Formal closure of recommendations will be conducted by the SSO.

Comp.of '91 Appraisal Recommend. with TTA Findings	09/30/92
Transmit outstanding recomm. to SLAC for response	10/30/92

Concern PP.3-1

The Stanford Linear Accelerator Center does not have a documented program for identifying, evaluating, and controlling occupational safety and health hazards as required by DOE 5480.10, DOE 5480.1B, and DOE 5480.4.

DOE Priority 2

Compliance Protocol DOE Orders 5480.10, 5480.1B, an d 5480.4 ; 29 CFR 1910.1200

Response Routine occupational health and safety inspections of all SLAC facilities have not been conducted on a regular basis to ensure chemical, physical and/or biological stresses arising in the workplace are identified, evaluated and controlled. The current hazard inventory and hazard communication information systems are inadequate due to staffing limitations. SLAC will develop and implement a documented program for ensuring effective identification, evaluation, and control of occupational health and safety hazards. Additional staff will be added for effective revision, implementation, and control of a site-wide comprehensive occupational health and safety program that complies with DOE 5480.10 and DOE 5480.4 mandated requirements.

Related Concern WS.1-3 WS.3-4

Related Tasks

T1335 Integrate Personnel Protection Program
T1311 Develop Hazardous Materials Management System
T1345 Institute Regular IH Monitoring
T1414 Increase Industrial Hygiene Staffing

TASK T1335 (PP.3-1) *INTEGRATE PERSONNEL PROTECTION PROGRAM*

Scheduled Completion	12/01/93
Projected Cost	$110,000
Responsible Department	SAF

A site-wide SLAC personnel protection program will be developed, integrating elements addressing industrial hygiene (IH), respiratory protection, carcinogens, confined space entry, and site IH surveys/monitoring (developed elsewhere in this Plan), and developing new elements to address noise, asbestos, lead and other topics. All elements of this program will be developed per applicable requirements of DOE Orders 5480.4, 5480.10, 5482.1B and 5483.1A, and 29 CFR 1910, 1926 and others. Existing procedures will be revised, and new procedures will be developed as necessary. As each component is completed and approved, it will be included in the SLAC ES&H Manual for implementation. Training and additional staffing (or consulting) needs will be surveyed and identified as programmatic requirements are defined.

Requirements reviewed	08/01/92
Existing procedures revised	04/01/93
New procedures completed	08/01/93
Training/staffing req'ts assessed	12/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	30	40	40			110
New ES&H Activities						
GPP						
ERWM						

Ongoing Cost $40,000

TASK T1311 *DEVELOP HAZARDOUS MATERIALS MANAGEMENT SYSTEM*
(PP.3-1)

Scheduled Completion	10/01/94
Projected Cost	$190,000
Responsible Department	ESH

Applicable regulatory requirements pertaining to inventory, reporting, and internal management of chemicals and hazardous materials will be evaluated. Input will be sought from the ES&H Division (including IH personnel), Purchasing Office, major end-users, and management. A Chemical & Hazardous Materials Management System (MMS) will be developed, and will include elements concerning hazardous and chemical material acquisition, handling, and disposal; controls for researcher and subcontractor use and storage of such materials (including those not obtained through the SLAC purchasing system); inventory and tracking of materials; and related management responsibilities. The MMS will be developed to be consistent and complementary to the SLAC Hazard Communication Program (HCP). The MMS Plan will consist of written procedures, training, and information systems, including the SLAC database of hazardous materials. Development of the system will be approached in phases, first addressing the compliance issues and later the best management practice issues.

Requirements reviewed	04/01/93
MMS plan developed	04/01/94
MMS implementation initiated	10/01/94

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		45	45			90
New ES&H Activities		50	50			100
GPP						
ERWM						

Ongoing Cost $40,000

TASK T1345 *INSTITUTE REGULAR IH MONITORING*
(PP.3-1)

Scheduled Completion 08/01/92
Projected Cost $7,000
Responsible Department SAF

Key operations which warrant IH monitoring will be identified and the hazard potential categorized. An IH monitoring priority will be established, according to hazard categories, for IH monitoring at appropriate SLAC facilities. Facilities categorization information will be documented. A policy will be established to ensure that SLAC facilities will be inspected periodically, according to priority.

IH hazards identified and categorized 05/01/92
IH monitoring scheduled 08/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	7					7
New ES&H Activities						
GPP						
ERWM						

TASK T1414 *INCREASE INDUSTRIAL HYGIENE STAFFING*
(PP.3-1)

Scheduled Completion Completed
Projected Cost $40,000
Responsible Department SAF

At present, there is insufficient professional industrial hygiene staff at SLAC to provide a thorough, proactive program for identifying, evaluating, and recommending methods of controlling workplace hazards throughout the laboratory. One additional Industrial Hygienist will be added to the ES&H Division staff.

Industrial Hygienist hired 05/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	40					40
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $70,000						

Concern PP.3-2

Periodic walk-through surveys of the workplace are not regularly performed to identify potential health and safety hazards, as required in 29 CFR 1910.94 and DOE 5481.1B, Section 9.d.2e.

DOE Priority 2

Compliance Protocol 29 CFR 1910.94; DOE Order 5481.1B, Section 9.d.2e

Response Several groups and individuals conduct walk-through surveys and inspections of SLAC facilities and equipment, however, their activities are poorly documented, uncoordinated, not uniformly recorded, and not centrally tracked and recoverable from a database. In response to this concern, SLAC will document the responsibilities of the various inspectors, create guidance manuals, provide training for each inspector, hire a safety engineer to oversee the surveillance program and an industrial hygienist to oversee the IH aspect, develop a uniform protocol for inspection, and develop a database for tracking all ES&H findings.

Related Concern OA.5-1 WS.1-3

Related Tasks

T1064	Create Guidance Documents for Various Inspectors
T1067	Add ES&H Personnel to Increase Surveillance
T1224	Establish ES&H RRA's for Job Classes
T1345	Institute Regular IH Monitoring
T1414	Increase Industrial Hygiene Staffing

TASK T1064 (PP.3-2) *CREATE GUIDANCE DOCUMENTS FOR VARIOUS INSPECTORS*

Scheduled Completion	10/01/93
Projected Cost	$40,000
Responsible Department	SAF

Each SLAC inspector function has assigned responsibilities and a basis (OSHA, HEEC Policy Document, Earthquake Committee Standards, etc.) upon which the inspection is referenced. In some cases the basis is documented (OSHA 1910 and 1926) and in others (Earthquake Committee Standards) it is not. SLAC will develop guidance documents for use by individuals with inspection responsibilities and will provide relevant training. Guidance will include requirements for documenting inspections and tracking corrective actions.

Existing documents and standards reviewed	07/01/92
Guidance documents identified	08/01/92
Guidance documents drafted	08/01/93
Guidance documents published	10/01/93

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support						
New ES&H Activities	15	25				40
GPP						
ERWM						
Ongoing Cost $20,000						

TASK T1067 *ADD ES&H PERSONNEL TO INCREASE SURVEILLANCE*
(PP.3-2)

Scheduled Completion Completed
Projected Cost $75,000
Responsible Department SAF

SLAC has one safety engineer, who is also a Department Head. Current staff is not sufficient for oversight requirements. An additional safety engineer will be hired.

Safety engineer hired 10/01/92

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support	75					75
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $75,000						

TASK T1224 *ESTABLISH ES&H RRA'S FOR JOB CLASSES*
(PP.3-2)

Scheduled Completion 02/01/93
Projected Cost $100,000
Responsible Department DO

RRAs will be developed for classes of jobs which share RRAs. These RRAs will be communicated to SLAC employees through written documents and meetings to ensure that individuals understand their ES&H RRAs.

RRAs issued for classes of positions 02/01/93

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support	40	60				100
New ES&H Activities						
GPP						
ERWM						

TASK T1345 *INSTITUTE REGULAR IH MONITORING*
(PP.3-2)

Scheduled Completion	08/01/92
Projected Cost	$7,000
Responsible Department	SAF

Key operations which warrant IH monitoring will be identified and the hazard potential categorized. An IH monitoring priority will be established, according to hazard categories, for IH monitoring at appropriate SLAC facilities. Facilities categorization information will be documented. A policy will be established to ensure that SLAC facilities will be inspected periodically, according to priority.

IH hazards identified and categorized	05/01/92
IH monitoring scheduled	08/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	7					7
New ES&H Activities						
GPP						
ERWM						

TASK T1414 *INCREASE INDUSTRIAL HYGIENE STAFFING*
(PP.3-2)

Scheduled Completion	Completed
Projected Cost	$40,000
Responsible Department	SAF

At present, there is insufficient professional industrial hygiene staff at SLAC to provide a thorough, proactive program for identifying, evaluating, and recommending methods of controlling workplace hazards throughout the laboratory. One additional Industrial Hygienist will be added to the ES&H Division staff.

Industrial Hygienist hired	05/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	40					40
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $70,000						

Concern PP.4-1

The Stanford Linear Accelerator Center does not conduct regular industrial hygiene monitoring to demonstrate compliance with mandatory standards as required by DOE 5480.10, DOE 5482.1B, and DOE 5483.1A.

DOE Priority 2

Compliance Protocol DOE Orders 5480.10, 5482.1B, and 5483.1A

Response SLAC has not established a scheduled industrial hygiene monitoring program, as required by DOE Orders 5480.10, 5482.1B, 5483.1A and the 29 CFR 1910.1000 series. Most IH monitoring has been done only as a result of employee concerns or supervisor requests. SLAC will augment IH staffing, categorize workplace and process hazards, and develop a procedure and schedule for identification and evaluation of hazards and routine visits to worksites by IH personnel and the SLAC physician.

