

Chapter 2

Work Planning and Control

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1 Overview

Work planning and control (WPC) is the use of formalized, standardized, and documented methods and processes for considering and mitigating risks when planning, authorizing, releasing, and accomplishing work. Using the principles of integrated safety and environmental management, WPC emphasizes using a graded approach in the mitigation of hazards to personnel, environment, and equipment that varies the requirements by type of work (*green, yellow, red*). The types are in turn based on complexity of the work. This chapter describes how work at SLAC is planned, authorized, released, and conducted in the envelope of integrated safety and environmental management system (ISEMS) core functions:

1. Define work scope
2. Identify and analyze hazards
3. Develop and implement controls
4. Authorize work
5. Release work
6. Perform work within controls
7. Feedback and continuous improvement

1.1 Hazards / Impacts

The goal of WPC is to ensure adequate protection of workers, the public, and the environment, which would otherwise be put at risk by inconsistent and inadequate planning, authorization, and control.

2 Scope

WPC covers the steps above, for all work performed at SLAC, including technical and administrative activities, construction, experiments, operations, maintenance, and service. The program covers the stop work process as part of performing work within controls.

WPC does not cover project management, scheduling, or budgeting.

WPC applies to all personnel (for example, SLAC employees, subcontractors, users, students, department associates, and Department of Energy [DOE] employees) performing any work in or on facilities managed by SLAC.

3 Implementation

The requirements of this chapter take effect August 31, 2009.

4 Requirements

The purpose of this section is to describe for management and any interested parties the overall framework of the program. Instructions for field use are in separate, targeted documents, listed in Section 4.2, "Procedures and Specific Requirements".

4.1 General

4.1.1 Planning, Authorization, and Release

Three key concepts of work planning and control are planning, authorization, and release. Before beginning actual work, all work must first be planned, then authorized, and finally released.

Planning consists of defining the scope of work, identifying and analyzing the hazards, and developing and implementing controls. Identifying and analyzing hazards and controls related to both the activity and the work area where the activity will occur are the responsibility of the supervisor. A visit to the job site may be warranted, as well as a discussion with the area or building manager. The results are documented in some form of *work plan*, which forms the basis for authorization and release.

Authorization means that the person who authorizes the work

1. Is satisfied with the content of the work plan
2. Has determined that the persons assigned to perform work as defined in the scope are qualified
3. Has discussed hazards and controls with those persons

Work is typically authorized by the supervisor of the persons performing it. The person who authorizes the work is accountable for its performance.

Release means permission to proceed with authorized work in a given area or on a given project. Release is granted after the person has made sure that

1. Area hazards have been communicated
2. Affected persons have been notified
3. Work has been coordinated to avoid conflict and minimize risk

Work is typically released by either the supervisor, for work performed in a person's *resident area*, or, for non-resident area work, the building or area manager (for conventional facility or programmatic work, respectively).

4.1.2 Types of Work

How work is planned, authorized, and released depends on the type of work. Work is categorized by complexity into three types:

1. *Green*. Green work is administrative or technical in nature and does not require any permits. Green work is authorized by the completion of required new employee/worker safety training. Green work in office areas is released with the same required new employee/worker safety training. Green work in a non-office area requires release by the building or area manager, unless the worker is familiar with the area and/or posted access/release/training requirements are met.
2. *Yellow*. Work in the worker's resident area is authorized and released through an *activity and training authorization (ATA)* completed by the worker and his or her supervisor. When a worker is dispatched outside their resident area, a *job safety analysis (JSA)* or *standard operating procedure (SOP)* is also required for authorization, and the work is released by the area manager, if there is one, otherwise by the building manager. Some activities performed outside a worker's resident area may be authorized via an ATA, as determined by the supervisor. A *pre-job/tailgate briefing* is required for work involving subcontractors, as a final release prior to beginning any activity.
3. *Red*. Red work is authorized at the activity level by the supervisor of the workers involved in completing the scope of work, similar to dispatch work, and their efforts being documented with a *work integration plan (WIP)*. A coordination meeting is held to discuss the activities, the timing, permits, etc until the area manager is satisfied that a release may be granted. A *pre-job/tailgate briefing* is required for each work group, as a final release prior to beginning any activity.

See Section 5, "Definitions", for examples of each kind of work; for details on how to authorize and release work, see [Work Planning and Control: Procedure](#).

4.1.3 Documentation

Documentation requirements vary both by type of work and workers, but there must generally be evidence in some form of scope of work, authorization, and release. Such evidence includes meeting notes, a signed release, or even a phone conversation, with the result noted on some document. Leaving a voice mail or sending an e-mail, without obtaining a response, does not constitute evidence of a release.

These documents together with any others required to direct the execution of the work constitute the *work plan*. Note the work plan requirements are cumulative, starting with the minimum documentation, adding ATAs and JSAs or SOPs and permits for dispatch work, and work integration plans and pre-job/tailgate briefings for red work.

4.1.4 Hazard Controls

Work planning and control measures at SLAC will follow a hazard control hierarchy:

1. Elimination of the hazard
2. Engineering controls
3. Administrative controls
4. Personal protective equipment (PPE)

Use of one hazard control method over another higher in the control hierarchy may be appropriate for providing interim protection until the hazard is abated permanently. In reality, if the hazard cannot be eliminated entirely, the adopted control measures may be a combination of all three items instituted simultaneously. In all cases, controls will be tailored to the hazards of the work and reflect SLAC ESH requirements.

