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Author(s): Simpson, Lewis Edward

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Integrated Work Management: FOD/RLM

COURSE 31882

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Central Training-Institutional Training Services Group Leader
Cindy Dutro

Instructional Designer
Sandy Simpson

Technical Advisor
Cheryl Lucas

Editor/Compositor
Lisa Rothrock

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Introduction

Course Overview

The facility operations director (FOD) and responsible line manager (RLM) play leadership and functional roles in the integrated work management (IWM) process at Los Alamos National Laboratory (LANL). This course, *Integrated Work Management: FOD/RLM* (COURSE 31882), describes the IWM roles and responsibilities of the FOD and the RLM; it also discusses IWM requirements that must be met by the FOD and the RLM.

Before taking this course, you may want to take COURSE 31881, *Integrated Work Management: Overview*. This self-study course would be particularly helpful if you are unfamiliar with the IWM process. You should also read Procedure (P) 300, *Integrated Work Management*.

This course briefly covers the roles of the preparer and person in charge (PIC). For more in-depth instruction on the preparer's role, see COURSE 31883, *Integrated Work Management: Preparer*. For instruction on the PIC's role, see COURSE 31884, *Integrated Work Management: PIC*.

Course Objectives

At the end of this course, you will recognize the FOD's and the RLM's roles, responsibilities, and requirements associated with

- Defining work
- Analyzing hazards
- Developing controls
- Writing the integrated work document (IWD)
- Performing a validation walk-down of the IWD
- Conducting a pre-job briefing with the workers
- Formally releasing work
- Performing the work
- Conducting periodic readiness checks
- Conducting a post-job review with the workers

Program Owner

This course was developed under the direction and technical oversight of the Associate Director for Nuclear and High-Hazard Operations (ADNHHO), the functional program owner for this training.

Target Audience

This course is required for FODs and RLMs who manage personnel working with IWDs for moderate-hazard and high-hazard/complex activities. For additional training requirements, see P300, *Integrated Work Management*.

IWM Requirements Documents

The primary LANL document that establishes and describes IWM requirements is P300, *Integrated Work Management.* RLM responsibilities are described in P300, Section 4, *Responsibilities.*

About This Self-Study Course

Integrated Work Management: FOD/RLM, COURSE 31882 consists of an introduction, two modules, and a quiz. To receive credit in UTrain for completing this course, you must score 80% or better on the 10-question quiz. Directions for initiating the quiz are appended to the end of this training manual.

Note: *In this course, the term "IWD" refers to any integrated work document or equivalent work control document(s) [WCD(s)]. The term "preparer" may also refer to "planner" in some organizations.*

Acronyms

ADNHHO	Associate Director of Nuclear and High-Hazard Operations
DOE	Department of Energy
ESH&Q	Environment, Safety, Health and Quality
FOD	Facility Operations Director
IWM	Integrated Work Management
IWD	Integrated Work Document
LANL	Los Alamos National Laboratory
P	Procedure
PIC	Person in Charge
POC	Point of Contact
RLM	Responsible Line Manager
SME	Subject Matter Expert
WCD	Work Control Document

Module 1: RLM and FOD Responsibilities

Introduction

The IWM process can be divided into the following nine steps:

1. Define the work
2. Analyze hazards
3. Develop controls
4. Prepare the IWD
5. Perform a validation walk-down of the IWD
6. Conduct a pre-job briefing and release of work
7. Perform the work safely, securely, and in an environmentally responsible manner
8. Conduct periodic readiness checks
9. Conduct a post-job review

The RLM and the FOD are involved in all steps of the process, often including leadership roles. As the RLM or FOD, your role may sometimes be to authorize actions; at other times, you will play a direct role, such as determining hazard levels or authorizing workers. You may also assign personnel to perform IWM functions, such as the preparer, PIC, subject matter expert (SME), or FOD point of contact (POC). In any case, you will need to understand the entire IWM process.

As a review, the following sections discuss RLM and FOD responsibilities.