Related Concern OA.5-1 PP.1-1 WS.1-2

Related Tasks
T1345 Institute Regular IH Monitoring
T1414 Increase Industrial Hygiene Staffing

TASK T1345 *INSTITUTE REGULAR IH MONITORING*
(PP.4-1)

Scheduled Completion	08/01/92
Projected Cost	$7,000
Responsible Department	SAF

Key operations which warrant IH monitoring will be identified and the hazard potential categorized. An IH monitoring priority will be established, according to hazard categories, for IH monitoring at appropriate SLAC facilities. Facilities categorization information will be documented. A policy will be established to ensure that SLAC facilities will be inspected periodically, according to priority.

IH hazards identified and categorized	05/01/92
IH monitoring scheduled	08/01/92

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support	7					7
New ES&H Activities						
GPP						
ERWM						

TASK T1414 *INCREASE INDUSTRIAL HYGIENE STAFFING*
(PP.4-1)

Scheduled Completion Completed
Projected Cost $40,000
Responsible Department SAF

At present, there is insufficient professional industrial hygiene staff at SLAC to provide a thorough, proactive program for identifying, evaluating, and recommending methods of controlling workplace hazards throughout the laboratory. One additional Industrial Hygienist will be added to the ES&H Division staff.

Industrial Hygienist hired 05/01/92

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support	40					40
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $70,000						

Concern PP.5-1

Although respirators are used, the Stanford Linear Accelerator Center does not have a respiratory protection program that complies with 29 CFR 1910.134 and DOE 5480.4.

DOE Priority 2

Compliance Protocol 29 CFR 1910.134 ; DOE Order 5480.4; ANSI Z88.2-1980; 29CFR 1910.120

Response The SLAC Respiratory Protection Program does not provide proper training in the need for and use of respirators. Personnel do not know when and how to use respirators, or understand the protection limitations of respirators. Maintenance and storage of reusable repirators is not performed in accordance with OSHA and DOE requirements. The SLAC respiratory protection program will be developed and implemented to provide appropriate sitewide training, record keeping, and support for the IH Program at SLAC. IH staff will be increased and a sitewide respiratory protection program that complies with 29CFR 1910.134 and DOE 5480.4 will be developed.

Related Concern WS.3-1

Related Tasks

T1191 Develop Respiratory Protection Program
T1345 Institute Regular IH Monitoring
T1414 Increase Industrial Hygiene Staffing

TASK T1191 (PP.5-1) *DEVELOP RESPIRATORY PROTECTION PROGRAM*

Scheduled Completion	10/01/92
Projected Cost	$25,000
Responsible Department	SAF

Regulatory requirements for respiratory protection from DOE Order 5480.4, OSHA 1910.134 and ANSI Z88.2-1980 will be reviewed. Existing respirator procedures will be reviewed and revised as applicable (including training, fit test, maintenance and storage facility, and medical requirements) and implemented as part of a sitewide program. Based on information obtained from the industrial hygiene monitoring program which will identify personnel required to use respirators for protection, proper training, fit testing, and maintenance/storage facilities will be provided to all respirator users.

Regulatory requirements reviewed	05/01/92
Training & fit testing initiated	10/01/92
Respirator procedures revised	10/01/92

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support						
New ES&H Activities	25					25
GPP						
ERWM						
Ongoing Cost $5,000						

TASK T1345 *INSTITUTE REGULAR IH MONITORING*
(PP.5-1)

Scheduled Completion 08/01/92
Projected Cost $7,000
Responsible Department SAF

Key operations which warrant IH monitoring will be identified and the hazard potential categorized. An IH monitoring priority will be established, according to hazard categories, for IH monitoring at appropriate SLAC facilities. Facilities categorization information will be documented. A policy will be established to ensure that SLAC facilities will be inspected periodically, according to priority.

IH hazards identified and categorized 05/01/92
IH monitoring scheduled 08/01/92

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support	7					7
New ES&H Activities						
GPP						
ERWM						

TASK T1414 *INCREASE INDUSTRIAL HYGIENE STAFFING*
(PP.5-1)

Scheduled Completion Completed
Projected Cost $40,000
Responsible Department SAF

At present, there is insufficient professional industrial hygiene staff at SLAC to provide a thorough, proactive program for identifying, evaluating, and recommending methods of controlling workplace hazards throughout the laboratory. One additional Industrial Hygienist will be added to the ES&H Division staff.

Industrial Hygienist hired 05/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	40					40
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $70,000						

Concern WS.1-1

Internal safety and health compliance oversight appraisals, conducted by technically competent personnel, independent of the operation under scrutiny, are not performed as defined by DOE 5480.1B and required by DOE 5482.1B and DOE 5480.10.

DOE Priority 2

Compliance Protocol DOE Order 5480.1B; DOE 5482.1B; DOE 5480.10

Response In order to oversee safety and health compliance, SLAC's QA department will develop a comprehensive audit plan. This plan will address the personnel and methods to be used to audit the procedures which have been developed to assure safety. This audit plan will satisfy the requirements for independent oversight in DOE Orders and other regulations. Additional staff will be hired to provide the resources and technical expertise to conduct the audits.

Related Concern PP.2-1 PP.4-1 WS.1-2

Related Tasks
T1293 Develop Comprehensive Audit Plan for ES&H Act.
T1437 Increase OSHA Compliance Staffing

TASK T1293 (WS.1-1) *DEVELOP COMPREHENSIVE AUDIT PLAN FOR ES&H ACT.*

Scheduled Completion	Completed
Projected Cost	$20,000
Responsible Department	QA&C

A global plan for auditing will be developed. This plan will include identification of the audit to be undertaken including surveillance, routine audits, and special audits, identification of the appropriate audit staff/teams, training requirements as applicable prior to undertaking auditing, and the appropriate frequency of audits. The appraisals will be undertaken by Quality Assurance and Compliance Department personnel, independent internal experts, outside technical experts from other laboratories, or consulting firms, depending on the technical requirements and nature of the audit activity. The audit program will proceed with audits and activities explicitly called out in DOE Orders such as 5400.1 in advance of the formal plan development.

Requirements reviewed	06/01/92
Staffing needs to support audits identified	09/01/92
Audit plan prepared	11/01/92
SLAC approval of audit plan obtained	12/01/92
Implementation of audit plan begun	12/31/92

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support	10	10				20
New ES&H Activities						
GPP						
ERWM						

TASK T1437 *INCREASE OSHA COMPLIANCE STAFFING*
(WS.1-1)

Scheduled Completion Completed
Projected Cost $48,000
Responsible Department QA&C

The Quality Assurance and Compliance Department will hire an OSHA - specialist Quality Engineer to conduct workplace safety audits.

OSHA specialized QE hired 03/01/92

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support	48					48
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $72,000						

Concern WS.1-2

The Environmental Safety and Health Division has not performed an aggressive, proactive role in addressing safety and health issues, as required by DOE 5480.10, and DOE 5483.1A.

DOE Priority 2

Compliance Protocol DOE Order 5480.10; DOE Order 5483.1A

Response SLAC recognizes the importance of identifying, evaluating, and controlling workplace hazards. At present, the SLAC Industrial Hygienist evaluates hazards and recommends control measures primarily at the request of the responsible line manager. Resources have not been devoted to safety and industrial hygiene surveys and evaluations. In order to meet the requirements of the applicable Orders, the need for additional IH and safety engineering staffing must be evaluated, and written materials must be developed and disseminated to communicate the safety and health program. Efforts in this area must address subcontractor employees as well as SLAC employees. An assessment mechanism is needed to ensure continued effectiveness of hazard identification, evaluation, and control activities. SLAC will address this concern by augmenting resources for identifying and characterizing workplace hazards; developing a schedule and procedures for routine identification and evaluation of workplace hazards through routine worksite visits by a Safety Engineer, Industrial Hygienist, and physician; and defining and communicating line management and subcontractor responsibilities for controlling hazards.

Related Concern PP.4-1 WS.1-1

Related Tasks

T1358 Establish Measurable Health and Safety Objectives
T1385 Establish Divisional & Departmental ES&H RRA's
T1414 Increase Industrial Hygiene Staffing
T1437 Increase OSHA Compliance Staffing

TASK T1358 (WS.1-2) *ESTABLISH MEASURABLE HEALTH AND SAFETY OBJECTIVES*

Scheduled Completion	10/01/93
Projected Cost	$10,000
Responsible Department	DO

Laboratory management will review the available data on safety-related incidents and trends to determine where improvements can be made. Appropriate objectives will be defined and communicated throughout the laboratory. Surveillance methods will be implemented to measure performance.

Incident data review completed 03/01/93
Objectives established and communicated 07/01/93
Surveillance methods implemented 10/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		10				10
New ES&H Activities						
GPP						
ERWM						

TASK T1385 *ESTABLISH DIVISIONAL & DEPARTMENTAL ES&H RRA'S*
(WS.1-2)

Scheduled Completion 01/01/93
Projected Cost $100,000
Responsible Department DO

Each Division and Department will establish specific RRAs to implement overall SLAC ES&H performance expectations. These will be communicated to all employees.

Division & Department specific ES&H RRAs issued 01/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	75					75
New ES&H Activities	25					25
GPP						
ERWM						

TASK T1414 *INCREASE INDUSTRIAL HYGIENE STAFFING*
(WS.1-2)

Scheduled Completion Completed
Projected Cost $40,000
Responsible Department SAF

At present, there is insufficient professional industrial hygiene staff at SLAC to provide a thorough, proactive program for identifying, evaluating, and recommending methods of controlling workplace hazards throughout the laboratory. One additional Industrial Hygienist will be added to the ES&H Division staff.

