Chapter 2: Work Planning and Control

Work Planning and Control Procedure

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 seven 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. Authorize work
5. Release work
6. Perform work within controls
7. Feedback and continuous improvement

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

It applies to all workers (including SLAC employees, subcontractors, users, students, interns, department associates, and Department of Energy [DOE] employees); their supervisors; field construction and service managers; and area and building managers.

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 2.3 and 1.1 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 his or her 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 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/manager authorizes the work but the SLAC field construction manager (FCM) or the service
manager (SM), respectively, confirms the authorization. The SLAC point of contact (POC) authorizes 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 Chapter 24, “Training,” specifically requires supervisors 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 Real Time Case Reporting)
- 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 FCM, who then releases work to the subcontractor.

### 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 2.3 and 1.1.

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, he or she 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 Assessment (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 his or her 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.
2.3 Green Work Procedure

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

<table>
<thead>
<tr>
<th>Step</th>
<th>Person / Function</th>
<th>Action</th>
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<tbody>
<tr>
<td>Authorization</td>
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</table>
| 1. | Worker | Completes required new employee/worker safety training (see Training: Minimum Training Requirements)  
Completes New Employee Information Sheet and Checklist (or equivalent for users and subcontractors) |
| | | |
| 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  
Supervisor solicits and reviews feedback to determine if a lessons learned item or an opportunity for continuous improvement has been identified. |
## 2.4 Yellow and Red Work Procedure

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<tr>
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<tr>
<td><strong>Define the Work</strong></td>
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<tr>
<td>1.</td>
<td>Requester</td>
<td>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:</td>
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<tr>
<td></td>
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<td>- Name and department of requester</td>
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<td></td>
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<td>- Location of work to be performed</td>
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<td></td>
<td>- Description of service/work needed</td>
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<td></td>
<td></td>
<td>- Any special instructions, considerations, known area hazards, and access requirements/training</td>
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<td>- Charge number, if required</td>
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</tbody>
</table>

**Plan - Identify and Analyze Hazards and Develop and Implement Controls**

| 2. | Planner | Develops work plan by |
| | | - 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 |
| | | Steps, hazards, and controls are documented as follows |
| | | **For yellow resident work** |
| | | Not required |
| | | **For yellow non-resident work** |
| | | 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.) |
| | | 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 (see Section 2.2). |
| | | **For red work** |
| | | 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. |
| | | 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: |
| | | - Affirming the planned work has been reviewed and approved, as appropriate |
| | | - 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 he or she has 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 and each worker. For subcontractor work, the foreman or superintendent authorizes their work. The SLAC POC affirms the authorization is documented by reviewing the JSA.

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.

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 and each worker. For construction or high-risk subcontractor work, the foreman or superintendent authorizes work. The SLAC FCM or SM affirms the authorization is documented by reviewing the JSA.

Plus all required permits, plans, and other specifications (see the Hazard Evaluation and Planning eTool for identifying SLAC ESH permits, plans and other requirements)

Subcontractors only need to sign the JSA once for each job, unless the JSA is changed.

### 5. Releaser

**Release**

**For yellow resident work**
**Step 2.1**

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<tr>
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<tr>
<td>Supervisor</td>
<td>releases work, if he or she controls the area, via a valid STA and discussion of work tasks and associated hazards and controls with worker.</td>
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<tr>
<td><strong>For yellow non-resident work</strong></td>
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<tr>
<td>Area or building manager</td>
<td>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.</td>
</tr>
<tr>
<td>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.</td>
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<tr>
<td><strong>For red work</strong></td>
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<tr>
<td>Area or building manager</td>
<td>reviews the WIP, coordinates release-related details, and concurs that work may proceed by signing the WIP.</td>
</tr>
<tr>
<td>Any boundary conditions, such as calling the Main Control Center or duty operator, attending daily coordination meetings for a release, must be noted on the WIP.</td>
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<tr>
<td>For work within construction sites, the functional responsibility of the area or building manager is passed to the field construction manager (FCM). Thereafter, the FCM ensures daily release of work to the general contractor, who then releases the sub-tier contractors.</td>
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<tr>
<td>Evidence of a signed WIP must be available to document coordination and area or building manager concurrence.</td>
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<tr>
<td>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.</td>
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**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 his or her workers to execute.