Elimination of the hazard includes

- Designing the facility, equipment, or process to remove the hazard
- Substituting processes, equipment, materials, or other factors to lessen the hazard

Engineering controls include

- Enclosure of the hazard using enclosed cabs, enclosures for noisy equipment, or other means
- Isolation of the hazard with interlocks, machine guards, blast shields, welding curtains, or other means
- Removal or redirection of the hazard such as with local and exhaust ventilation

Administrative controls include

- Written operating procedures, work permits, and safe work practices
- Exposure time limitations (used most commonly to control temperature extremes and ergonomic hazards)
- Monitoring the use of highly hazardous materials
- Alarms, signs, and warnings
- Buddy system
- Training

PPE controls, such as respirators, hearing protection, protective clothing, safety glasses, and hardhats, are acceptable as a control method in the following circumstances:

- When engineering controls are not feasible or do not totally eliminate the hazard
- While engineering controls are being developed
- When safe work practices do not provide sufficient additional protection
- During emergencies when engineering controls may not be feasible

4.1.5 Stop Work

Every SLAC employee, subcontractor, user, and DOE employee has the authority and responsibility to stop work for conditions that pose an *imminent danger*. SLAC considers no activity to be so urgent or important that its standards for environmental protection, safety, or health may be compromised. Employees have the right and responsibility not to perform tasks or activities they feel pose undue risk to themselves, co-workers, or the environment. Stop work actions take precedence over all other priorities and procedures.

Title 10, *Code of Federal Regulations*, “Energy”, Part 851, “Worker Safety and Health Program” ([10 CFR 851.20\[b\]\[8\]](#)) and the [SLAC Worker Safety and Health Program Description](#) specifically give every worker the right to decline to perform an assigned task because of a reasonable belief the task poses an imminent risk of death or serious physical harm to the worker. Further, the worker has the right to stop work when

the worker discovers employee, user, or subcontractor exposure to imminently dangerous conditions or serious hazards.

If an imminent danger stop work is necessary, worker(s) must safely stop their work and notify their supervisor(s), who will initiate steps as outlined in the [Work Planning and Control: Stop Work Procedure](#).

For non-imminent danger stop work, the condition which caused a stop work to be initiated must be evaluated to determine if the controls that are in place will adequately protect people and the environment. If it is unclear as to whether the controls are adequate or if the scope changes, workers must contact their supervisor to discuss the situation and have their work re-authorized as appropriate. It may also be necessary to secure another release.

4.2 Procedures and Specific Requirements

4.2.1 Authorization and Release

Work is authorized and released following the steps in [Work Planning and Control: Procedure](#).

4.2.2 Stop Work

Work is stopped and restarted following the steps in [Work Planning and Control: Stop Work Procedure](#).

4.3 Training

The following course is mandatory for all building and area managers, UTRs, SLAC employees who perform non-green work, their direct supervisors, and those employees who authorize the work of any other worker at SLAC:

- ESH Course 120, Work Planning and Control Overview ([ESH Course 120](#))

The following course is mandatory for all SLAC employees who perform green work in non-office areas:

- ESH Course 121, WPC Overview for Green Workers in Non Office Areas ([ESH Course 121](#))

Users, department associates, students, and subcontractors are not required to take either course. The SLAC employee who authorizes their work must take one of the two courses, as appropriate.

4.4 Roles and Responsibilities

The work planning and control process involves a number of responsibilities, which are mapped below to typical SLAC roles of worker, supervisor, building/area manager, and ESH personnel.

The roles may be performed by one or more individuals, depending on the structure of the organizations involved, and responsibilities may be delegated. For example, in some cases the person requesting or planning work may be the supervisor who authorizes it; in others this may be several people, some of whom may not be supervisors.

It is the responsibility of the supervisor of each person performing any of these responsibilities to make sure that person is *qualified*. This includes supervisors, which means that a supervisor authorizing work must be qualified and competent to do so.

Worker below covers all types, including SLAC employees, users, and subcontractors. *Supervisor* generally means the person assigning work, monitoring performance, and providing feedback.

For subcontracted work, the university technical representative is considered the supervisor for the purposes of authorizing work.

4.4.1 Worker

- Is qualified to perform assigned tasks (including completing required training)
- Obtains, reviews, and understands required authorizations and releases
- Verifies controls are in place prior to performing work within such controls as documented in authorizations and releases
- Reports any hazards, concerns, or change in conditions or scope of work to supervisor
- Stops work if encounters any unsafe activity or condition that creates a hazard or imminent danger to himself or herself or others
- Provides feedback on the work activity or the WPC process for continuous improvement

4.4.2 Activity Planner

- Defines scope of work, unless adequately defined
- Identifies work groups necessary to fulfill scope of work
- Assists in preparation of work plans
- Ensure that the work that is being planned will meet the requirements of the work request

4.4.3 Supervisor

- Reviews work requests, as appropriate, assigns work, and develops work plans
- Is competent to authorize such work
- Understands not only the activity-level hazards, but the hazards associated with the location where the work will be performed and, if necessary, works with the area or building manager who will be releasing the work
- Authorizes work by ensuring
 - Work plan is current and complete
 - Persons assigned to perform work as defined in the plan are qualified
 - Persons assigned to perform the work understand the hazards and controls
 - Adequate controls are documented and in place
- Releases resident area work
- Holds a pre-job/tailgate briefing, as appropriate, at which he or she goes over the work hazards and controls with the workers

- Ensures that work is performed as documented in the work plan
- Reviews changes, brought to his or her attention, to work scope and determines the level of re-authorization and re-release required
- For imminent danger stop work, ensures appropriate parties are notified, situation resolved, hazards and controls updated, and any necessary re-authorization and re-release obtained
- Once work is completed reviews for potential improvements and lessons learned

4.4.4 Building / Area Manager

- Releases work in areas where work is to be performed by non-resident workers

4.4.5 ESH Personnel (Division or Directorate)

- Review and approve work plans as appropriate for hazards and adequate controls
- For imminent danger stop work, concurs with restart of work if satisfied with updated controls