Industrial Hygienist hired 05/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	40					40
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $70,000						

TASK T1437 *INCREASE OSHA COMPLIANCE STAFFING*
(WS.1-2)

Scheduled Completion	Completed
Projected Cost	$48,000
Responsible Department	QA&C

The Quality Assurance and Compliance Department will hire an OSHA - specialist Quality Engineer to conduct workplace safety audits.

OSHA specialized QE hired 03/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	48					48
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $72,000						

Concern WS.2-1

Overall safety and health performance at the Stanford Linear Accelerator Center is not routinely measured to evaluate the effectiveness of control and does not comply with the requirements of DOE 5480.10 and DOE 5482.1B.

DOE Priority 2

Compliance Protocol DOE Orders 5480.10, and 5482.1B

Response SLAC recognizes the need for routine surveillance of activities to measure safety and health performance and to ensure the effectiveness of safety and health controls. Present deficiencies in this area are primarily due to insufficient industrial hygiene staff to carry out a routine surveillance program and the lack of a set of hazard-based performance standards against which to measure safety and health performance. This concern will be addressed by allocating appropriate staffing to improve IH surveillance, including surveillance of subcontractor activities, developing safety objectives and monitoring performance, and implementing a personnel protection program to ensure continued effective performance.

Related Tasks

T1335 Integrate Personnel Protection Program
T1358 Establish Measurable Health and Safety Objectives
T1414 Increase Industrial Hygiene Staffing

TASK T1335 *INTEGRATE PERSONNEL PROTECTION PROGRAM*
(WS.2-1)

Scheduled Completion	12/01/93
Projected Cost	$110,000
Responsible Department	SAF

A site-wide SLAC personnel protection program will be developed, integrating elements addressing industrial hygiene (IH), respiratory protection, carcinogens, confined space entry, and site IH surveys/monitoring (developed elsewhere in this Plan), and developing new elements to address noise, asbestos, lead and other topics. All elements of this program will be developed per applicable requirements of DOE Orders 5480.4, 5480.10, 5482.1B and 5483.1A, and 29 CFR 1910, 1926 and others. Existing procedures will be revised, and new procedures will be developed as necessary. As each component is completed and approved, it will be included in the SLAC ES&H Manual for implementation. Training and additional staffing (or consulting) needs will be surveyed and identified as programmatic requirements are defined.

Requirements reviewed	08/01/92
Existing procedures revised	04/01/93
New procedures completed	08/01/93
Training/staffing req'ts assessed	12/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	30	40	40			110
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $40,000						

TASK T1358 *ESTABLISH MEASURABLE HEALTH AND SAFETY OBJECTIVES*
(WS.2-1)

Scheduled Completion 10/01/93
Projected Cost $10,000
Responsible Department DO

Laboratory management will review the available data on safety-related incidents and trends to determine where improvements can be made. Appropriate objectives will be defined and communicated throughout the laboratory. Surveillance methods will be implemented to measure performance.

Incident data review completed 03/01/93
Objectives established and communicated 07/01/93
Surveillance methods implemented 10/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		10				10
New ES&H Activities						
GPP						
ERWM						

TASK T1414 *INCREASE INDUSTRIAL HYGIENE STAFFING*
(WS.2-1)

Scheduled Completion Completed
Projected Cost $40,000
Responsible Department SAF

At present, there is insufficient professional industrial hygiene staff at SLAC to provide a thorough, proactive program for identifying, evaluating, and recommending methods of controlling workplace hazards throughout the laboratory. One additional Industrial Hygienist will be added to the ES&H Division staff.

Industrial Hygienist hired 05/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	40					40
New ES&H Activities						
GPP						
ERWM						
Ongoing Cost $70,000						

Concern WS.2-2

Recording and reporting of occupational injuries and illnesses at the Stanford Linear Accelerator Center does not comply with 29 CFR 1904.

DOE Priority 2

Compliance Protocol 29 CFR 1904; OSHA 1904.2

Response SLAC does not prepare or post, separate from Stanford University, a log and summary of all recordable occupational injuries and illnesses on OSHA form 200. Stanford University regards its operational units (Departments) to comprise a single enterprise. The University prepares a single OSHA form 200 and posts the form annually at Campus and at SLAC. SLAC does post the Stanford University OSHA form 200, which includes SLAC, from February 1 to March 1. SLAC will request that Stanford University in consultation with Stanford legal counsel to provide further guidance as to whether SLAC is a separate enterprise which should report separately.

Related Concern PP.1-3 WS.2-3

Related Tasks T1282 Secure Guidance on OSHA Posting

TASK T1282 *SECURE GUIDANCE ON OSHA POSTING*
(WS.2-2)

Scheduled Completion	Completed
Projected Cost	$1,000
Responsible Department	SAF

SLAC will formally request guidance from Stanford University as to whether SLAC is a separate enterprise that must prepare a separate OSHA form 200.

Stanford University guidance requested	02/15/92
DOE informed of course of action	04/01/92
Course of action determined	04/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	1					1
New ES&H Activities						
GPP						
ERWM						

Concern WS.2-3

The Stanford Linear Accelerator Center safety and health program has not been effective in controlling the lost workday rate.

DOE Priority 4

Response SLAC's lost workday (LWD) rate is higher than the DOE average. This may be due to guidance provided by Stanford University personnel policy on injuries and illness. SLAC will analyze its LWD experience and prepare a report to explain the causal factors for SLAC's LWD Rate. That report will provide the basis for a determination as to what actions may be taken to reduce the LWD rate.

Related Concern PP.1-3

Related Tasks T1383 Analyze SLAC LWD Experience

TASK T1383 *ANALYZE SLAC LWD EXPERIENCE*
(WS.2-3)

Scheduled Completion	10/01/94
Projected Cost	$3,000
Responsible Department	DO

The ES&H Division will prepare an analysis and report of causal factors for SLAC's higher than average LWD rates. This report will include recommendations for reducing the LWD rate. Based on this report, the ES&HCC will develop a plan for reducing the LWD rate if needed.

Report submitted to Directorate	08/01/94
LWD Plan developed and implemented	10/01/94

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support			3			3
New ES&H Activities						
GPP						
ERWM						

Concern WS.3-1

The implementation of the industrial hygiene program does not comply with substantive requirements mandated by DOE 5480.4, DOE 5480.10 and DOE 5482.1B.

DOE Priority 2

Compliance Protocol DOE Orders 5480.4, 5480.10, and 5482.1B ; ANSI 2117.1-1989; OSHA 1910.146 (draft), 1910.1200

Response The industrial hygiene program should ensure that operations are monitored and conducted in a manner that assures identification and control of workplace hazards. Surveillance activities and hazard control programs and procedures at SLAC are not sufficiently formalized and enforced to meet these objectives. This concern will be addressed through establishment of an IH surveillance program and appropriate hazard control programs.

Related Concern OA.1-2 PP.1-1 PP.2-1 WS.3-3

Related Tasks
T1335 Integrate Personnel Protection Program
T1345 Institute Regular IH Monitoring

TASK T1335 *INTEGRATE PERSONNEL PROTECTION PROGRAM*
(WS.3-1)

Scheduled Completion	12/01/93
Projected Cost	$110,000
Responsible Department	SAF

A site-wide SLAC personnel protection program will be developed, integrating elements addressing industrial hygiene (IH), respiratory protection, carcinogens, confined space entry, and site IH surveys/monitoring (developed elsewhere in this Plan), and developing new elements to address noise, asbestos, lead and other topics. All elements of this program will be developed per applicable requirements of DOE Orders 5480.4, 5480.10, 5482.1B and 5483.1A, and 29 CFR 1910, 1926 and others. Existing procedures will be revised, and new procedures will be developed as necessary. As each component is completed and approved, it will be included in the SLAC ES&H Manual for implementation. Training and additional staffing (or consulting) needs will be surveyed and identified as programmatic requirements are defined.

Requirements reviewed	08/01/92
Existing procedures revised	04/01/93
New procedures completed	08/01/93
Training/staffing req'ts assessed	12/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	30	40	40			110
New ES&H Activities						
GPP						
ERWM						

Ongoing Cost $40,000

TASK T1345 *INSTITUTE REGULAR IH MONITORING*
(WS.3-1)

Scheduled Completion 08/01/92
Projected Cost $7,000
Responsible Department SAF

Key operations which warrant IH monitoring will be identified and the hazard potential categorized. An IH monitoring priority will be established, according to hazard categories, for IH monitoring at appropriate SLAC facilities. Facilities categorization information will be documented. A policy will be established to ensure that SLAC facilities will be inspected periodically, according to priority.

IH hazards identified and categorized 05/01/92
IH monitoring scheduled 08/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	7					7
New ES&H Activities						
GPP						
ERWM						

Concern WS.3-2

The Stanford Linear Accelerator Center Hazard Communication Program does not comply with the requirements of 29 CFR 1910.1200.

DOE Priority 2

Compliance Protocol 29 CFR 1910.1200

Response Evaluation and control of occupational health hazards should comply with appropriate DOE standards.

Deficiencies were found in SLAC's Hazard Communication Program (HCP) and associated procedures. It was also noted that all required site-specific training has not been completed and some procedures were not fully implemented. The HCP and associated procedures will be modified, as needed, and the changes communicated to appropriate staff.

