**ENVIRONMENT, SAFETY & HEALTH DIVISION**

*Chapter 2: Work Planning and Control*

# Work Planning and Control Procedure

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# 1   Purpose

The purpose of this procedure is to ensure adequate protection of workers, the public, and the environment, through the consistent, effective, planning, authorization, and release of activity-level work.

It covers the five core functions of SLACs' integrated safety and environmental management system (ISEMS):

1. Define the work

2. Identify and analyze hazards

3. Develop and implement controls

4. Perform work within controls

5. Feedback and continuous improvement

For all *activity-level work* performed in or on facilities managed by SLAC, including technical and administrative activities, experiments, operations, maintenance, and service. It does not cover project management, scheduling, or budgeting.

For construction, see Work Planning and Control: Construction Work Planning and Control Procedure.

For WPC requirements in addition to those here for high-consequence work, see Work Planning and Control: Enhanced Rigor Work Planning and Control Procedure.

For requirements for conducting a pre-job briefing, see Work Planning and Control: Pre-job Briefing Procedure.

For a summary of all these WPC requirements, see Work Planning and Control: Authorization and Release Summary.

It applies to all workers (as *workers*, *work planners*, *persons-in-charge,* and *responsible individuals*), including SLAC employees, subcontractors, and users, supervisors, construction and service managers and points of contact, project managers, subcontractors, area and building managers, ESH coordinators, ESH program managers and other subject matter experts, and associate laboratory directors.

# 2 Procedures

## 2.1 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. The following section defines these concepts; Section 2.2 summarizes how they are implemented for different types of work; and Sections 2.4 and 2.5 provide detailed procedures.

### 2.1.1 Planning

*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 person authorizing the work. A visit to the job site may be warranted, as well as a discussion with the area or building manager and review of any *area hazard analysis (AHA)*. The results are documented in some form of *work plan*, which forms the basis for authorization and release.

### 2.1.2 Authorization

*Authorization* means that the person who authorizes the work

1.  Is sufficiently knowledgeable of the hazards to plan and authorize such work

2.  Has determined the work falls within their area of responsibility

3.  Is satisfied with the content of the work plan

4.  Has determined that the persons assigned to perform work are qualified

5.  Has discussed hazards and controls with those persons

The person who authorizes work is accountable for its performance. Work is typically authorized by the supervisor, as the *responsible individual*, of the person performing the work.

Most work at SLAC is authorized by a knowledgeable SLAC employee supervising other SLAC employees. For construction subcontractor or high-risk service subcontractor work, the subcontractor's foreman/supervisor authorizes the work but the SLAC construction manager (CM) or the service manager (SM), respectively, confirms the authorization. (See Work Planning and Control: Construction Work Planning and Control Procedure for details on construction.) The SLAC point of contact (POC) confirms all other types of subcontractor work.

| Note | For workers matrixed to another organization, a clear hand-off of authorization responsibilities must be initiated by the *administrative supervisor* to ensure that both the *functional supervisor* and the worker know who is responsible for authorizing work. Workers who are unclear as to who is authorizing their work should ask their administrative supervisor for direction. |
|------|---|

The key, unvarying, requirement for authorizing work is that the person authorizing the work ensures that the persons doing the work

1. Understand the scope of work and the task-specific hazards and controls

2. Are qualified

> **Note** Supervisors are required to ensure workers are properly trained before authorizing them to perform work and to review training assignments annually and when job activities or workplace hazards change. The Stanford University Administrative Guide Memo 7.5.1, "Health and Safety Performance Standards and Discipline"), which SLAC follows, requires supervisors to communicate clearly health and safety practices to all employees and to make good health and safety practices part of employees' job expectations and evaluations.

### 2.1.2.1 Documentation

Requirements for documenting authorization vary with the type of work (see Section 2.2). It is important to remember that the purpose of documenting authorization is to address and communicate to the worker unique or specific hazards resulting from the condition of the equipment being worked on, the location of the work, the significance of negative consequences if an intermediate step is omitted or performed out of sequence, and so on.