4.4.6 Division / Department Head

- Implements WPC within his or her respective organization
- Evaluates WPC implementation as part of management walkthroughs (see [Chapter 33, “Management Walkthroughs”](#))
- Ensures a mechanism is in place to encourage and document feedback for continuous improvement
- For imminent danger stop work, notifies the chief safety officer (CSO) and associate laboratory director (ALD), ensures investigation is initiated within one work day, concurs with restart of work if satisfied with updated controls, and uses and shares information to prevent similar situations from happening again

4.4.7 Associate Laboratory Director

- Is accountable for effective WPC implementation within his or her directorate
- For imminent danger stop work, authorizes restart of work if satisfied with updated controls; confirms a new release has been granted before work is started, and informs laboratory director and the DOE SLAC Site Office of status

4.4.8 Chief Safety Officer (or Designee)

- Supports line management with hazard identification and evaluation and implementation of appropriate controls
- For imminent danger stop work, concurs with restart of work if satisfied with updated controls

5 Definitions

Activity. A subset of a project describing floor-level work, comprising one or more tasks

Activity and training authorization (ATA). Document describing activities, boundary conditions, hazards, controls, and training requirements, used to authorize and release an employee to perform resident activities

Activity planner. Individual who develops the work plan, including coordinating the work details and requisite reviews and identifying required permits and approvals

Area hazard analysis (AHA). A process for analyzing hazards, focused on the hazards an individual faces in his/her work area as opposed to hazards of individual work activities

Authorization. Affirmation by a supervisor that a worker is trained and qualified and has been informed of the hazards and controls of activities he or she has been assigned

Control. Preventative measure – hazard elimination, engineered, administrative, or personal protective equipment – applied to an activity for the purpose of protecting people, the environment, and property

Hazard. Anything with the potential to cause harm to people, the environment, or property

Danger, imminent. A hazard or situation which, if allowed to persist, is likely to cause an accident that will result in death, serious injury, significant property damage, or environmental impairment

Danger, non-imminent. A hazard or situation which, if allowed to persist, is unlikely to cause an accident that will result in death, serious injury, significant property damage, or environmental impairment. However, the potential outcome of allowing the hazard or situation to continue is unacceptable.

Job safety analysis (JSA). Technique (and document) that identifies the tasks associated with a job and the related hazards and the controls to eliminate or reduce them to an acceptable risk level. The analysis focuses on the relationship between the worker, the task, the tools, and the work environment.

Manager, area. Person designated by line management who is responsible for a defined area of a given building. These areas generally contain experimental and/or industrial equipment and are associated with special hazards. Not all buildings have an area manager, and other buildings, such as the linac accelerator housing and klystron gallery, may have several.

Manager, building. Designated SLAC employee who serves as the point of contact for all activities that affect the conventional facilities of the assigned building. The building manager also has oversight responsibility for ESH requirements related to the non-programmatic facilities and activities of that building.

Pre-job/tailgate briefing. Review by workers and their supervisor of an activity immediately prior to release to ensure understanding of the hazards and controls and agreement on how to execute the work

Qualified. Having the practical skills necessary to perform an activity in a safe and environmentally responsible manner and being trained, certified, and licensed as required

Release. Acknowledgement that proposed work activities do not interfere with programmatic or conventional facilities; have been coordinated with adjacent building/area managers, as appropriate; affected occupants have been informed of potential disruption or inconvenience; worker(s) have been informed of unique hazards, controls or limitations of the area; any boundary conditions have been communicated (see also *authorization*)

Requestor. Individual who requests the work to be done

Resident area. Area, inside or outside a building, where employee performs much of his or her day-to-day activities

Risk. Quantitative or qualitative expression of possible harm or loss that considers both the probability that an event will occur and the consequence of that event

Service provider. Any organization or individual that provides an activity, service, or product

Standard operating procedure (SOP). A pre-approved, job-specific procedure that describes the complete work scope; necessary work instructions, precautions, and prerequisites; hazards associated with the job; and the hazard controls to be implemented in order to prevent accidents, injuries, and property damage

Stop work. A definitive statement made openly that an imminent danger is present and all related activities must stop immediately or that an assigned task poses risk of death or serious injury and will not be performed

Supervisor. Knowledgeable SLAC employee responsible for authorizing and overseeing work. In the case of users, students, and so on, a knowledgeable SLAC employee functions as the supervisor for purposes of authorizing work and ensuring that the worker understands release requirements

Work, green. Work limited to those technical or administrative activities commonly performed by the public, posing well known hazards, with controls that may be implemented without permits or special ESH training, excluding training required to simply access an area. Examples are performing routine office work, using office supplies, reviewing schematics or specifications, using GPS or Hilti measuring devices, using a microscope, taking photos, performing field verifications or ESH observations, and operating break room appliances. Also referred to as *office work*.

Work, yellow. Non-green work performed in one's resident area. Also work performed outside one's resident area requiring coordination with two or fewer work groups or requiring two or fewer permits or plans. Work performed outside one's resident work area is typically initiated by a supervisor or through a work request from a system such as FAMIS, CATER, and Visual. Also referred to as *dispatch work*.

Work, red. Work that requires detailed planning and coordination because of the number of interdependent controls and/or different work groups required to complete the scope of work. Red work is any that requires three or more permits or plans, or three or more work groups. Also referred to as *complex work*. Examples are projects involving 1) coordination among three or more departments, crews, and/or craft types; 2) a complex and relatively infrequent task (like moving a huge piece of marble onto a beam line).