Related Concern PP.5-1

Related Tasks T1176 Revise SLAC Hazard Communication Program

TASK T1176 *REVISE SLAC HAZARD COMMUNICATION PROGRAM*
(WS.3-2)

Scheduled Completion	03/01/93
Projected Cost	$100,000
Responsible Department	SAF

Review 29 CFR 1910 requirements for applicability to the existing SLAC Hazard Communication Program (HCP). Identify and revise appropriate parts of the HCP to ensure compliance with 29 CFR 1910, including sections or procedures concerning the hazard evaluation/communication aspects of contents of unlabelled piping, container labelling, maintenance of Materials Safety Data Sheets (MSDS), performance of non-routine tasks, potential exposure to substances including asbestos, lead, and formaldehyde, and hazards information communication with subcontractors. The approved HCP will be communicated to appropriate supervisory and management personnel for interim implementation, and a training program will be developed and scheduled for appropriate personnel.

Hazard Communication Program revised	10/01/92
HCP written program approved	11/01/92
Lessons plans/handouts/training aids revised	03/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	45	35				80
New ES&H Activities	10	10				20
GPP						
ERWM						
Ongoing Cost $10,000						

Concern WS.3-3

The Stanford Linear Accelerator Center does not have a confined space entry program that complies with DOE 5480.4 and ANSI Z117.1.

DOE Priority 2

Compliance Protocol DOE Order 5480.4; ANSI 2117.1-1989; 29 CFR 1910.146 (OSHA)

Response Procedures and documentation will be developed and implemented for a confined space entry program at SLAC that is consistent with the proposed OSHA 29 CFR 1910.146 standard and the ANSI 2117.1-1989 standard. Under this program, SLAC will control these hazards by developing procedures that will identify and inventory all "permit required confined space" (permit space); restrict access to authorized personnel; control the hazards in those spaces through engineering or work practices; and test, monitor or inspect the entry permit spaces to ensure that the hazards remain under control.

Related Concern WS.3-1

Related Tasks

T1172 Inventory Confined Space Hazards
T1177 Develop Confined Space Entry Permit Program
T1178 Develop Confined Space Training Program

TASK T1172 *INVENTORY CONFINED SPACE HAZARDS*
(WS.3-3)

Scheduled Completion	01/01/93
Projected Cost	$25,000
Responsible Department	SAF

The confined space survey performed by the Building Managers at SLAC will be evaluated by the Safety Department of the ES&H Division to develop a database to maintain an inventory of confined space at SLAC. The database will contain information such as: precise location of the confined space; brief statement of the known and/or potential hazard(s); location and nature of the confined space entry; and what lockout/tagout procedures may be required. The database will also reference or contain the names of personnel trained to work or to authorize work in permit space at SLAC.

A final determination of confined space at SLAC will be made by taking a second inspection of all sites listed in the survey. Scheduling will be dictated in many cases by accelerator operations.

Inventory Completed	09/01/92
Confined spaces determined	01/01/93

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support						
New ES&H Activities	20	5				25
GPP						
ERWM						
Ongoing Cost $5,000						

TASK T1177 *DEVELOP CONFINED SPACE ENTRY PERMIT PROGRAM*
(WS.3-3)

Scheduled Completion 05/01/93
Projected Cost $10,000
Responsible Department SAF

A comprehensive "permit-required confined space" program (entry permit program) will be developed to establish a written permit system for the proper preparation, issuance, and implementation of entry permits to ensure the safety of personnel working at SLAC. Under this entry permit program, permit(s) shall be prepared in a standardized format, through which SLAC will identify all the conditions which must be evaluated to ensure safe entry into a confined space. The final form of the permit will be based on the information provided from the database on confined space (Task T1172).

Entry permit program developed 09/01/92
Entry permit program implemented 05/01/93

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support						
New ES&H Activities	5	5				10
GPP						
ERWM						

TASK T1178 *DEVELOP CONFINED SPACE TRAINING PROGRAM*
(WS.3-3)

Scheduled Completion 02/01/93
Projected Cost $12,000
Responsible Department SAF

A training program will be developed so that attendants, authorized entrants, and personnel authorizing or in charge of entry can work safely in and around the permit spaces. OSHA anticipates that a one-hour training session will be adequate for all employees who have duties under the entry permit program.

Training program developed 12/01/92
Training scheduled 02/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	2					2
New ES&H Activities		10				10
GPP						
ERWM						

Concern WS.3-4

Stanford Linear Accelerator Center does not have a system to control the procurement, inventory, and use of hazardous chemicals as required by DOE 5480.10.

DOE Priority 2

Compliance Protocol DOE Order 5480.10; 29 CFR OSHA 1910.1200

Response Site operations should comply with appropriate DOE standards for the evaluation and control of occupational health standards. Systems in use at SLAC to control the procurement, inventory, and use of hazardous materials are not thoroughly integrated or comprehensive. SLAC will issue and distribute interim guidelines, communicating the requirements for proper identification, use, and disposition of hazardous materials, to all appropriate personnel. The SLAC Hazard Communication Program (HCP) will be reviewed for compliance with DOE 5480.10 requirements and upgraded as necessary. A Chemical & Hazardous Materials Management System (MMS), including materials procurement and materials inventory elements, will be developed, integrated with applicable aspects of the HCP, and implemented in prioritized phases. Related training courses will be similarly reviewed and upgraded, or developed. The centralized SLAC database of hazardous materials will be updated and integrated with HCP and MMS programmatic requirements.

Related Concern PP.3-1 TCM/BMPF-4

Related Tasks
T1176 Revise SLAC Hazard Communication Program
T1311 Develop Hazardous Materials Management System

TASK T1176 (WS.3-4) *REVISE SLAC HAZARD COMMUNICATION PROGRAM*

Scheduled Completion	03/01/93
Projected Cost	$100,000
Responsible Department	SAF

Review 29 CFR 1910 requirements for applicability to the existing SLAC Hazard Communication Program (HCP). Identify and revise appropriate parts of the HCP to ensure compliance with 29 CFR 1910, including sections or procedures concerning the hazard evaluation/communication aspects of contents of unlabelled piping, container labelling, maintenance of Materials Safety Data Sheets (MSDS), performance of non-routine tasks, potential exposure to substances including asbestos, lead, and formaldehyde, and hazards information communication with subcontractors. The approved HCP will be communicated to appropriate supervisory and management personnel for interim implementation, and a training program will be developed and scheduled for appropriate personnel.

Hazard Communication Program revised	10/01/92
HCP written program approved	11/01/92
Lessons plans/handouts/training aids revised	03/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	45	35				80
New ES&H Activities	10	10				20
GPP						
ERWM						

Ongoing Cost $10,000

TASK T1311 *DEVELOP HAZARDOUS MATERIALS MANAGEMENT SYSTEM*
(WS.3-4)

Scheduled Completion	10/01/94
Projected Cost	$190,000
Responsible Department	ESH

Applicable regulatory requirements pertaining to inventory, reporting, and internal management of chemicals and hazardous materials will be evaluated. Input will be sought from the ES&H Division (including IH personnel), Purchasing Office, major end-users, and management. A Chemical & Hazardous Materials Management System (MMS) will be developed, and will include elements concerning hazardous and chemical material acquisition, handling, and disposal; controls for researcher and subcontractor use and storage of such materials (including those not obtained through the SLAC purchasing system); inventory and tracking of materials; and related management responsibilities. The MMS will be developed to be consistent and complementary to the SLAC Hazard Communication Program (HCP). The MMS Plan will consist of written procedures, training, and information systems, including the SLAC database of hazardous materials. Development of the system will be approached in phases, first addressing the compliance issues and later the best management practice issues.

Requirements reviewed	04/01/93
MMS plan developed	04/01/94
MMS implementation initiated	10/01/94

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		45	45			90
New ES&H Activities		50	50			100
GPP						
ERWM						

Ongoing Cost $40,000

Concern WS.4-1

Means of egress are not marked and maintained to permit a continuous and unobstructed exit as required by 29 CFR 1910, Subpart E.

DOE Priority 2

Compliance Protocol 29 CFR 1910, Subpart E; NFPA 101; DOE Order 5480.7

Response Workplaces at SLAC should be free of uncontrolled physical hazards and be in compliance with DOE Orders prescribing occupational safety standards. Exit signs and emergency lights should be in compliance with 29 CFR 1910, Subpart E, Means of Egress, and NFPA 101, Life Safety Code. The ES&H Manual will be revised to include policies and procedures for ensuring adequate means of egress. The completion of Task T1235 will identify locations needing improvement, and will ensure future compliance with 29 CFR 1910 and NFPA 101.

Related Concern FP.2-1 WS.3-1

Related Tasks
T1025 Modify ES&H Manual on Means of Egress
T1235 Initiate Fire Loss Surveys

TASK T1025 (WS.4-1) *MODIFY ES&H MANUAL ON MEANS OF EGRESS*

Scheduled Completion	03/01/93
Projected Cost	$7,000
Responsible Department	SAF

A statement of policy and procedures covering means of egress including SLAC policy on exit signs and emergency lighting will be drafted, and incorporated into the ES&H Manual.

Research completed	05/01/92
ES&H Manual section approved	01/01/93
ES&H Manual section revised	10/01/92
Policy and procedure distributed	03/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	5	2				7
New ES&H Activities						
GPP						
ERWM						

TASK T1235 *INITIATE FIRE LOSS SURVEYS*
(WS.4-1)

Scheduled Completion	10/01/92
Projected Cost	$12,000
Responsible Department	SAF

Regular fire loss surveys will be conducted by the ES&H fire protection engineer. Among other topics, these annual surveys will address:
1) Ongoing compliance with NFPA 101 (Life Safety Code)
2) Potential loss evaluations from credible fires and the impact on public health and safety, program interruption, etc.
3) Maintenance of an improved risk fire protection program

Procedure and schedule developed	04/01/92
Survey schedule initiated	05/01/92
First survey completed	10/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support						
New ES&H Activities	12					12
GPP						
ERWM						
Ongoing Cost $8,000						

Concern WS.4-2

Guarding of floor openings, walkways, and aisles does not comply with 29 CFR 1910, Subpart D.

