

Chapter 2: [Work Planning and Control](#)

Procedure

Product ID: [451](#) | Revision ID: 1257 | Date published: 17 December 2010 | Date effective: 17 December 2010

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

1 Purpose

The purpose of work planning and control (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 release, and to ensure work is 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 Procedures

2.1 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 or special ESH training (for example, ladder safety). 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 building or area manager, if required on the *area hazard analysis (AHA)*. Otherwise, if the worker is familiar with the area, has read the AHA, has no ESH concerns and adheres to all postings, he or she may enter the area to perform green work.
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 his or her resident area, a *job safety analysis (JSA)* or *standard operating procedure (SOP)* is typically 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. A summary of the planning efforts is documented with a *work integration plan (WIP)* by the work planner and concurred with by the work planner's line manager. A coordination meeting is held to discuss the activities, timing, permits, and so on until the area manager is satisfied that a release may be granted. Unless all workers are present at the coordination meeting, a *pre-job/tailgate briefing* is required to release work for each worker prior to beginning any activity. 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.

2.2 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 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 the AHA. The results are documented in some form of *work plan*, which forms the basis for authorization and release.

Authorization means that the SLAC employee who authorizes the work

1. Is sufficiently knowledgeable of the hazards to plan and authorize such work
2. Has determined the work appropriately 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 as defined in the scope are qualified
5. Has discussed hazards and controls with those persons

Work is typically authorized by the supervisor of the person performing such work. The knowledgeable SLAC employee who authorizes work is accountable for its performance. For construction subcontractor or high risk subcontractor work, the facility construction manager (FCM) or the service manager (SM), respectively, confirms that the subcontractor's foreman/supervisor has authorized the work with a JSA. For all other subcontractor work, the SLAC point of contact (POC) authorizes work.

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

1. Unique 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). For construction projects, the building or area manager typically transfers daily release to the FCM, who ensures that documented releases occur.

2.3 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, [ESH Course 219](#), Employee Orientation to Environment, Safety, and Health [EOESH]; for non-employees who will be working at SLAC and need unescorted access to SLAC laboratory or industrial areas and/or controlled areas, [ESH 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 (that is, industrial) type areas:
 - Groups of visitors, tour groups, photo opportunities, lab-wide events (for example, Kids Day and holiday parties) and other activity similar to these require a release from the area manager, if there is one, otherwise the building manager.
 - 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 unique hazards and subsequent controls, as well as potential conditions of entry prior to granting 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 after adhering to the construction site access requirements.
 - Always reference posted signage for additional ESH 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.

2.4 Yellow and Red Work

Yellow and red work at the activity level is authorized with either an ATA or JSA/SOP. All SLAC employees who perform non-green work must have an ATA. If work is performed outside the employee's resident area, it is expected that a JSA or SOP will be written to authorize such work. In limited cases and at the discretion of the authorizing supervisor, an ATA may be used to authorize work outside the resident area. However, care must be taken not to write a multi-page ATA with the intent of using it to address all work an employee may execute at any SLAC location. It is imperative to remember that the purpose of the JSA or SOP is to address and communicate to the worker unique or specific hazards as a result of the condition of the equipment being worked on, the location of the work, the significance of negative consequences if a step is omitted or performed out of sequence, and so on.

Should a subject matter expert identify specific or unique PPE for work in a worker's resident area, the supervisor should consider writing a JSA/SOP rather than rely on the ATA. The supervisor should consider writing a JSA for work in a resident area, if the hazards or controls are unique or otherwise not often encountered.

For those 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.

Step	Function	Action
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Define the Work		
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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: <ul style="list-style-type: none">▪ Name and department of requester▪ 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 For yellow resident work The request may be verbal or in writing. 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).
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2.	Authorizer	Reviews the request: <ul style="list-style-type: none">▪ If work is within the scope of services provided by the organization, initiates planning▪ If not, asks requester to resubmit to appropriate service provider

Step	Function	Action
Plan - Identify and Analyze Hazards and Develop and Implement Controls		
3.	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 ▪ 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) ▪ Ensuring the work plan is reviewed for ESH concerns <p>Steps, hazards and controls are documented using</p> <p>For yellow resident work Activity and training authorization (ATA) (pdf or Word)</p> <p>For yellow non-resident work Job safety analysis (JSA) (pdf or Word) or standard operation procedure (SOP) (pdf or Word), plus required permits</p> <p>For red work JSA or SOP for the work + work integration plan (WIP) (pdf or Word) Plus all required permits, plans, and other specifications (see the Hazard Evaluation and Planning eTool for identifying SLAC ESH permits, plans and other requirements)</p> <p>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.</p>
4.	Authorizer	<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		
5.	Authorizer	<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 person who authorizes the work is accountable for its performance. Authorization is documented by</p>