Work group. A trade, for example, riggers, vacuum technicians, electricians, or group of workers who have the same supervisor

Work integration plan (WIP). Document summarizing planning and coordination of red work and granting release

Work plan. Compendium of documents required to direct the execution of the work, including scope of work, project plans, hazards, controls, authorizations, and releases

Worker. Individual who will perform an activity. Individuals include SLAC employees, subcontractors, users, students, department associates, Department of Energy (DOE) employees, or anyone performing any activity

6 References

6.1 Program Documents

The following are procedures, forms, and other documents required by WPC:

- [Work Planning and Control: Procedure](#) (SLAC-I-720-0A21C-002)
- [Work Planning and Control: Stop Work Procedure](#) (SLAC-I-720-0A21C-003)
- Work Planning and Control: Stop Work Form (SLAC-I-720-0A21J-002), [pdf](#) or [Word](#)
- [“Work Planning & Control”](#) (includes forms and online tools)

6.2 Standards

The following are the standards adopted by WPC:

- [Department of Energy contract](#) DE-AC02-76-SFO0515 (the contract between the DOE and Stanford University for operation of SLAC), clause I.095, “DEAR 970.5223-1, Integration of Environment, Safety and Health Into Work Planning and Execution”
- Related DOE directives
 - DOE Order 450.1A, “Environmental Protection Program” ([DOE O 450.1A](#))
 - DOE Policy 450.4, “Safety Management System Policy” ([DOE P 450.4](#))
- Title 10, *Code of Federal Regulations*, “Energy”, Part 851, “Worker Safety and Health Program” (10 CFR 851), available from [“Code of Federal Regulations: Main Page”](#). Additional information on 10 CFR 851 and its implementation is available from [“Worker Safety and Health Program Final Rule - 10 CFR 851”](#).

6.3 Related Documents

The following are additional related documents cited as resources:

Management Systems

- [SLAC Integrated Safety and Environmental Management System Description](#) (SLAC-I-720-0A00B-001)
- [Environmental Management System Description](#) (SLAC-I-750-0A03H-002)
- [SLAC Assurance Program Description](#) (SLAC-D01000-OA-001-001)
- [SLAC Worker Safety and Health Program Description](#) (SLAC-I-720-0A21B-001)
- [Building Manager Program Manual](#) (SLAC-I-720-0A03Z-001)

[SLAC Environment, Safety, and Health Manual](#) (SLAC-I-720-0A29Z-001)

- [Chapter 28, “Incident Investigation”](#)

- [Chapter 33, “Management Walkthroughs”](#)

Other SLAC

- [“Lessons Learned”](#)
- [Safety Comes First Checklist](#)

Other

- DOE Guide 450.1-1A, “Implementation Guide for Use with DOE Order 450.1, Environmental Protection Program” ([DOE G 450.1-1A](#))
- DOE Guide 450.4-1B, “ISMS Guide” ([DOE G 450.4-1B](#))

7 Document Information

Title: Work Planning and Control

URL: <http://www-group.slac.stanford.edu/esh/eshmanual/pdfs/ESHch02.pdf>

Revision Record: <https://www-internal.slac.stanford.edu/esh/docreview/reports/revisions.asp?ProductID=3>

Department: ESH Division Office

Program: Work Planning and Control

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Work Planning and Control: Procedure

Department: ESH Division Office

Program: Work Planning and Control

Authority: ES&H Manual, Chapter 2, Work Planning and Control

Date Effective: 31 August 2009



Figure 1 ISEMS Core Functions and Work Planning and Control

1 Purpose

The purpose of work planning and control (WPC) is to ensure that all work is planned, authorized, released, and conducted in the envelope of integrated safety and environmental management system (ISEMS) core functions:

1. Define the work
2. Identify and analyze hazards
3. Develop and implement controls
4. Authorize work
5. Release work
6. Perform work within controls
7. Feedback and continuous improvement

2 Scope

WPC covers the steps above, for all work performed at SLAC, including technical and administrative activities, construction, experiments, operations, maintenance, and service. The program covers the stop work process as part of performing work within controls.

WPC does not cover project management, scheduling, or budgeting.

3 Applicability

WPC applies to all personnel (for example, SLAC employees, subcontractors, users, students, department associates, and Department of Energy [DOE] employees) performing any work in or on facilities managed by SLAC.

4 Procedures

4.1 Planning Work

All work must be planned to eliminate or at least limit undesired consequences to an acceptable level. Break the job into manageable tasks/steps. Determine how each step will be performed, in what order, with any specific equipment or materials, and consider any specific skills or training required. Identify the hazards in each step, including hazards that may be present in the area or created as a result of the activity level work. This is a questioning thought process. For example, consider the following questions:

- What techniques will be used?
- What materials, equipment, or tools will be used?
- If the work is to be done outside, has the environment or traffic patterns been considered?
- Will the field conditions change?
- Is fatigue a factor?
- Who will do what? Do they need additional training?

- Does the work affect other workers, equipment, property, the environment?
- Have similar activities resulted in events in the past?