DOE Priority 2

Compliance Protocol 29 CFR 1910, Subpart D

Response Work spaces with exposures to elevation changes and inadequate guarding were discovered at SLAC. SLAC will survey the site to identify elevated work spaces. The ES&H Division will review the survey and make recommendation to line managers for guarding where required. The ES&H Manual, Chap. 15, will be reviewed to assure that the guidelines provided is compliant with 29 CFR 1910, Subpart D.

Related Concern PP.3-2

Related Tasks

T1023 Survey Site to Identify Elevated Work Stations
T1060 Guard Elevated Work Station
T1062 Review Elevated Workplace Guarding

TASK T1023 (WS.4-2) *SURVEY SITE TO IDENTIFY ELEVATED WORK STATIONS*

Scheduled Completion	04/01/93
Projected Cost	$12,000
Responsible Department	SAF

The ES&H Division will develop a survey to be used by Building Managers and line supervisors to conduct a survey of the SLAC site. ES&H will review the completed survey and designate areas that meet the criteria and require guarding.

Regulations reviewed	10/01/92
Checklist survey developed	12/01/92
Building Managers and line supervisors trained	01/31/93
Survey completed	04/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support						
New ES&H Activities	6	6				12
GPP						
ERWM						

TASK T1060 *GUARD ELEVATED WORK STATION*
(WS.4-2)

Scheduled Completion	10/01/94
Projected Cost	$30,000
Responsible Department	SAF

SLAC will provide guarding for elevated work stations identified in T1023. SLAC will develop a specification for guarding. Each division will schedule work orders to provide guarding. ES&H will review installation.

Standards for guarding developed	06/01/93
Guarding installed	08/01/94
Guarding reviewed by ES&H Division	10/01/94

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		3	2			5
New ES&H Activities		10	15			25
GPP						
ERWM						

TASK T1062 *REVIEW ELEVATED WORKPLACE GUARDING*
(WS.4-2)

Scheduled Completion	01/01/93
Projected Cost	$3,000
Responsible Department	SAF

The draft ES&H Manual, Chapter 15, "Ladders, Scaffolds, Work Surfaces, and Elevated Work Stations" contains guidance for identification and guarding of elevated work stations. ES&H will review the chapter and make corrections if required, to assure compliance with OSHA requirements.

OSHA 1910, Subpart D requirements reviewed	10/01/92
ES&H manual revised	11/01/92
Revisions approved	12/01/92
Manual updates issued	01/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	3					3
New ES&H Activities						
GPP						
ERWM						

Concern WS.4-3

Machine guarding is not universally in place for equipment as required by 29 CFR 1910, Subpart O.

DOE Priority 2

Compliance Protocol 29 CFR 1910, Subpart O; DOE Order 5482.1B and 5700.6C; DOE 5700.6C

Response Workplaces should be free of uncontrolled physical hazards, including unguarded machine tools and machinery. SLAC will perform the following activities to ensure compliance with this objective.

SLAC will develop a program to increase overall safety of machine tools on site through installation of interim administrative controls of unguarded machines, gathering and dissemination of machine guarding information and requirements, and definition of responsibilities for machine safety. All unguarded machinery currently identified by recent Tiger Team/OSHA and DOE inspections will be addressed, starting immediately, on a risk-prioritized basis. A survey to identify further machine hazards will be performed, and the results added to the priority list for implementation of fixes.

Related Tasks

T1296 Develop Machine Safety Program
T1297 Install Machine Guards

TASK T1296 *DEVELOP MACHINE SAFETY PROGRAM*
(WS.4-3)

Scheduled Completion	05/01/93
Projected Cost	$90,000
Responsible Department	MFD

As an immediate interim measure to increase overall worker awareness of machine hazards, warning signs will be posted at or on all such equipment or work areas. Shields, ropes, warning lights or other "awareness barriers" will be installed as applicable on equipment identified by recent Tiger Team/OSHA and DOE inspections, as well as at other locations perceived to have a high hazard level. SLAC will review applicable regulatory requirements, and gather relevant experience and information through visits to other laboratories and by training in an acceptable Machine Guarding Course by a small selected group of SLAC personnel. A Machine Guarding survey will be developed and circulated, sitewide. After analysis of the survey results, a prioritization scheme for implementation of fixes will be developed. The survey analysis will also generate general recommendations on types of solutions for the responsible line managers. When available, the survey information will be used to reexamine priorities for machine guarding installations in progress (see Task T1297). Based on the experience of the small pilot group, a recommendation on whether the Machine Guarding Course should be given to other SLAC personnel, on site, will be made. Guidance on how future machine tool acquisitions will be properly guarded will

also be generated.

Interim controls installed	07/01/92
Pilot Machine Guarding course completed	12/01/92
Machine Guarding Survey completed	02/01/93
Analysis/recommendations completed and issued	05/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support						
New ES&H Activities	40	50				90
GPP						
ERWM						

TASK T1297 *INSTALL MACHINE GUARDS*
(WS.4-3)

Scheduled Completion	02/01/93
Projected Cost	$150,000
Responsible Department	MFD

There are several existing inspection reports, in addition to the results of the Tiger Team/OSHA and DOE inspections, that have identified specific machine guarding deficiencies. These deficiencies will be prioritized, based upon risk, for installation of solutions. High risk items will be addressed first. When available, the results of the survey analysis performed in Task 1296 will be used to reassess the existing list of items, and reprioritize them as appropriate. Visits to other sites and machine guarding consultants may be used to develop solutions where no commercially available solution exists.

Remediation of high risk items begun	07/01/92
Tiger Team/OSHA & DOE mach.guards priot.list assem	03/01/92
Survey results incorporated into priority list	02/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support						
New ES&H Activities	50	100				150
GPP						
ERWM						

Ongoing Cost $100,000

Concern WS.4-4

Stanford Linear Accelerator Center does not comply with the electrical requirements of 29 CFR 1910, Subpart S.

DOE Priority 2

Compliance Protocol 29 CFR 1910, Subpart S

Response

While SLAC has not been in full compliance with electrical codes, a steady remediation program is underway. The findings in Building 40 regarding the circuit breaker panel opening and "J" box cover have been repaired. In Building 42, the service disconnect under the dishwasher has been moved and the garbage disposal power control cover has been replaced.

SLAC will review and revise the policies for the design and installation of electrical equipment on site. Designers and engineering personnel will be trained to implement these policies for new or modified equipment and/or facilities to follow the requirements of 29 CFR 1910, Subpart S. The on-going remediation program will continue for several years to come.

To verify that installations and equipment meet the requirements of 29 CFR 1910, Subpart S, SLAC will perform electrical inspections to check installations, verify that existing self assessment items are completed correctly, systematically check the site for other existing electrical problems and add them to the Self-Assessment listing of work to be completed.

Related Tasks

T1256 Review and Remedy Electrical Compliance Issues

TASK T1256 (WS.4-4) *REVIEW AND REMEDY ELECTRICAL COMPLIANCE ISSUES*

Scheduled Completion	03/01/93
Projected Cost	$335,000
Responsible Department	PE

SLAC's policy and procedures for the design and installation of electrical equipment and facilities will be improved. The proposed policy and procedures will be reviewed by the ES&H Division and the ES&H Coordinating Council for approval. Training in the policy and procedures will be conducted for appropriate personnel. An on-going electrical remediation program is being set up and will be carried out in accordance with a risk-based priority system. Regular electrical inspections will be performed as appropriate.

Electrical remediation program instituted	07/01/92
Electrical inspections initiated	09/01/92
Electrical design & instal. policy & proc. drafted	12/01/92
Final policy and procedure issued	02/01/93
Personnel train. in policy & procedures scheduled	03/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	20	140				160
New ES&H Activities	75	100				175
GPP						
ERWM						
Ongoing Cost $130,000						

Concern WS.4-5

Storage and labeling of flammable and combustible liquids, and design and construction of spray rooms at the Stanford Linear Accelerator Center do not comply with 29 CFR 1910.106 and 29 CFR 1910.107, respectively.

DOE Priority 2

Compliance Protocol 29 CFR 1910.106; 29 CFR 1910.107; NFPA 30; NFPA 33; NFPA 50A; NFPA 58

Response Flammable and combustible liquid storage and handling and the design and construction of spray rooms will be brought into compliance with DOE prescribed regulations on occupational safety standards. The Hazard Communication Program will be reviewed and revised to incorporate applicable regulations. Hazard Communication Training courses will be revised to incorporate the regulation into future training. A survey of storage and handling facilities and spray room facilities will be conducted in order to achieve compliance. Corrective actions will include electrical grounding of metallic flammable fluid containers and the replacement of wooden spray rooms where the codes require.

Related Concern FP.2-1

Related Tasks
T1233 Survey & Correct Flammable Liquids Handling
T1176 Revise SLAC Hazard Communication Program

TASK T1233 (WS.4-5) *SURVEY & CORRECT FLAMMABLE LIQUIDS HANDLING*

Scheduled Completion	05/01/93
Projected Cost	$20,000
Responsible Department	SAF

A survey will be conducted of facilities where flammable and combustible liquids are stored and handled. Revised policies will be applied in evaluating these areas and corrective actions to bring the areas into compliance initiated.