RLM Responsibilities

The RLM is the line manager (or group-level manager or equivalent subcontractor line manager) having the responsibility, authority, and accountability to plan, validate, coordinate, approve, execute, and close out work activities in accordance with IWM.

The RLM ensures that

- Work is defined in sufficient detail to assess the safety, security, and environmental compliance risks
- Work and environmental hazards have been identified, analyzed, and graded to determine IWM and environmental control requirements
- Effective controls are established to reduce risks to an acceptable level and documented in IWDs or alternative WCDs so that workers can understand when and how these controls are to be used
- An inventory of work within the RLM organization is maintained. The inventory should contain the name of the activity, the owner, and the location
- All workers possess the knowledge, skills, abilities, and training required to handle the hazards and effectively use the proposed controls

The RLM is accountable to the FOD and responsible associate director (RAD) to ensure that activities are conducted within the safety envelope of the facility and do not place the public, co-located workers, or the environment at risk.

The RLM provides approval by signing the IWD, Form 2100, or other WCD based on confidence that the IWD/WCD has been properly prepared and that the work can be performed in accordance with the IWD/WCD; within Environment, Safety, and Health (ES&H)/Safeguards and Security (S&S) requirements; and within facility requirements and capabilities.

The RLM ensures that work proceeds in a safe, secure, and environmentally responsible manner:

- The RLM considers appropriate lessons learned and operating experience for the work being performed.

FOD Responsibilities

The FOD is accountable to the RAD and ADNHHO for effectively implementing institutional programs, including this document.

The FOD

- May delegate IWM-related roles and authorities to representatives but cannot delegate responsibility or accountability
- Serves as the senior line manager who provides facility owner stewardship, with responsibility for overall facility operations
- Provides organizational leadership for Facility Maintenance; Operations; Environment, Safety, Health and Quality (ESH&Q), S&S; Waste Services; and Facility Engineering
- Coordinates the efforts of the respective managers to ensure that all facility and programmatic activities are performed in a safe and compliant manner
- Facility operations-related, deployed personnel will report through the FOD; exceptions for unique reasons will report through the RAD
- Controls and manages activities within their facility to ensure that the facility complies with Laboratory, Department of Energy (DOE), and governmental orders and requirements, including institutional safety management programs
- Establishes and maintains the authorized facility safety basis(es)
- Determines the need for a new activity review per SBP-111-3, *New*, or Changed Activity Approval Process
- Reviews all WCDs and authorizes all programmatic and facility work to ensure that applicable regulatory, contractual, and institutional programs and requirements are fully implemented. Work document reviews include the following considerations:
  - Work is appropriate to be conducted in the facility
  - Work area hazards have been addressed
  - The activity is within the scope of the facility safety basis

  - Governmental and institutional requirements, including safety management programs, have been fully implemented through hazards identification and the use of appropriate controls

  - Appropriate SME reviews have been completed

- Documents the review and authorization of programmatic and facility work by signing all IWDs and/or equivalent WCDs

Module 2: The IWM Process

Define the Work

Defining the work is the first step of the IWM process and forms the foundation for the rest of the steps. P300 requires that the work components and processes be defined in sufficient detail to identify and analyze hazards and the circumstances in which they could cause harm. Both the work activity and the facility work location must be examined. It is the RLM's responsibility to document and define information concerning the work activity, whereas it is the FOD's responsibility to document and communicate information about the work area (facility).

Assign a Preparer

One of the RLM's responsibilities is to assign a preparer to lead the work definition step. Besides defining the work, the preparer will also lead the effort to analyze hazards, identify controls, and write the IWD. Therefore, the RLM must assign a person who has the knowledge, skills, and abilities to perform these functions. To learn more about the preparer's job, read COURSE 31883, *Integrated Work Management: Preparer*.

As the RLM, you will provide the preparer with a list of potential workers who will be performing the activity. The preparer will need to contact these people and involve them in the IWM process. If the PIC and alternate PICs have been identified, tell the preparer so that he or she can communicate with them. Finally, identify the location where the work will be performed, and identify the FOD responsible for that facility.