Consider the following topics which may pose hazards:

Heat	Cold	Radiation	Moving objects
Pressure	Vibration	Depth	Suspended loads
Vehicles	Pinch points	Height	Confined spaces
Electricity	Chemicals	Noise	Falling objects
Sharp objects	Weather	Bacteria	Rolling material
Weight	Inclines	Animals	Rotating equipment
High winds	Insects	Access	Unstable ground

Consider the following mechanisms of injury:

Struck by	Caught in/on	Crushing	Overexertion
Slip, trip, fall	Inhalation	Strike against	Fire/explosion
Dusts	Fumes, mists	Electrocution	Burns

4.2 Green Work

Green work is authorized and released by workers and their supervisors fulfilling the following requirements:

1. Authorization is granted by
 - Completion of required new employee/worker safety training (for employees, ES&H Course 219, Employee Orientation to Environment, Safety, and Health [EOESH]; for workers on site less than 60 days in a given year, ES&H Course 396, Safety Orientation for Non-SLAC Employees [SON]; additional training may be required to access certain areas)
 - Completion of the Safety Comes First Checklist (or equivalent for users and subcontractors)
2. Release is granted in
 - Office-type areas by completing EOESH/SON
 - Non-office type areas:
 - Groups of visitors, tour groups, photo opportunities, and other activity similar to these require a release from the area manager, if there is one, otherwise the building manager, prior to entering.
 - Areas posted with access/release/training requirements take precedence; therefore, adhere to posted requirements, including area hazard analyses (AHAs), for a release.
 - In the absence of an AHA or a posting with such requirements:
 - If you are familiar with the hazards of the area, EOESH/SON training serves as the release. Examples of SLAC organizations that are expected to be aware of such hazards include Radiation Protection Field Operations staff, Facilities electricians/mechanics, and Power Conversion technicians.
 - If you are not familiar with the area hazards or have questions, contact the area manager, if there is one, or the building manager, prior to entry. They will inform you of potential hazards and controls, as well as potential conditions of entry and grant you a release.

- Regardless of how your release was granted, you should always observe ongoing activities in the area in the event hazards may be present which require your attention.
- If you perform green work in areas designated as construction sites, you are granted a release upon signing in per the construction site requirements.
- Always reference posted signage for additional ES&H and personal protective equipment (PPE) requirements

Once each year, or whenever a job changes, supervisors must meet with their subordinates to discuss their roles and responsibilities; the general nature of all work assigned, hazards, controls; and required training. The results of these discussions must be documented according to current Human Resources requirements.

4.3 Yellow and Red Work

Step	Person	Action
Define the Work		
1.	Requestor	Identifies the need for work to be done
2.	Requestor	<p>Submits a request for the work to be performed to service provider, with the following information:</p> <ul style="list-style-type: none"> ▪ Name and department of requestor ▪ Location of work to be performed ▪ Description of service/work needed ▪ Any special instructions, considerations, known area hazards, and access requirements/training ▪ Charge number, if required <p>For yellow resident work The request may be oral or in writing.</p> <p>For yellow non-resident or red work Work requests must be documented (for example by being submitted via e-mail or systems such as Visual, FAMIS, and CATER).</p>
3.	Supervisor	<p>Reviews the request:</p> <ul style="list-style-type: none"> ▪ If work is within the scope of services provided by the organization, initiates planning ▪ If not, asks requestor to resubmit to appropriate service provider
Identify and Analyze Hazards and Develop and Implement Controls		
4.	Activity planner	<p>Develops work plan by</p> <ul style="list-style-type: none"> ▪ Determining how best to perform the work, involving, where practical, workers likely to perform the work and, as appropriate, subject matter experts (SMEs) ▪ Defining procedures required by manufacturers of specialized equipment or specialized installation sequences ▪ Defining testing and acceptance criteria ▪ Ensuring the work plan is reviewed for environment, safety, and health (ESH) concerns <p>Steps, hazards and controls are documented using</p> <p>For yellow resident work</p>

Step	Person	Action
		<p>Activity and training authorization (ATA)</p> <p>For yellow non-resident work</p> <p>ATA + job safety analysis (JSA)/standard operation procedure (SOP), plus required permits</p> <p>For red work</p> <p>ATA + JSA/SOP for each work group + work integration plan (WIP) for coordinating the work groups</p> <p>Plus all required permits, plans, and other specifications (see the Hazard Evaluation and Planning eTool for identifying ESH requirements)</p>
5.	Supervisor	<p>Ensures the work plan is current and that the following actions occur:</p> <ul style="list-style-type: none"> ▪ Affirming the planned work has been reviewed and approved, as appropriate ▪ Ensuring the analysis of relevant hazards is current ▪ Obtaining the necessary permits and ensuring conditions have been met ▪ Identifying qualified workers ▪ Identifying necessary material and equipment <p>Note walking the specific area and surrounding areas where the work is to be performed may be required to understand fully the hazards and necessary controls</p>
Authorization and Release		
6.	Supervisor	<p>Authorization</p> <p>Reviews and authorizes work, if satisfied that</p> <ul style="list-style-type: none"> ▪ The work plan is complete and current ▪ The persons assigned to perform work as defined in the plan are appropriately trained, qualified, certified, and licensed and he or she has discussed the hazards and controls with them <p>The supervisor who authorizes the work is accountable for its performance.</p> <p>Authorization is documented by</p> <p>For yellow resident work</p> <p>Supervisor authorizes work by signing the ATA</p> <p>Note the supervisor assigning the work is responsible for determining if the individual's ATA adequately addresses the hazards and controls for the work being performed, or if a JSA/SOP is needed to communicate the hazards and controls clearly.</p> <p>For yellow non-resident work</p> <p>ATA + JSA/SOP</p> <p>Supervisor authorizes work by signing the JSA or SOP Authorization and Release</p> <p>Note some activities performed outside a worker's resident area may be authorized via an ATA only, if they do not require permits, and the hazards and controls are adequately documented on the ATA. Examples include routine moving of materials with a forklift and receiving chemical shipments.</p> <p>For red work</p> <p>ATA + JSA/SOP signed by the supervisor for each work group</p> <p>Plus all required permits, plans, and other specifications (see the Hazard Evaluation and Planning eTool for identifying internal ESH permits, plans and other requirements)</p>