Survey completed	02/01/93
Corrective actions initiated	05/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	8	12				20
New ES&H Activities						
GPP						
ERWM						

TASK T1176 *REVISE SLAC HAZARD COMMUNICATION PROGRAM*
(WS.4-5)

Scheduled Completion 03/01/93
Projected Cost $100,000
Responsible Department SAF

Review 29 CFR 1910 requirements for applicability to the existing SLAC Hazard Communication Program (HCP). Identify and revise appropriate parts of the HCP to ensure compliance with 29 CFR 1910, including sections or procedures concerning the hazard evaluation/communication aspects of contents of unlabelled piping, container labelling, maintenance of Materials Safety Data Sheets (MSDS), performance of non-routine tasks, potential exposure to substances including asbestos, lead, and formaldehyde, and hazards information communication with subcontractors. The approved HCP will be communicated to appropriate supervisory and management personnel for interim implementation, and a training program will be developed and scheduled for appropriate personnel.

Hazard Communication Program revised	10/01/92
HCP written program approved	11/01/92
Lessons plans/handouts/training aids revised	03/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	45	35				80
New ES&H Activities	10	10				20
GPP						
ERWM						
Ongoing Cost $10,000						

Concern WS.6-1

Communications to employees at Stanford Linear Accelerator Center regarding asbestos, lead and formaldehyde does not comply with 29 CFR 1910.1001, 29 CFR 1910.1025, and 29 CFR 1910.1048.

DOE Priority 2

Compliance Protocol 29 CFR 1910.1001; 29 CFR 1910.1025 ; 29 CFR 190.1048

Response Site personnel should be adequately informed of hazards that may be encountered in their work environment. The communication of chemical, physical, and biological hazards faced by SLAC employees is not always adequate. To address this issue, the applicable regulations will be reviewed for specific requirements, and the SLAC Hazards Communication Program will be upgraded and communicated to staff accordingly.

Related Concern WS.3-1 WS.3-2

Related Tasks
T1028 Notify Lead-Exposed Employees
T1176 Revise SLAC Hazard Communication Program

TASK T1028 *NOTIFY LEAD-EXPOSED EMPLOYEES*
(WS.6-1)

Scheduled Completion	08/01/92
Projected Cost	$2,000
Responsible Department	SAF

OSHA 1910.1025 requires notification of workers of the results of lead monitoring if the results are positive. SLAC currently informs supervisors of the results. SLAC will provide reports to workers exposed to any level of lead. SLAC will include this requirement in the revised Chapter 5of the ES&H Manual.

ES&H Manual revised 08/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	2					2
New ES&H Activities						
GPP						
ERWM						

TASK T1176 *REVISE SLAC HAZARD COMMUNICATION PROGRAM*
(WS.6-1)

Scheduled Completion	03/01/93
Projected Cost	$100,000
Responsible Department	SAF

Review 29 CFR 1910 requirements for applicability to the existing SLAC Hazard Communication Program (HCP). Identify and revise appropriate parts of the HCP to ensure compliance with 29 CFR 1910, including sections or procedures concerning the hazard evaluation/communication aspects of contents of unlabelled piping, container labelling, maintenance of Materials Safety Data Sheets (MSDS), performance of non-routine tasks, potential exposure to substances including asbestos, lead, and formaldehyde, and hazards information communication with subcontractors. The approved HCP will be communicated to appropriate supervisory and management personnel for interim implementation, and a training program will be developed and scheduled for appropriate personnel.

Hazard Communication Program revised	10/01/92
HCP written program approved	11/01/92
Lessons plans/handouts/training aids revised	03/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	45	35				80
New ES&H Activities	10	10				20
GPP						
ERWM						
Ongoing Cost $10,000						

Concern FP.1-1

The Stanford Linear Accelerator Center does not have a complete description and published plan to coordinate activities of the three onsite fire protection organizations.

DOE Priority 2

Compliance Protocol DOE Order 5480.7

Response Responsibilities for the fire protection program at SLAC are spread among various groups. The relationships and roles of these groups will be made clear as part of an overall effort to specify organizational roles, responsibilities and authorities. To ensure effective implementation and control of the fire protection program, a fire protection manual will be prepared. This manual will describe the RRAs, the Fire Protection Program, and guidelines for fire protection reviews of construction modifications. The manual will have broad, site-wide distribution.

Related Concern FP.7-1

Related Tasks
T1164 Develop Fire Protection Manual
T1223 Clarify Inter-relationships of RRA's

TASK T1164 *DEVELOP FIRE PROTECTION MANUAL*
(FP.1-1)

Scheduled Completion	06/01/94
Projected Cost	$80,000
Responsible Department	SAF

The National Fire Protection Association (NFPA) codes will be reviewed and a required maintenance and testing program for fire protection equipment at SLAC will be developed. A detailed fire protection manual describing the organization and responsibilities of all groups at SLAC involved in the fire protection program will be produced. The manual will cover the design, approval, purchasing, testing, inspection, and maintenance of fire protection equipment.

Manuals from other labs obtained and reviewed	12/01/92
Equipment testing program implemented	06/01/94
Fire protection manual issued	06/01/94

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		20	10			30
New ES&H Activities			50			50
GPP						
ERWM						
Ongoing Cost $50,000						

TASK T1223 *CLARIFY INTER-RELATIONSHIPS OF RRA'S*
(FP.1-1)

Scheduled Completion	03/01/93
Projected Cost	$10,000
Responsible Department	DO

The final step in assuring that overall RRAs are well understood and integrated subsequent to establishing individual organizational RRAs, is the identification of inter-relationships and interfaces among organizations. Inter-relationships will be defined and clarified through the use of interface diagrams.

Organizational ES&H RRA interface diagrams issued 03/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	5	5				10
New ES&H Activities						
GPP						
ERWM						

Concern FP.2-1

The Stanford Linear Acceleration Center does not ensure its facilities comply with the provisions of NFPA 101 as required by DOE 5480.2.

DOE Priority 2

Compliance Protocol NFPA 101; DOE Order 5480.2

Response Previous fire safety inspections and appraisals looked at certain aspects of life safety from a fire protection perspective; however, compliance with NFPA 101 has not been specifically addressed. A life-safety analysis will be performed consistent with NFPA 101. Annual self-conducted surveys for life safety, among other issues, will be initiated.

Related Concern WS.4-5

Related Tasks
T1434 Conduct Baseline Life Safety Survey
T1235 Initiate Fire Loss Surveys

TASK T1434 *CONDUCT BASELINE LIFE SAFETY SURVEY*
(FP.2-1)

Scheduled Completion	10/01/92
Projected Cost	$40,000
Responsible Department	SAF

A baseline survey will be performed evaluating SLAC facilities with respect to the 1991 edition of the NFPA Life Safety Code. A consultant was retained to assist SLAC in this area. Approximately 75% of the site evaluation has been completed to date. Corrective actions will be performed for deficiencies identified by the baseline survey.

Baseline survey complete	08/01/92
Improvements initiated	10/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	15					15
New ES&H Activities	25					25
GPP						
ERWM						
Ongoing Cost $30,000						

TASK T1235 *INITIATE FIRE LOSS SURVEYS*
(FP.2-1)

Scheduled Completion	10/01/92
Projected Cost	$12,000
Responsible Department	SAF

Regular fire loss surveys will be conducted by the ES&H fire protection engineer. Among other topics, these annual surveys will address:
1) Ongoing compliance with NFPA 101 (Life Safety Code)
2) Potential loss evaluations from credible fires and the impact on public health and safety, program interruption, etc.
3) Maintenance of an improved risk fire protection program

Procedure and schedule developed	04/01/92
Survey schedule initiated	05/01/92
First survey completed	10/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support						
New ES&H Activities	12					12
GPP						
ERWM						
Ongoing Cost $8,000						

Concern FP.3-1

Stanford Linear Accelerator Center has not reviewed the potential of toxic and hazardous exposure to the public from runoff of fire-fighting water as required by DOE 5480.7.

DOE Priority 2

Compliance Protocol DOE Order 5480.7

Response A building-by-building analysis of the exposure to the public from fire and from fire-fighting activity has not been performed. The annual self-conducted fire loss survey will include this issue. The results of this survey will be included in the site emergency action plan and hazards analysis.

Related Concern EP.1-1 FP.2-1 OA.7-1

Related Tasks T1235 Initiate Fire Loss Surveys

TASK T1235 *INITIATE FIRE LOSS SURVEYS*
(FP.3-1)

Scheduled Completion	10/01/92
Projected Cost	$12,000
Responsible Department	SAF

Regular fire loss surveys will be conducted by the ES&H fire protection engineer. Among other topics, these annual surveys will address:
1) Ongoing compliance with NFPA 101 (Life Safety Code)
2) Potential loss evaluations from credible fires and the impact on public health and safety, program interruption, etc.
3) Maintenance of an improved risk fire protection program

Procedure and schedule developed	04/01/92
Survey schedule initiated	05/01/92
First survey completed	10/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support						
New ES&H Activities	12					12
GPP						
ERWM						
Ongoing Cost $8,000						

Concern FP.5-1

The lack of automatic sprinkler protection in the Klystron Gallery makes for a loss potential exceeding the limits expressed in DOE 5480.7.

DOE Priority 2

Compliance Protocol DOE Order 5480.7-9.c.1

Response The Klystron Gallery is not fully protected by an automatic fire protection system. Damage to klystron and modulators from sprinkler activation was judged to pose greater risks to investment than risks associated with spread of infrequent fires. However, the basis for this determination has not been formally submitted to all elements of DOE for approval. Documentation will be provided to DOE supporting SLAC's current practice and seeking an exemption, if required. The request will delineate the existing protection provided, propose additional protection which would be added to improve the Gallery fire protection, and identify the fire loss probability and consequences.