When deciding how and whether to document authorization, the following factors should be considered, regardless of the type or location of the work:

- Injury and illness rates at SLAC (see Incidents Metrics Dashboard)

- Potential to cause severe or disabling injuries or illness, even if there are no previous events

- Possibility of one, simple human error leading to a severe event

- Familiarity with the process/changes in process

- Complexity of the task(s)

- Frequency of encountering the hazards or controls

- Existence of specific or unique personal protective equipment (PPE) requirements

## 2.1.3 Release

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

1. Hazards unique to the area have been communicated

2. Affected persons have been notified

3. Work has been coordinated to avoid conflict and minimize risk

Work performed in a person's *resident area* is typically released by the supervisor; non-resident area work by the area or building manager. For work in a resident area not under the supervisor's control, release is also granted by area or building manager.

For construction work, the area or building manager typically transfers responsibility for daily release to the CM, who then releases work to the subcontractor. (See Work Planning and Control: Construction Work Planning and Control Procedure for details.)

## 2.2   Authorization and Release by Type of Work

How work is planned, authorized, and released depends on the type (*green*, *yellow*, or *red*) and the location (office/non-office and resident/non-resident area). The following is a summary of requirements; detailed procedures are given in Sections 2.4 and 2.5.

1. Green work is administrative or technical in nature and does not require any permits or special ESH training (for example, for fall protection). 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 (that is, an *industrial area*) requires release by the area or building manager, if required on the *area hazard analysis (AHA)* or other postings. Otherwise, if the worker is familiar with the area, has read the AHA, has no ESH concerns, and adheres to all postings, they may enter the area to perform green work.

2. Yellow work in the worker's *resident area* is authorized and released with an up-to-date SLAC Training Assignment (STA) and supervisor acknowledgment of worker's ability to carry out assigned work. Documenting routine hazards and controls is not required. Supervisors are free to use a *job safety analysis (JSA)*, *standard operating procedure (SOP)*, or *activity and training authorization (ATA)*, but they do not have to.

   When a worker is dispatched outside their resident area, a JSA or SOP is typically required for authorization, and the work is released by the area manager, if there is one, otherwise by the building manager. (Release by an area or building manager is also required for work in resident areas, if the area is not under the control of the worker's supervisor.) For work involving subcontractors, a *tailgate briefing* is also required as a final release before beginning any activity.

   Some simple activities performed outside a worker's resident area may be authorized without a JSA or SOP, as determined by the supervisor. For example, climbing a ladder (which is yellow work) to perform green work. For activities like this, workers are expected to show sound judgment; requiring written authorization in the field would not add value and might even distract the worker's focus on the hazards and controls for the task at hand (see Section 2.1.2.1). A work release is, however, still required from the appropriate area or building manager.

3. Red work is authorized at the activity level like non-resident yellow work (that is, by the supervisor of the workers involved, using a JSA or SOP). In addition, the planning efforts are documented by the work planner with a *work integration plan (WIP)*; a coordination meeting is held to discuss the activities, timing, permits, and so on until the area manager is satisfied that release may be granted; and, unless all workers are present at the coordination meeting, a *tailgate briefing* is required to release work for each worker before beginning any activity. For work that is considered to have lab-wide impact, the associate laboratory director (ALD) of the planner must indicate concurrence of adequate planning by signing the WIP. For the authorization and release of construction work, see Work Planning and Control: Construction Work Planning and Control Procedure.

## 2.3   Additional Controls

In addition to the requirements below, pre-job briefings may be required before work begins (see Work Planning and Control: Pre-job Briefing Procedure).

For work determined to be high consequence, the additional controls of enhanced rigor WPC also apply (see Work Planning and Control: Enhanced Rigor Work Planning and Control Procedure).