The PIC must interact with the FOD, as well as the RLM. The preparer could be more familiar with the activity-specific aspect of the work than with the facility aspect; however, the FOD must ensure that the activity aligns with

- Authorized facility safety basis(es) and authorization agreements
- Laboratory, DOE, and governmental orders and requirements, including institutional safety management programs

Therefore, the RLM and FOD management team must work together to provide the preparer with a balanced view of the work definition.

Maintain a Work Inventory

Each RLM must maintain an inventory of the ongoing work activities for which he or she is responsible. This inventory must contain, at a minimum, the names and locations of the work activity and the associated hazard grades.

Analyze the Hazards

Hazards and accident scenarios that could cause harm must be identified and analyzed using a graded approach to determine what controls are needed to eliminate or reduce the hazards to manage risks to an acceptable level.

- The RLM or designee will, in conjunction with the work planners, determine the hazard grading level with input from the workers or worker representatives and the SMEs.
- As part of this determination, RLMs will consult with the appropriate ES&H SME, as necessary, to determine the complexity of a work activity and its impact on the determination of hazard level and risk.
- The RLM makes the final decision on the hazard level based typically on input from SMEs, unless the RLM is also an SME relative to the work to be performed.
- The impact of the planned work on co-located activities and workers must be considered and addressed.

Assigning the Hazard Level

The *Hazard Grading Table*, Attachment B of P300, must be used by the RLM or designee (who in most cases is the PIC) to assign the hazard level of each activity. Attachment B designates three IWM hazard levels: low, moderate, and high/complex; each has specific requirements. (***Note:*** *The examples listed in the table are meant to be illustrative and do not represent a complete set of hazards.*)

- When answering the hazard grading questions, both activity and work-area hazards must be considered, such as when a low-hazard activity is performed in an area where it is co-located with high-hazard/complex work activity hazards.
- When in doubt about the appropriate grading level, use the next-highest level.
- Consult with SMEs who have specific process knowledge or knowledge of the applicable hazards to assist with hazards classification.

To access P300, Attachment B, go to

LANL home page > Safety > Integrated Work Management > Tool Box > Hazards Analysis Aids > Hazard Grading Table (pdf) (http://int.lanl.gov/safety/integrated_work_management/toolbox/index.shtml).

SME Review

P300 recognizes two types of SMEs: ES&H and technical. Participation by either ES&H or technical SMEs or both may be necessary to define the work adequately, identify hazards, and evaluate the adequacy of controls.

- ES&H SMEs include designated organizational experts representing LANL core safety programs, such as radiological control technicians, industrial hygienists, waste management coordinators, and electrical safety officers. ES&H SME participation is required during the hazards analysis associated with high-hazard/complex activities and may be required during the hazards analysis for moderate-hazard activities (see the following table from P300).

Environment, Safety, and Health (ES&H) SME Involvement			
	Activity		
Hazard Level	Hazard Category	Define Work	Hazards Analysis
High/Complex	SME recommended	SME recommended	SME mandatory
Moderate	SME recommended	SME recommended	SME recommended/ mandatory*
Low	SME recommended	SME recommended	n/a
**SME participation is mandated by specific requirements when moderate-hazard (and high-hazard/complex) work involves, but is not limited to, activities such as energized electrical, explosives, radiological, beryllium, confined space, hot work, and/or environmental. SMEs may reside in ES&H divisions or may be deployed to the various FODs. In addition, there are programs where the SME resides within the line organizations (e.g., electrical, explosive, and laser safety officers).*			

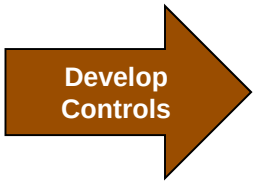
It is very important to ensure that the appropriate SMEs are included in the process. The following lesson learned resulted from a failure to recognize the need for assistance from an ES&H SME:

On March 20, 2009, a technician came into contact with about 3570 volts direct current (dc). The dc shock resulted in small second-degree burns on a thumb and one finger, a first-degree burn on another finger, and two small second-degree burns on his stomach. A subsequent investigation determined that, because of a weakness in the hazards analysis for this activity, an appropriate SME was not included in the hazards analysis review; therefore, the electrical hazards and activity controls were not properly evaluated.