Related Tasks T1019 Request Klystron Gallery Fire Protection Exemption

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TASK T1019 (FP.5-1) *REQUEST KLYSTRON GALLERY FIRE PROTECTION EXEMPTION*

Scheduled Completion	10/01/93
Projected Cost	$174,500
Responsible Department	SAF

Submit documentation supporting SLAC's fire protection strategy for the Klystron Gallery to the DOE. Identify existing compensatory protection and propose additional partial sprinkler coverage, and evaluate administrative controls such as increased inspections of existing protection, control of combustibles and mitigation of exposed plastics. If DOE requires further modifications, SLAC will undertake a program to achieve compliance.

Documentation submitted to DOE	09/01/92
Additional protection implemented	10/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		15				15
New ES&H Activities		160				160
GPP						
ERWM						

Concern FP.7-1

Maintenance, testing, and management of impairments to the Fire Protection Systems do not comply with DOE 5480.7.

DOE Priority 2

Compliance Protocol DOE Order 5480.7

Response The current testing and maintenance frequency for sprinkler systems, fire detection and alarm systems and other fire protection equipment does not meet NFPA requirements. The frequency will be increased to meet compliance requirements. Impairment handling will be covered in the new fire protection manual, as will the issue of modifications to buildings and fire protection engineering review.

Related Concern FP.1-1

Related Tasks
T1164 Develop Fire Protection Manual
T1235 Initiate Fire Loss Surveys

TASK T1164 *DEVELOP FIRE PROTECTION MANUAL*
(FP.7-1)

Scheduled Completion	06/01/94
Projected Cost	$80,000
Responsible Department	SAF

The National Fire Protection Association (NFPA) codes will be reviewed and a required maintenance and testing program for fire protection equipment at SLAC will be developed. A detailed fire protection manual describing the organization and responsibilities of all groups at SLAC involved in the fire protection program will be produced. The manual will cover the design, approval, purchasing, testing, inspection, and maintenance of fire protection equipment.

Manuals from other labs obtained and reviewed	12/01/92
Equipment testing program implemented	06/01/94
Fire protection manual issued	06/01/94

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		20	10			30
New ES&H Activities			50			50
GPP						
ERWM						
Ongoing Cost $50,000						

TASK T1235 *INITIATE FIRE LOSS SURVEYS*
(FP.7-1)

Scheduled Completion	10/01/92
Projected Cost	$12,000
Responsible Department	SAF

Regular fire loss surveys will be conducted by the ES&H fire protection engineer. Among other topics, these annual surveys will address:
1) Ongoing compliance with NFPA 101 (Life Safety Code)
2) Potential loss evaluations from credible fires and the impact on public health and safety, program interruption, etc.
3) Maintenance of an improved risk fire protection program

Procedure and schedule developed	04/01/92
Survey schedule initiated	05/01/92
First survey completed	10/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support						
New ES&H Activities	12					12
GPP						
ERWM						
Ongoing Cost $8,000						

Concern MS.1-1

The staffing level in the Stanford Linear Accelerator Center Medical Department does not meet current and anticipated needs and does not conform to the guidelines of DOE 5480.8.

DOE Priority 2

Compliance Protocol DOE Order 5480.8

Response SLAC contracts with the Palo Alto Medical Foundation to provide an on-site Medical Department. Presently, the Medical Department consists of a half-time physician, a full time occupational health nurse, a full time secretary/receptionist, and a 40%-time health promotion coordinator. SLAC management recognizes the need to increase the staffing level of the Medical Department. This will be done by arranging for additional resources for the Medical Department; specifically, an additional, part-time nurse practitioner and implementation of a computerized medical record system to relieve the physician of administrative tasks.

Related Concern MS.1-2 MS.3-1

Related Tasks T1040 Supplement Medical Department Resources

TASK T1040 (MS.1-1) *SUPPLEMENT MEDICAL DEPARTMENT RESOURCES*

Scheduled Completion	10/01/93
Projected Cost	$65,000
Responsible Department	SAF

Additional resources for the Medical Department will be secured. Specifically, these resources will be an additional part-time nurse practitioner and a computerized medical record system to relieve the physician of administrative tasks.

Options for computer system assessed	12/01/92
Computer system implemented	01/01/93
Part-time nurse practitioner added	10/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support		5				5
New ES&H Activities			60			60
GPP						
ERWM						
Ongoing Cost $60,000						

Concern MS.1-2

The Physician at the Stanford Linear Accelerator Center does not report at a senior level to ensure program effectiveness by having direct access to top management as required by DOE 5480.8.

DOE Priority 2

Compliance Protocol DOE Order 5480.8

Response The Medical Department reports through the Safety and Training Department to the Associate Director for ES&H. The Tiger Team found that this staffing level and organizational structure does not provide for sufficient input of the physician in policy and program development and is not sufficient for providing the scope of medical services required by DOE Order 5480.8.

A reporting relationship will be established for the physician to facilitate her participation in policy and program development. The physician will report directly to the ES&H Division Director as medical advisor, and this relationship will be formalized through a regular monthly meeting. In addition, the physician will meet at least quarterly with the ES&H Coordinating Council, providing an opportunity for participation in policy development discussions.

Related Concern MS.1-1 OA.1-2

Related Tasks T1042 Change Reporting Relationship of Physician

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TASK T1042 *CHANGE REPORTING RELATIONSHIP OF PHYSICIAN*
(MS.1-2)

Scheduled Completion	Completed
Projected Cost	$2,000
Responsible Department	ESH

Establish new reporting relationship for the physician to serve as medical advisor to the ES&H Division Director. Establish quarterly meetings of the physician with the ES&HCC.

Monthly meetings with ES&H Div. Dir. initiated	04/01/92
Medical advisor position established	04/01/92
Quarterly meetings with ES&HCC initiated	08/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	2					2
New ES&H Activities						
GPP						
ERWM						

Concern MS.3-1

The medical examination and evaluation programs at Stanford Linear Accelerator Center are not conducted as required by DOE 5480.8.

DOE Priority 2

Compliance Protocol DOE Order 5480.8

Response DOE Order 5480.8 stipulates requirements for peforming medical evaluations and examinations of employees. At present, the SLAC Medical Department does not provide these evaluations and examinations at the frequency required by the Order. SLAC managment will review its medical examination and evaluation program and ensure that it is at the appropriate level for a sound occupational medical program consistent with Stanford Unviversity policy.

Related Concern MS.1-1 PP.1-3 WS.1-2

Related Tasks T1034 Re-evaluate Medical Examination Program

TASK T1034 *RE-EVALUATE MEDICAL EXAMINATION PROGRAM*
(MS.3-1)

Scheduled Completion	04/01/94
Projected Cost	$20,000
Responsible Department	SAF

Analyze requirements for DOE Order 5480.8 and Stanford University policy regarding employee medical evaluations and examinations. Determine where SLAC policy is deficient. Develop an improvement program to bring SLAC policy in line with the DOE and Stanford University. The following will be done:

1. Analyze the requirements of DOE Order 5480.8 and Stanford University policy with respect to employee medical evaluations and examinations to determine where SLAC's present medical program is lacking.
2. Develop and implement revised procedures to ensure identification of employees exposed to hazards on the job, for providing start-of-employment and termination-of-employment medical evaluations, for periodic voluntary medical examinations, and to ensure that all employees absent from work for an extended period will receive the necessary medical evaluations.
3. Develop and implement an oversight program to ensure continued compliance of the medical program.

DOE Order 5480.8 evaluated	11/01/93
Medical Department procedures revised	02/01/94
Chapter Three of ES&H Manual revised	04/01/94

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support			20			20
New ES&H Activities						
GPP						
ERWM						

3.4 Management

3.4.1 Overview

The Management assessment was conducted in accordance with the *Tiger Team Guidance Manual* (February 1990) and followed the guidelines described in *Performance Objectives and Criteria for Tiger Team Management Assessments* (August 1991). The scope of the assessment included corporate policy and culture, organization, planning, human resource management, management systems, public and institutional interactions, and DOE oversight. In addition to reviewing ES&H management at SLAC, the Management Subteam evaluated the ES&H management support and oversight activities of Stanford University and the Department of Energy's Office of Energy Research, San Francisco Field Office, and Stanford Site Office.

3.4.2 Key Findings and Root Causes

A total of 17 management findings were identified by the Tiger Team. Of these, nine were directed toward SLAC, one toward Stanford University, and seven toward the Department of Energy. In developing its findings, the Management Subteam performed independent assessments and evaluated the Environmental findings and Safety and Health concerns for their root causes. Among the management findings, the following five were singled out by the Management Subteam as key findings:

- SLAC does not have a strategic and subordinate implementation planning process that integrates ES&H and programmatic goals and objectives.
- Key SLAC/SSRL management systems are in varying stages of development and implementation and are achieving varying degrees of effectiveness in carrying out ES&H programs.
- SLAC and SSRL management have not established effective human resource management programs to ensure that sufficient trained and qualified staff are available to meet ES&H and programmatic goals and objectives .
- DOE headquarters Office of Energy Research does not have a strategic and subordinate implementation planning process that integrates ES&H and programmatic goals and objectives.
- DOE has not established or implemented the full range of oversight programs and processes necessary to ensure the effective accomplishment by SLAC and SSRL of DOE's ES&H initiatives.

Further, the management subteam condensed its findings into two root causes, focused respectively upon SLAC and the Department of Energy.

- To a large extent, the present condition of ES&H activities at SLAC and SSRL is the carryover from a past era, a period when many of the ES&H requirements did not exist or were not deemed applicable, and any SLAC/SSRL priorities for ES&H compliance were dwarfed by the programmatic priorities.
- DOE-ER has not held its program line managers fully accountable for their direct line responsibility for implementation of the Secretary of Energy's ES&H initiatives, and these line managers have not, in turn, held their respective subordinates fully accountable.