Evidence of a tailgate briefing must be available for all high-risk subcontractor work and all red work to document that individuals who attend the meeting understand the work and its inherent hazards and controls:

- **Daily Construction Work Review and General Contractor Release Form** is used to document release by the FCM of the general contractor on construction jobs
- **Construction Tailgate/Release Form** is used to document release by the general contractor of sub-tier contractors, and by the FCM of SLAC workers, on construction jobs
- **Service Subcontractor Construction Site Release Form** is used to document release by the FCM of service subcontractors requiring access to a construction site
- **Non-construction Tailgate/Release Form** is used to document release by SLAC
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<tr>
<td></td>
<td></td>
<td><strong>Perform the Work within Controls</strong></td>
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<td></td>
<td><strong>Worker and authorizer</strong></td>
<td><strong>Work Execution</strong>&lt;br&gt;<strong>Worker</strong> 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.&lt;br&gt;<strong>Authorizer</strong> ensures that work is performed as detailed in the work plan&lt;br&gt;<strong>Authorizer</strong> ensures that the complete work plan, with all pertinent documentation, is available for reference at or near the work site</td>
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<tr>
<td>7.</td>
<td><strong>All workers</strong></td>
<td><strong>Stop Work</strong>&lt;br&gt;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.&lt;br&gt;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&lt;br&gt;- Change in work scope (change in sequence or footprint, different parts, intermediate outcomes not as expected)&lt;br&gt;- Change in start or stop dates or times&lt;br&gt;- Change in work location&lt;br&gt;- Changes that increase or introduce new hazards or environmental impacts&lt;br&gt;<strong>If the change does not create an imminent danger,</strong> 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.&lt;br&gt;<strong>If the change creates an imminent danger,</strong> 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.</td>
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<td>8.</td>
<td><strong>Worker</strong></td>
<td><strong>Hazard Control</strong>&lt;br&gt;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&lt;br&gt;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.</td>
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<tr>
<td>9.</td>
<td><strong>Authorizer</strong></td>
<td><strong>Final Completion of Work</strong>&lt;br&gt;Ensures the work site is left in a clean and safe condition</td>
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<tr>
<td>10.</td>
<td><strong>Worker and authorizer</strong></td>
<td><strong>Lessons Learned</strong>&lt;br&gt;<strong>Supervisor</strong> should solicit and review feedback to determine if a lessons learned item or an opportunity for continuous improvement has been identified. If a lessons</td>
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</table>
### Step 12

**Person / Function:** WPC program manager  
**Action:** Evaluates WPC process feedback for continuous improvement opportunity

### Step 13

**Person / Function:** Authorizer / project manager / requester  
**Action:** Closeout  
- **For yellow resident work:** Once all work activities have been completed  
- **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  
- **For red work:** Project manager/requester closes out and retains for 90 days to enable review for lessons learned and WPC process improvements

### 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 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 and red work
- **Work Planning and Control: SOP Authorization and Release Form** (SLAC-I-730-0A21J-035). Form for documenting authorization and release of yellow and red 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: Daily Construction Work Review and General Contractor Release Form (SLAC-I-730-0A21J-055). Form for documenting release by the FCM of the general contractor on construction jobs

Work Planning and Control: Construction Tailgate/Release Form (SLAC-I-730-0A21J-037). Form for documenting release by the general contractor of sub-tier contractors, and by the FCM of SLAC workers, on construction jobs

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

Work Planning and Control: Service Subcontractor Construction Site Release Form (SLAC-I-730-0A21J-054). Form for documenting release by the FCM of service subcontractors requiring access to a construction site

Hazard Evaluation and Planning eTool

SLAC Training Assessment (STA)

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.

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 and Control (includes online tools)

- Chapter 24, “Training”
  - Training: Minimum Training Requirements (SLAC-I-720-0A04S-001)

Other SLAC Documents

- New Employee Information Sheet and Checklist
- Work Planning and Control: SSRL User Implementation for User Experiments (ESRD-WPC-001)
- Human Resources: Policy and Guidance
- Real Time Case Reporting
- Lessons Learned

Other Documents
- Occupational Safety and Health Administration (OSHA). Job Safety Analysis (OSHA Publication 3071)