Step	Person	Action
7.	Building/area manager and supervisor	<p>Release</p> <p>For yellow resident work</p> <p>Supervisor releases work by signing the ATA</p> <p>For yellow non-resident work</p> <p>Building or area manager releases work either orally or in writing. If orally, worker must annotate the JSA/SOP with release information. If there is an area manager, he or she releases the work. If there is no area manager where work is taking place, then the building manager releases work.</p> <p>For red work</p> <p>Building or area manager reviews the WIP, as prepared by the project manager or activity planner, and coordinates final details</p> <p>Building or area manager releases work by signing WIP. For work within construction sites, the functional responsibility of the building manager is passed to the project manager (PM). Therefore the PM initially releases work, which is subsequently released by UTRs.</p> <p>Evidence of a signed WIP must be available to document coordination and release. If there is a delay in the start of work after being given a release, supervisor ensures that the criteria in step 6 are still valid before continuing. A re-release is required if the delay is outside the boundary conditions set forth by the initial release. If unsure, a re-release is highly recommended.</p>
8.	Worker and supervisor	<p>Supervisor conducts a pre-job/tailgate briefing before start of work with workers and others as appropriate, to ensure that workers understand the work underway in the area and its hazards and controls, including when to verify controls are in place prior to continuing work activity. Repeats this briefing for any worker who arrives after the initial one.</p> <p>If any worker does not agree that the hazard controls are adequate or if there are any other scheduling or ESH concerns, work must not be started.</p> <p>On completion of the pre-job/tailgate briefing, further releases the work for his or her workers to execute.</p> <p>Evidence of a pre-job/tailgate briefing must be available for all subcontractor work and all red work to document that individuals who attend the meeting understand the work and its inherent hazards and controls (the Pre-job/Tailgate Briefing Checklist may be used for this).</p>
Perform the Work within Controls		
9.	Worker and supervisor	<p>Work Execution</p> <p>Worker ensures that controls are in place prior to performing work within such controls. Hold points, if any, are clearly understood and validated prior to performing work. Only work that is part of the scope of work, for which hazards, controls, authorization, and release have been granted, may be performed.</p> <p>Supervisor ensures that work is performed as detailed in the work plan</p> <p>Supervisor ensures that the complete work plan, with all pertinent documentation, is available for reference at or near the work site</p>
10.	Supervisor	<p>Stop Work</p> <p>Anyone observing unsafe conditions or actions should approach and notify the worker in a way that minimizes a potential startle hazard. When requested to stop work, worker should safely stop the activity being executed.</p> <p>If at any time during work execution field conditions change or work details differ</p>

Work Planning and Control: Procedure

Step	Person	Action
		<p>from the work plan to the point that a safety concern arises, workers must stop the work and notify their supervisor. Examples of such changes are</p> <ul style="list-style-type: none"> ▪ Change in work scope (change in sequence or footprint, different parts, outcome not as expected) ▪ Change in start or stop dates or times ▪ Change in work location ▪ Changes that increase or introduce new hazards or environmental impacts <p>If the change does not create an imminent danger, work may be restarted after work plan documents have been updated and the work re-authorized and re-released, as deemed appropriate by the supervisor.</p> <p>If the change creates an imminent danger, or a serious hazard that requires immediate attention is observed or a task is assigned that poses risk of death or serious injury, an imminent danger stop work must be initiated, as described in Work Planning and Control: Stop Work Procedure.</p>
11.	Worker	<p>Hazard Control</p> <p>At the completion of each day's work, ensures that any hazards to others remaining in the work area where the work was performed are controlled</p> <p>This can be done by the application of an administrative lock, posting and/or barricading the area, or performing housekeeping to return the area to its original condition.</p>
12.	Supervisor	<p>Final Completion of Work</p> <p>Ensures the work site is left in a clean and safe condition</p>
Feedback and Continuous Improvement		
13.	Worker and supervisor	<p>Lessons Learned</p> <p>Supervisor should solicit and review feedback to determine if a lessons learned item or an opportunity for continuous improvement has been identified. If a lessons learned item is identified, incorporates it into the SLAC lessons learned database.</p> <p>Worker should provide feedback, as appropriate, to improve work procedures or WPC processes.</p>
14.	WPC Program Manager	Evaluates WPC process feedback for continuous improvement opportunity
15.	Supervisor/project manager/requestor	<p>Closeout</p> <p>Once all work activities have been completed</p> <p>For yellow non-resident work</p> <p>Supervisor closes out work plan and retains for six months to enable review for lessons learned and WPC process improvements</p> <p>For red work</p> <p>Project manager/requestor closes out and retains for six months to enable review for lessons learned and WPC process improvements</p>

5 References

- *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 2, “Work Planning and Control”, <http://www-group.slac.stanford.edu/esh/general/wpc/policies.htm>
- Work Planning and Control: Stop Work Procedure (SLAC-I-720-0A21C-003), <http://www-group.slac.stanford.edu/esh/eshmanual/references/wpcProcedStopWork.pdf>
- “Work Planning & Control”, <https://www-internal.slac.stanford.edu/wpc/> (includes forms and online tools)
- “Lessons Learned”, http://www-group.slac.stanford.edu/esh/concerns/lessons_learned/

Work Planning and Control: Stop Work Procedure

Department: ESH Division Office

Program: Work Planning and Control

Authority: ES&H Manual, Chapter 2, Work Planning and Control

Date Effective: 31 August 2009

1 Purpose

The purpose of this procedure is to establish a uniform method for *stopping work*.

Every SLAC employee, subcontractor, user, and DOE employee has the authority and responsibility to stop work for conditions that threaten *imminent danger*. SLAC considers no activity to be so urgent or important that its standards for environmental protection, safety, or health may be compromised. Employees have the right and responsibility not to perform tasks or activities they feel pose undue risk to themselves, co-workers, or the environment. Stop work actions take precedence over all other priorities and procedures.