For additional details, see the *LANL Team Investigation Report for the Electrical Shock Event* (LA-UR-09-02399).

Technical SMEs include technical or programmatic experts who have knowledge relevant to the hazards involved in the work or the work process itself. For moderate-hazard and high-hazard/complex research and development (R&D) work, the participation of technical SMEs on the hazards analysis review team is required.

Develop Controls



After the hazards have been analyzed, controls are chosen. P300 requires that specific controls be chosen for each hazard and that these choices be documented in an IWD. The RLM's responsibility is to establish effective controls to reduce risks to an acceptable level and document them in an IWD so that workers can understand when and how the controls are to be used. The task is generally delegated to the preparer. See COURSE 31883, *Integrated Work Management: Preparer,* for more information about selecting controls.

Controls must be defined and implemented, as needed, to reduce the hazards associated with the work to an acceptable level. To mitigate the hazards effectively, the hazards analysis team must

- Identify all requirements and controls applicable to the planned work
- Input appropriate controls into the WCDs based on the outcome of the hazards analysis
- Use controls selected based on their ability to reduce the probability and/or consequence of adverse events
- Establish controls based on the following hierarchy:
    1. Elimination or substitution of the hazards where feasible and appropriate
    2. Engineering controls where feasible and appropriate
    3. Work practices and administrative controls that limit worker exposures

4. Personnel protective equipment

- Analyze, with a rigor commensurate with the hazard level, potential failures of controls, equipment, utilities, facility systems, procedures, or human factors and establish enhancements and/or alternatives as needed
- Develop permits, plans, or special procedures required for the work, as specified by institutional procedures such that conflicts in hazards and controls and inconsistencies between documents, including the WCD, are resolved

Examples of types of required permits, plans, or procedures include

- Energized Electrical Work Permit
- Excavation/Fill/Soil Permit Identification
- National Environmental Policy Act
- Air Permit
- Resource Conservation and Recovery Act (RCRA)
- Penetration Permit
- Spark- or Flame-Producing Permit
- Confined Space Entry Permit
- Lockout/tagout specific written procedure
- Radiological Work Permit (RWP)
- Fall Protection Plan

Negotiating Shared Space/Shared Activities

In cases in which workers need to perform work in spaces owned by a different organization, the RLM authorities may be divided by agreement between the worker's organizational RLM and RLMs associated with the activity and/or the workspace. All involved RLMs must also be notified of all off-normal events involving the worker, regardless of location or activity.

Guidance for shared space activities is provided through the IWM Toolbox on the IWM website:

LANL home page > Safety > Integrated Work Management > Tool Box > Guidance Documents > Negotiating Shared Space/ Shared Activities (pdf), (http://int.lanl.gov/safety/integrated_work_management/toolbox/index.shtml)

Prepare the IWD

The IWM forms are located in the LANL Forms Center and can be accessed through the IWM website Toolbox under http://int.lanl.gov/safety/integrated_work_management/toolbox/index.shtml.

An IWD or equivalent WCD is a key document used in the IWM process to describe the work activity, identify the hazards, and link them to specific controls. One of the RLM's responsibilities is to document controls in the IWD so that workers can understand when and how the controls are to be used. However, the preparer is generally delegated the responsibility of writing *IWD Part 1, Activity Specific Information*, and *IWD Part 2, FOD Requirements and Approval for Entry and Area Hazards and Controls*. *IWD Part 3, Validation and Work Release*, and *IWD Part 4, Feedback/Post Job Reviews*, are completed by the PIC. Alternatively, an equivalent WCD may be used instead of the IWD.