Step	Function	Action
		<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. If subject matter expert requires PPE to carry out unique or infrequent work in a resident area, a JSA should be written.</p> <p>For yellow non-resident work</p> <p>JSA or SOP</p> <p>Evidence of authorization: JSA/SOP cover sheet signed by the supervisor and each worker. For subcontractor work, the foreman or superintendant authorizes their work. The SLAC POC affirms the authorization is documented.</p> <p>JSA or SOP cover sheet only needs to be signed once for each job, unless it is changed. This also applies to subcontractors. The subcontractor's JSA only needs to be signed once, unless it is changed.</p> <p>Note some activities performed outside a worker's resident area may be authorized via an ATA only, if the hazards and controls are adequately documented on the ATA. Examples include routine moving of materials with a forklift, routine facilities service calls when no permits are required and receiving chemical shipments. The supervisor is accountable for determining when an ATA is adequate.</p> <p>For red work</p> <p>Evidence of authorization: JSA/SOP cover sheet signed by the supervisor and each worker. For construction or high risk subcontractor work, the foreman or superintendant authorizes their work. The SLAC FCM or SM affirms the authorization is documented.</p> <p>Plus all required permits, plans, and other specifications (see the Hazard Evaluation and Planning eTool for identifying SLAC ESH permits, plans and other requirements)</p> <p>Subcontractors only need to sign the JSA once for each job, unless the JSA is changed.</p>
6.	Releaser	<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 subcontractor work, the POC secures a release from the area manager, if there is one, otherwise the building manager, and subsequently holds a documented pre-job/tailgate meeting to release the subcontractors.</p> <p>For red work</p> <p>Building or area manager reviews the WIP, coordinates release-related details, and concurs that work may proceed by signing the WIP.</p> <p>Any boundary conditions, such as calling the MCC or duty operator, attending daily</p>

Step	Function	Action
		<p>coordination meetings for a release, etc. shall be noted on the WIP.</p> <p>For work within construction sites, the functional responsibility of the building or area manager is passed to the facility construction manager (FCM). Thereafter, the FCM ensures daily release of work.</p> <p>Evidence of a signed WIP must be available to document coordination and building or area manager concurrence.</p> <p>If there is a delay in the start of work after being given a 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.</p>
7.	Worker and authorizer	<p>Authorizer ensures a pre-job/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 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 (see the Construction Tailgate/Pre-job Release Form [pdf or Word] or Non-construction Tailgate/Pre-job Release Form [pdf or Word]).</p>
Perform the Work within Controls		
8.	Worker and authorizer	<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>
9.	All workers	<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 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

Step	Function	Action
		<ul style="list-style-type: none"> 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. See the Work Planning and Control: Stop Work Procedure.</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>
10.	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 a secure state.</p>
11.	Authorizer	<p>Final Completion of Work</p> <p>Ensures the work site is left in a clean and safe condition</p>
Feedback and Continuous Improvement		
12.	Worker and Authorizer	<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>
13.	WPC Program Manager	Evaluates WPC process feedback for continuous improvement opportunity
14.	Authorizer /project manager/requester	<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 90 days to enable review for lessons learned and WPC process improvements</p> <p>For red work</p> <p>Project manager/requester closes out and retains for 90 days to enable review for lessons learned and WPC process improvements</p>

3 Forms

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 JSAs or SOPs and permits for non-resident work, and work integration plans and pre-job/tailgate briefings for some yellow and all red work.

The following forms are required by this procedure:

- Work Planning and Control: Activity Training and Authorization Form (SLAC-I-730-0A21J-033) ([pdf](#) or [Word](#))
- Work Planning and Control: Job Safety Analysis Form (SLAC-I-730-0A21J-034) ([pdf](#) or [Word](#))
- Work Planning and Control: SOP Authorization and Release Form (SLAC-I-730-0A21J-035) ([pdf](#) or [Word](#))
- Work Planning and Control: Work Integration Plan Form (SLAC-I-730-0A21J-036) ([pdf](#) or [Word](#))
- Work Planning and Control: Construction Tailgate/Pre-job Release Form (SLAC-I-730-0A21J-037) ([pdf](#) or [Word](#))
- Work Planning and Control: Non-construction Tailgate/Pre-job Release Form (SLAC-I-730-0A21J-038) ([pdf](#) or [Word](#))
- [Hazard Evaluation and Planning eTool](#)

4 Recordkeeping

The following recordkeeping requirements apply for this procedure:

- Red work packages must be kept by the project manager or FCM for 90 days after the job is complete. Yellow work packages must be kept by the authorizing supervisor's organization for 90 days after the job is complete.
- Consideration should be given to retaining information that may be useful for future projects or activities. For example, creating JSAs using the online tool will auto-save them in a library. Scanning and uploading documentation to the WPC site would also allow information to be available for future reference. (See ["Work Planning & Control"](#) for online tools.)

5 References

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

- [Chapter 2, "Work Planning and Control"](#)
 - [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 & Control"](#) (includes online tools)
- [Training: Minimum Training Requirements](#) (SLAC-I-720-0A04S-001)

Other SLAC Documents

- [Safety Comes First Checklist](#)

- ESH Course 219, Employee Orientation to Environment, Safety, and Health (EOESH) ([ESH Course 219](#))
- ESH Course 396, Safety Orientation for Non-Employees (SON) ([ESH Course 396](#))
- [Work Planning and Control: SSRL User Implementation for User Experiments](#) (ESRD-WPC-001)
- [“Lessons Learned”](#)