10 CFR 851.20(b)(8) and the *SLAC Worker Safety and Health Program Description* specifically give every worker the right to decline to perform an assigned task because of a reasonable belief the task poses an imminent risk of death or serious physical harm to the worker. Further, the worker has the right to stop work when the worker discovers employee, user, or subcontractor exposure to imminently dangerous conditions or serious hazards. This procedure is used for either of these conditions.

2 Scope

This procedure describes the stop work process, follow-up actions, and responsibilities for those involved in the process. Hazards of lesser magnitude than imminent danger should use the normal supervisory procedures, and referral to ES&H staff, as appropriate.

3 Applicability

This procedure applies to all personnel (for example, SLAC employees, subcontractors, users, students, department associates, and Department of Energy [DOE] employees) performing any work in or on facilities managed by SLAC.

4 Procedure

For an illustration of this procedure, see Figure 1.

Step	Person	Action
Observation of an Unsafe Situation		
1.	Individual initiating stop work	If an imminent danger is observed or a task is assigned that poses risk of death or serious injury, promptly <ul style="list-style-type: none">Warns any person who is at riskAsks the person in a manner that minimizes creating an additional hazard to stop work and discuss the hazardous situation

Work Planning and Control: Stop Work Procedure

Step	Person	Action
2.	Individual performing work	If directed to stop work, even if it is only a perceived hazard, must safely stop
3.	Individual initiating stop work and Individual performing work	Discuss reason for stop work. If considered an imminent danger, continue to step 4. Otherwise, evaluate the reason for the stop work and determine if work is still within scope or if new hazards have been introduced that are not adequately controlled. If unsure or if work plans need to be updated, contact your supervisor for re-authorization, as appropriate. A re-release may need to be secured.
Reporting Stop Work		
4.	Person performing work	Reports the stop work to supervisor/UTR immediately
5.	Worker's supervisor/UTR	If considered an imminent danger, continues to step 6. Otherwise, resolves unsafe situation and re-authorizes work, as necessary. Obtains a re-release if required.
Reporting Imminent Danger Stop Work		
6.	Worker's supervisor/UTR	<p>Informs the following that an imminent danger stop work has been issued</p> <ul style="list-style-type: none"> ▪ Building or area manager ▪ Facility manager ▪ Division/department head ▪ Directorate ESH coordinator
7.	Worker's supervisor/UTR	<p>If the hazard has already caused an injury or property damage, begins incident investigation process (see ESH Manual Chapter 28, "Incident Investigation", for more information)</p> <p>Addresses extent of condition</p>
8.	Building/area manager	Ensures lock and tag of any equipment that creates the hazard or imminent danger. Other suitable warning labels, barricades, locking devices, and so forth must be used to warn anyone not familiar with the stop work.
9.	Division/Department Head	<p>Informs the following that a stop work has been issued</p> <ul style="list-style-type: none"> ▪ Associate laboratory director (ALD) ▪ Chief safety officer (CSO)
10.	Worker's supervisor/UTR	<p>Initiates stop work form (completed sections 1 and 2) for imminent danger and distributes copies to</p> <ul style="list-style-type: none"> ▪ Building or area manager ▪ Division/department head ▪ Directorate ESH coordinator ▪ ALD ▪ CSO (or designee)
11.	Associate laboratory director	Notifies laboratory director and DOE SLAC Site Office
Enforcement		
12.	Worker's supervisor/UTR	Ensures work does not resume until properly authorized and released

Work Planning and Control: Stop Work Procedure

Step	Person	Action
Investigation		
13.	Division/department head	For every stop work, ensures incident investigation process is initiated within one work day (see ESH Manual Chapter 28, "Incident Investigation", for more information)
Restart		
14.	Worker's supervisor/UTR	Ensures hazards and controls are updated with investigation results (see Work Planning and Control: Procedure) Ensures that a job safety analysis (JSA) or standard operating procedure (SOP) for the activity is completed and reviewed by directorate ESH coordinator
15.	Worker's supervisor/UTR	Sends stop work form with follow-up actions described (Section 3) and supporting documentation to the following for concurrence: <ul style="list-style-type: none"> ▪ Division/department head ▪ Directorate ESH coordinator ▪ CSO (or designee)
16.	Division/department head, directorate ESH coordinator, and CSO (or designee)	If satisfied with updated controls, concurs with restart of work and signs stop work form (Section 4). If not, contacts worker's supervisor/UTR to revise controls.
17.	ALD	Authorizes the restart of activities and signs stop work form (Section 5)
18.	Building/area manager	Grants a release if they are satisfied with the investigation and follow up measures, and signs stop work form (Section 6) Ensures lock and tag of any equipment that creates the hazard or imminent danger
19.	ALD	Confirms a new release has been granted before starting work Informs the laboratory director and the DOE SLAC Site Office
20.	Worker's supervisor/UTR	Provides copies of the completed stop work form and supporting documentation to the following: <ul style="list-style-type: none"> ▪ Building or area manager ▪ Division/department head ▪ Directorate ESH coordinator ▪ ALD ▪ CSO (or designee)
Disputes and Appeals		
21.	All involved	If anyone in the process believes that the restart authorization or release is not justified, or that modifications imposed as a precondition to the operation's restart are inadequate, appeals the restart decision to the ALD and CSO
Lessons Learned		
22.	ALD	Following resolution of a stop work issue, should consider submitting a lessons learned