## 2.4  Green Work Procedure

Green work is authorized and released by workers and their supervisors following this procedure.

| Step | Person / Function | Action |
|---|---|---|
| **Authorization** | | |
| 1. | Worker | Completes required new employee/worker safety training (see Site Access Control: General Requirements) |
| 2. | Authorizer | Ensures all required training completed before starting work |
| **Release** | | |
| 3. | Worker | For green work in an office area, completing training serves as the release |
| | | For green work in a non-office area (that is, an *industrial area*): |
| | | ▪ In areas posted with access/release/training (and additional ESH/PPE requirements, including area hazard analyses [AHAs]), adherence to the posted requirements serves as the release (unless release by an area/building manager is required in the postings). |
| | | ▪ In the absence of an AHA or similar posting: |
| | |   ▪ If familiar with the hazards of the area, new employee/worker safety 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 not familiar with the area hazards or has questions, worker contacts the area manager, if there is one, or the building manager, before entry, who will inform the worker of unique hazards and subsequent controls, as well as potential conditions of entry, before granting a release. |
| | | For green work in areas designated as construction sites, a release is granted by adhering to the construction site access requirements. |
| | | For groups of visitors, tour groups, photo opportunities, lab-wide events (for example, Kids Day and holiday parties) and other activities similar to these, a release is required from the area manager, if there is one, otherwise the building manager. |
| **Perform the Work within Controls** | | |
| 4. | Worker | Regardless of how release is granted, pays attention to ongoing activities in the area and the hazards they may present |
| | | If at any time a safety concern arises, stops the work and notifies supervisor |
| **Feedback and Continuous Improvement** | | |
| 5. | Worker and authorizer | Worker provides feedback, as appropriate, to improve work procedures or WPC processes |
| | | Authorizer solicits and reviews feedback to determine if a lessons learned item or an opportunity for continuous improvement has been identified. |

## 2.5   Yellow and Red Work Procedure

| Step | Person / Function | Action |
|---|---|---|
| | | **Define the Work** |
| 1. | Requester | Identifies the need for work to be done and submits a request for the work to be performed to service provider, with the following information:<br><br>▪ Name and department of requester<br>▪ Location of work to be performed<br>▪ Description of service/work needed<br>▪ Any special instructions, considerations, known area hazards, and access requirements/training<br>▪ Charge number, if required |
| | | **Plan - Identify and Analyze Hazards and Develop and Implement Controls** |
| 2. | Work planner | Develops work plan by<br><br>▪ Determining how best to perform the work, involving, where practical, workers likely to perform the work and, as appropriate, subject matter experts (SMEs)<br>▪ Defining procedures required by manufacturers of specialized equipment or specialized installation sequences<br>▪ Defining testing and acceptance criteria<br>▪ Evaluating those steps that may pose unacceptable consequences if performed out of sequence, if omitted, or if an undesired outcome occurs (for example, a part gets jammed or equipment breaks)<br>▪ Ensuring the work plan is reviewed for ESH concerns<br><br>Steps, hazards, and controls are documented as follows<br><br>**For yellow resident work**<br><br>Not required<br><br>**For yellow non-resident work**<br><br>Job safety analysis (JSA) or standard operation procedure (SOP), plus required permits. (At the discretion of the authorizing supervisor, an ATA may be used in place of a JSA or SOP.)<br><br>Note some simple activities performed outside a worker's resident area, such as climbing a ladder to perform otherwise green work, may not require documentation, as determined by the supervisor/authorizer (see Section 2.2).<br><br>**For red work**<br><br>JSA or SOP for the work + work integration plan (WIP). Note for work that is considered to have lab-wide impact, the ALD of the planner must indicate concurrence of adequate planning by signing the WIP.<br><br>Plus all required permits, plans, and other specifications (see the Hazard Evaluation and Planning eTool for identifying SLAC ESH permits, plans, and other requirements) |
| 3. | Authorizer | Ensures the work plan is current and that the following actions occur:<br><br>▪ Affirming the planned work has been reviewed and approved, as appropriate<br>▪ Ensuring the analysis of relevant hazards is current |