The Office of Energy Research (DOE-ER) is preparing a prototype Program Office Strategic Plan which will include a strategy emphasizing ES&H priorities in facility goals, objectives and resource projections.

As described in Section 2.3, SLAC has approached the development of this *Corrective Action Plan* by adopting a strategy that identifies seven strategic elements to provide the context for individual corrective action tasks. Those seven elements are intended to provide a focus for facilitating SLAC's transition into the new era that is recognized by this Tiger Team statement. The corrective actions described in the following section define specific tasks aimed at addressing the individual findings, while at the same time focusing on the overall strategy suggested by the key findings and root cause.

3.4.3 Findings and Action Plans

The management subteam findings and corrective action plans are presented in the following pages.

Finding MF-1

SLAC does not have a strategic and subordinate implementation planning process that integrates ES&H and programmatic goals into its mission to define, guide, and prioritize the accomplishment of its ES&H and programmatic objectives.

DOE Priority 2

Response

SLAC Management recognizes the need to articulate its vision of integrating programmatic goals and ES&H expectations into the SLAC mission and objectives. Therefore, SLAC management will enhance the institutional and strategic planning processes to ensure that the laboratory's ES&H vision is adequately articulated and that ES&H issues are given prominence in programmatic planning decisions. This will be accomplished through the following tasks:

1. Establishment and communication of a SLAC vision statement which clarifies the important role of ES&H requirements in the ongoing programmatic mission of the laboratory.
2. Inclusion, with the guidance of the ES&H Division, of ES&H considerations into the SLAC strategic planning and budgeting processes.
3. Establishment and implementation of oversight systems to ensure top-down leadership and oversight from SLAC management.
4. Assessment and measurement of progress.

This process will assure that management expectations on the importance of ES&H are communicated, and that ES&H considerations are integrated into the SLAC strategic and subordinate planning process. Involvement of the ES&H Division will assure that appropriate guidance and consideration are given in the process, and that periodic assessment of progress is made. This plan will be formalized and reflected in the Institutional Plan.

Related Finding MF-4 MF-5 MF-7

Related Tasks

T1196 Establish & Communicate ES&H Expectations
T1197 Integrate ES&H Into Planning & Budgeting
T1198 Implement Top-Down ES&H Leadership/Oversight

TASK T1196 *ESTABLISH & COMMUNICATE ES&H EXPECTATIONS*
(MF-1)

Scheduled Completion	10/01/92
Projected Cost	$2,000
Responsible Department	DO

Establishment of ES&H expectations will permit consideration of their important role in the SLAC planning and budgeting process. Management expectations will be articulated and communicated to all SLAC employees in a written vision statement. This statement will clarify the strong emphasis which should be given to ES&H in programmatic planning decisions.

SLAC ES&H vision statement issued 10/01/92

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support	2					2
New ES&H Activities						
GPP						
ERWM						

TASK T1197 (MF-1) *INTEGRATE ES&H INTO PLANNING & BUDGETING*

Scheduled Completion 10/01/92
Projected Cost $10,000
Responsible Department DO

Using the overall expectations as articulated in the vision statement, ES&H considerations will be incorporated into the SLAC strategic planning and budgeting process. The ES&H Division will provide guidance relative to priority of ES&H requirements, policies, and criteria which warrant consideration, based on DOE directives and SLAC performance objectives.

ES&H guidance for planning & budgeting developed 10/01/92

Detailed Costs ($K)						
	92	93	94	95	96	Total
Existing ES&H Support	10					10
New ES&H Activities						
GPP						
ERWM						

TASK T1198 (MF-1) *IMPLEMENT TOP-DOWN ES&H LEADERSHIP/OVERSIGHT*

Scheduled Completion 10/01/92
Projected Cost $7,000
Responsible Department DO

Successful incorporation of ES&H considerations into the planning and budgeting process will require strong management leadership, followed up with ongoing oversight. SLAC management will provide direction and oversight to the planning and budgeting process through staff meetings and periodic reviews.

ES&H leadership & oversight resp.included in RRAs 10/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	7					7
New ES&H Activities						
GPP						
ERWM						

Finding MF-2

Organizational ES&H roles, responsibilities, and authorities (RRAs) within and between SLAC and SSRL organizations have not been formally defined and clearly communicated and are not well understood at all levels.

DOE Priority 2

Response

SLAC recognizes the need to establish and assure a common understanding of organization RRAs with respect to ES&H. This will be accomplished through setting and communicating ES&H performance standards, and holding managers accountable for ownership and implementation of ES&H requirements within their organizations. Each division will implement, through written procedures, a SLAC policy which will require that ES&H goals and performance criteria be included in organization charts and designated job descriptions. Specifically, the Building Manager Manual will be issued, and training will be conducted to provide guidance to Building Managers in carrying out their duties.

ES&H RRAs will be graphically depicted in the ES&H Manual (e.g., interface diagrams) to clarify RRAs and interfaces among organizations. Self-assessments will be conducted to assure that ES&H criteria are incorporated into the above documents.

Related Finding EP.1-1 MA.1 MF-5 OA.1-2 PP.2-1 QA/CF-6 TCM/CF-2

Related Tasks

T1385 Establish Divisional & Departmental ES&H RRA's
T1222 Clarify Building Manager RRA's
T1223 Clarify Inter-relationships of RRA's

TASK T1385 (MF-2) *ESTABLISH DIVISIONAL & DEPARTMENTAL ES&H RRA'S*

Scheduled Completion	01/01/93
Projected Cost	$100,000
Responsible Department	DO

Each Division and Department will establish specific RRAs to implement overall SLAC ES&H performance expectations. These will be communicated to all employees.

Division & Department specific ES&H RRAs issued 01/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	75					75
New ES&H Activities	25					25
GPP						
ERWM						

TASK T1222 *CLARIFY BUILDING MANAGER RRA'S*
(MF-2)

Scheduled Completion 01/01/93
Projected Cost $50,000
Responsible Department DO

Building manager ES&H roles, responsibilities, and authorities (RRAs) will be clarified through enhancement of the Building Manager Manual. Communication of these RRAs will be accomplished through training.

Bldg. Manager trained on ES&H RRAs using manual 01/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	25					25
New ES&H Activities	25					25
GPP						
ERWM						

TASK T1223 *CLARIFY INTER-RELATIONSHIPS OF RRA'S*
(MF-2)

Scheduled Completion 03/01/93
Projected Cost $10,000
Responsible Department DO

The final step in assuring that overall RRAs are well understood and integrated subsequent to establishing individual organizational RRAs, is the identification of inter-relationships and interfaces among organizations. Inter-relationships will be defined and clarified through the use of interface diagrams.

Organizational ES&H RRA interface diagrams issued 03/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	5	5				10
New ES&H Activities						
GPP						
ERWM						

Finding MF-3

Individual ES&H RRAs of all individuals at SLAC and SSRL have not been formally defined and clearly communicated and are not well understood.

DOE Priority 2

Response SLAC Management will set high ES&H performance standards, and will communicate individual roles, responsibilities, and authorities for their implementation. This task builds upon the results of the corrective actions implemented in response to MF-2 (i.e., organizational ES&H RRAs). Organizational and individual RRAs will be communicated to all SLAC individuals, and ES&H criteria will be included in designated job descriptions.

Individual ES&H RRAs for designated positions will be communicated through written documents and face-to-face performance appraisals.

Related Finding A/BMPF-1 A/BMPF-2 A/BMPF-4

Related Tasks T1224 Establish ES&H RRA's for Job Classes

TASK T1224 *ESTABLISH ES&H RRA'S FOR JOB CLASSES*
(MF-3)

Scheduled Completion	02/01/93
Projected Cost	$100,000
Responsible Department	DO

RRAs will be developed for classes of jobs which share RRAs. These RRAs will be communicated to SLAC employees through written documents and meetings to ensure that individuals understand their ES&H RRAs.

RRAs issued for classes of positions 02/01/93

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	40	60				100
New ES&H Activities						
GPP						
ERWM						

Finding MF-4

SLAC and SSRL do not have effective ES&H human resource management programs that ensure the availability of sufficient qualified human resources for full implementation of their ES&H requirements.

DOE Priority 2

Response SLAC and SSRL management have recognized the importance of qualified ES&H personnel to an effective ES&H program, but understand that much remains to be done. The SLAC Corrective Action Plan contains a spectrum of improvement programs. The tasks specifically directed towards this management finding address the fundamental need for an underlying ES&H human resource program that can be used to systematically identify, prioritize, and plan for long-term human resources needed to fulfill all ES&H requirements on a site-wide basis.

Related Finding MF-1 MF-5 OA.6-1

Related Tasks T1290 Develop Human Resources Management Plan

TASK T1290 (MF-4) *DEVELOP HUMAN RESOURCES MANAGEMENT PLAN*

Scheduled Completion	11/01/92
Projected Cost	$20,000
Responsible Department	PER

The strategic plan for ES&H human resource improvements will be developed. Based upon this plan, human resource needs will be identified and compared against current staffing (both in terms of numbers and skills required). A plan will be developed that includes strategies for employee retraining and for recruitment of new hires. This will take into account a systematic prioritization of needs, based upon the ES&H strategic plan. The SLAC Personnel Department will include, as part of the recruiting strategy, a sourcing plan to ensure that the human resource needs are met through the most cost-effective hiring process (e.g., job fairs, networking, internships).

Long-term needs analyzed	05/01/92
Long-term recruiting strategy developed	08/01/92
Long-term plan developed	11/01/92

Detailed Costs ($K)

	92	93	94	95	96	Total
Existing ES&H Support	18	2				20
New ES&H Activities						
GPP						
ERWM						