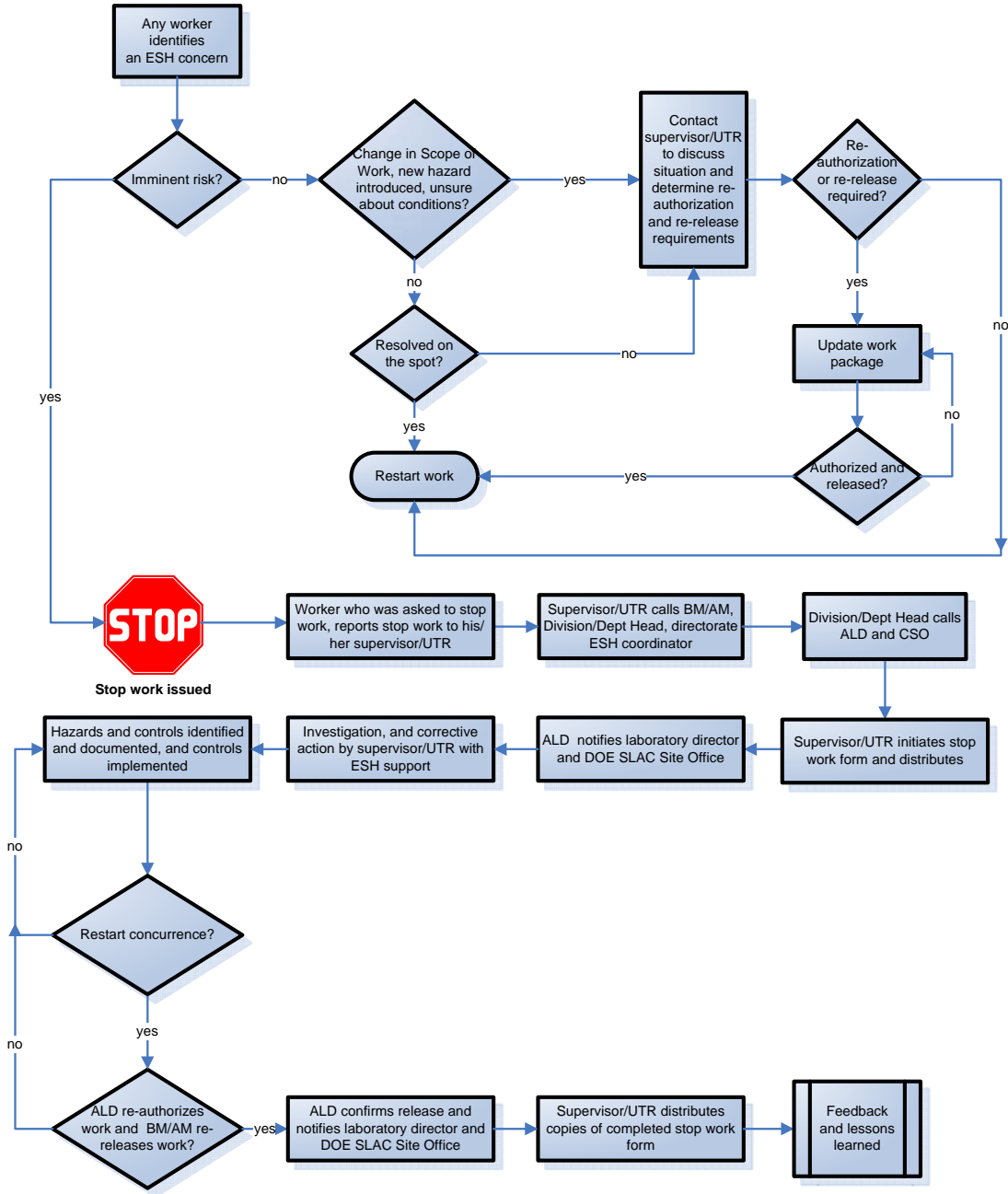


Figure 1 Stop Work Flow Chart

5 References

- *SLAC Environment, Safety, and Health Manual (SLAC-I-720-0A29Z-001)*, Chapter 2, “Work Planning and Control”, <http://www-group.slac.stanford.edu/esh/general/wpc/policies.htm>
- Work Planning and Control: Stop Work Form (SLAC-I-720-0A21J-002), <http://www-group.slac.stanford.edu/esh/eshmanual/references/wpcFormStopWork.pdf> | [.doc \(Word\)](#)

Work Planning and Control: Stop Work Form

Department: ESH Division Office

Program: Work Planning and Control

Authority: ES&H Manual, Chapter 2, Work Planning and Control

Date Effective: 31 August 2009

When a stop work has been issued, the supervisor/university technical representative (UTR) of the person whose work has been stopped must make sure this form is completed and observation recorded in as complete and objective a manner as possible.

When completed, copies of this form are to be sent to

1. Building or area manager
2. Division/department head
3. Directorate ES&H coordinator
4. Associate laboratory director (ALD)
5. Chief safety officer (CSO)

Work may not be resumed until this form is signed, indicating re-authorization by the ALD and re-release by the building or area manager.

For additional information, see Work Planning and Control: Stop Work Procedure (SLAC-I-720-0A21C-003), <http://www-group.slac.stanford.edu/esh/eshmanual/references/wpcProcedStopWork.pdf>.

Work Planning and Control: Stop Work Form

Section 1: Stop Work Issuance			
Directorate		Department	
Location of operation		Date/time	
Supervisor/UTR		Phone	
Individual initiating stop work			
Individual performing work			
Work operation or condition (include names of individuals performing work)			
Hazard (as stated by individual initiating stop work)			
Additional observations			

Section 2: Date / Time Informed			
Supervisor/UTR		Directorate ESH coordinator	
Building/area manager		Associate laboratory director	
Division/department head		Chief safety officer	
Facility manager			

Section 3: Follow-up Action			

Section 4: Restart Concurrence			
Division/department head		Date	
Directorate ESH coordinator		Date	
CSO		Date	

Section 5: Restart Authorization			
ALD		Date	

Section 6: Restart Release			
Building/area manager		Date	