| Step | Person / Function | Action |
|------|-------------------|--------|
| | | ▪ Obtaining the necessary permits and ensuring conditions have been met |
| | | ▪ Identifying qualified workers |
| | | ▪ Identifying necessary material and equipment |
| | | 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. |
| **Authorization and Release** | | |
| 4. | Authorizer | **Authorization** |
| | | Reviews and authorizes work, if satisfied that |
| | | ▪ 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 they have discussed the hazards and controls with them |
| | | The person who authorizes the work is accountable for its performance. |
| | | Authorization is documented by |
| | | **For yellow resident work** |
| | | **Supervisor** is not required to document hazards and controls provided the worker is current with STA requirements and understands scope of work, hazards and controls of assigned work (but see Section 2.1.2.1 for guidance on when documentation may be appropriate) |
| | | **For yellow non-resident work** |
| | | JSA or SOP |
| | | **Evidence of authorization:** JSA or SOP cover sheet signed by the supervisor as responsible individual and each worker. For subcontractor work, the foreman or superintendent authorizes the work. The SLAC POC confirms the authorization by reviewing the JSA or SOP cover sheet. |
| | | JSA or SOP cover sheet only needs to be signed once for each job, unless it is changed. |
| | | Note some simple activities performed outside a worker's resident area, such as climbing a ladder to perform otherwise green work, may be authorized without a JSA or SOP, as determined by the supervisor (see Section 2.2). |
| | | **For red work** |
| | | **Evidence of authorization:** JSA or SOP cover sheet signed by the supervisor as responsible individual and each worker. For subcontractor work, the foreman or superintendent authorizes work. The SLAC SM confirms the authorization by reviewing the JSA or SOP cover sheet. |
| | | JSA or SOP cover sheet only needs to be signed once for each job, unless it is changed. |
| | | Plus all required permits, plans, and other specifications (see the Hazard Evaluation and Planning eTool for identifying SLAC ESH permits, plans and other requirements) |
| 5. | Releaser | **Release** |
| | | **For yellow resident work** |

| Step | Person / Function | Action |
|------|-------------------|--------|
| | | **Supervisor** releases work, if they control the area, via a valid STA and discussion of work tasks and associated hazards and controls with worker. |
| | | **For yellow non-resident work** |
| | | **Area or building manager** releases work either orally or in writing. If orally, worker must annotate the JSA/SOP cover sheet with release information. If there is an area manager, they release the work. If there is no area manager where work is taking place, then the building manager releases work. |
| | | For subcontractor work, the POC secures a release from the area manager, if there is one, otherwise the building manager, and subsequently holds a documented tailgate meeting to release the subcontractors. |
| | | **For red work** |
| | | **Area or building manager** reviews the WIP, coordinates release-related details, and concurs that work may proceed by signing the WIP. |
| | | Any boundary conditions, such as calling the Accelerator Control Center or duty operator or attending daily coordination meetings for a release, must be noted on the WIP. |
| | | Evidence of a signed WIP must be available to document coordination and area or building manager concurrence. |
| | | If there is a delay in the start of work after release, and new hazards or controls are identified, reauthorization is required before continuing. A re-release is required if the delay is outside the boundary conditions set forth by the initial release. |
| 6. | Worker and authorizer | **Authorizer** ensures a tailgate briefing occurs 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 before continuing work activity. Repeats this briefing for any worker who arrives after the initial one. |
| | | 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. |
| | | On completion of the tailgate briefing, further releases the work for their workers to execute. |
| | | Evidence of a tailgate briefing must be available for all red work to document that individuals who attend the meeting understand the work and its inherent hazards and controls: |
| | | ▪ Non-construction Tailgate/Release Form is used to document final release by SLAC of red work |

Perform the Work within Controls

| Step | Person / Function | Action |
|------|-------------------|--------|
| 7. | Worker and authorizer | **Work Execution** |
| | | **Worker** ensures that controls are in place and hold points, if any, are clearly understood and validated before starting work. Only work that is part of the scope of work, for which hazards, controls, authorization, and release have been granted, may be performed. |
| | | **Authorizer** ensures that work is performed as detailed in the work plan |
| | | **Authorizer** ensures that the complete work plan, with all pertinent documentation, is available for reference at or near the work site |

| Step | Person / Function | Action |
|------|-------------------|--------|
| 8. | Worker | **Stop Work** |

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.

If at any time conditions change or work details differ 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

- Change in work scope (change in sequence or footprint, different parts, intermediate outcomes 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

**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 authorizer. See the Work Planning and Control: Stop Work Procedure.

**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.

| Step | Person / Function | Action |
|------|-------------------|--------|
| 9. | Worker | **Hazard Control** |

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

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 a secure state.

| Step | Person / Function | Action |
|------|-------------------|--------|
| 10. | Authorizer | **Final Completion of Work** |

Ensures the work site is left in a clean and safe condition

### Feedback and Continuous Improvement

| Step | Person / Function | Action |
|------|-------------------|--------|
| 11. | Worker and authorizer | **Lessons Learned** |

**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.

Worker should provide feedback, as appropriate, to improve work procedures or WPC processes.

| Step | Person / Function | Action |
|------|-------------------|--------|
| 12. | Authorizer / project manager / requester | **Closeout** |

Once all work activities have been completed

**For yellow resident work**

Not required

**For yellow non-resident work**

**Supervisor** closes out work plan and retains for 90 days to enable review for lessons learned and WPC process improvements

| Step | Person / Function | Action |
|------|-------------------|--------|
| | | **For red work** |
| | | **Project manager/requester** closes out and retains for 90 days to enable review for lessons learned and WPC process improvements |

# 3   Forms

Documentation requirements vary by type of work, but generally there must 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.

Whether documentation is required or not, no one should forget that the purpose of the documentation is to ensure adequate planning, meet regulatory requirements, and most of all communicate critical steps, hazards, and controls to minimize unacceptable consequences.

These documents together with any others required to direct the execution of the work constitute the *work plan*. Note work plan requirements are cumulative, starting with the minimum documentation, adding JSAs or SOPs and permits for non-resident work, and work integration plans and tailgate briefings for high-risk yellow and all red work.

The following forms and tools support this procedure:

- Work Planning and Control: Activity Training and Authorization Form (SLAC-I-730-0A21J-033). Form for documenting authorization and release of resident yellow work. Not required

- Work Planning and Control: Job Safety Analysis Form (SLAC-I-730-0A21J-034). Form for documenting authorization and release of yellow, red, and construction work

- Work Planning and Control: SOP Authorization and Release Form (SLAC-I-730-0A21J-035). Form for documenting authorization and release of yellow, red, and construction work

- Work Planning and Control: Work Integration Plan Form (SLAC-I-730-0A21J-036). Form for documenting planning, coordination, and release of complex/red work

- Work Planning and Control: Non-construction Tailgate/Release Form (SLAC-I-730-0A21J-038). Form for documenting final release of red work

- Hazard Evaluation and Planning eTool. Tool for identifying SLAC ESH permits, plans, and other requirements

- SLAC Training Assignment (STA). System for assigning and tracking training

# 4   Recordkeeping

The following recordkeeping requirements apply for this procedure:

- Red work packages must be kept by the project manager for 90 days after the job is complete. Yellow work packages must be kept by the authorizing supervisor for 90 days after the job is complete.

# 5   References

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

- [Chapter 2, "Work Planning and Control"](#)
  - [Work Planning and Control: Authorization and Release Summary](#) (SLAC-I-720-0A21S-006)
  - [Work Planning and Control: Construction Work Planning and Control Procedure](#) (SLAC-I-720-0A21C-005)
  - [Work Planning and Control: Enhanced Rigor Work Planning and Control Procedure](#) (SLAC-I-720-0A21C-006)
  - [Work Planning and Control: Pre-job Briefing Procedure](#) (SLAC-I-720-0A21C-007)
  - [Work Planning and Control: Stop Work Procedure](#) (SLAC-I-720-0A21C-003)
  - [Work Planning and Control: Area Hazard Analysis Procedure](#) (SLAC-I-730-0A21C-026)
  - [Work Planning and Control](#) (includes online tools)
- [Chapter 55, "Site Access Control"](#)
  - [Site Access Control: General Requirements](#) (SLAC-I-720-0A04S-001)

Other SLAC Documents

- [Work Planning and Control: SSRL User Implementation for User Experiments](#) (ESRD-WPC-001)
- [Human Resources: Policies and Guidelines](#)
- [Incidents Metrics Dashboard](#)
- [Lessons Learned](#)

Other Documents

- Occupational Safety and Health Administration (OSHA). Job Safety Analysis ([OSHA Publication 3071](#))
- Department of Energy Handbook 1211, "Activity-Level WPC Implementation" ([DOE-HDBK-1211](#))
- Stanford University. Administrative Guide Memo 7.5.1, ["Health and Safety Performance Standards and Discipline"](#)