The forms referenced in P300 are used to complete the four parts of the IWD. The IWD or equivalent WCD must meet the following criteria:

- The IWD must be worker friendly (e.g., short, well organized, integrated, consolidated, and easily reviewed) and contain only that information needed by the worker.
- Activities must be described in sufficiently detailed tasks/steps to ensure that the worker can understand the associated ESH&Q and security and safeguards hazards, concerns, and potential accidents and/or incidents.

For more information about types of IWDs and the parts of an IWD, see COURSE 31883, Integrated Work Management: Preparer.

- Tasks and steps must be listed sequentially when such sequencing contributes to the safety, security, and/or environmental protection of the activity.
- Hazards and the associated controls must be linked to specific activity tasks and steps when such linkage will contribute to the worker's understanding of the risks and use of the controls.
- Activity and work-area hazards and the associated controls must be addressed.
- Hazards and associated controls must be specific and not generic.
- Training, authorizations, approved permits, and area postings must be referenced if they are required controls; if these controls are used, specific details do not have to be listed.

Perform a Validation Walk-Down of the IWD

Up to this point in the IWM process, an RLM has appointed a preparer to coordinate most of the IWM responsibilities. The coordination process is now transferred to the PIC, who is also appointed by the RLM. The PIC's role is briefly described in this course, focusing on the RLM and FOD interface with the PIC. For a more complete description of the PIC's roles and responsibilities, see COURSE 31884, *Integrated Work Management: PIC*.

The Walk-Down

Before any work is released, a "validation walk-down" of the IWD or equivalent WCD must be performed to review tasks and steps for workability and to ensure that the hazards and controls are described effectively. The walk-down should be performed at the work site, when possible, and as close in time as feasible to the actual start of the work. This validation walk-down of the IWD must involve the PIC and workers (or qualified worker representatives of those who will participate in the work) and SMEs for high-hazard/complex work or when determined appropriate by the RLM and/or PIC.

RLMs and FODs do not have specific tasks to perform during the validation walk-down. However, the RLM assigns and approves the preparer, the PIC, and any alternate PICs for the activity and authorizes the workers. The FOD ensures that facility conditions are communicated to the preparer, the PIC, and the workers. Although many tasks have been delegated to others, it is the ultimate responsibility of the RLM and FOD to determine that conditions encountered during the validation walk-down match the IWD.

Work Approval and Authorization

A work activity must be approved, authorized, and released before the activity begins. At the completion of work planning, the RLM approves the work activity by reviewing and signing the IWD Part 1 (Form 2100) or equivalent WCD documenting his or her confidence that the IWD/WCD was properly prepared, the hazard grading determination is appropriate, a PIC is assigned, and the work will be performed in accordance with the IWD/WCD. The FOD or FOD designee authorizes the work by reviewing the IWD Part 1 (Form 2100) (for moderate or high-hazard work activities) and/or the IWD Part 2 (Form 2101, IWD Part 2, *FOD Requirements and Approval for Entry and Area Hazards and Controls, Non-Tenant Activity Form*) or equivalent WCD, ensuring that work area hazards have been addressed [via Form 2101/2102 (Form 2102, IWD Part 2, *FOD Requirements and Approval for Entry and Area Hazards and Controls, Tenant Activity Form*) or the Form 2100 section on work area information] and signing the IWD/WCD. The FOD's signature indicates that the work is appropriate to be conducted in the facility, the work is within the documented safety analysis, and work performed in accordance with the IWD/WCD will meet applicable Laboratory environmental, safety, and security requirements and DOE Orders and regulations.

Note: *The tenant form is briefer than the non-tenant form because tenants are more familiar with the facility and would have had previous site-specific training regarding facility hazards.*

The RLM and FOD also approve and authorize significant changes to the IWD by re-signing Parts 1 and 2 of the IWD or equivalent WCD. To increase the efficiency of the IWM process and because significant changes must be approved and authorized, the PIC and workers must perform the validation walk-down before initially obtaining RLM and FOD signatures. Otherwise, the IWD/WCD must be reapproved if changes are made because of discrepancies found during the walk-down.

Documentation of the validation walk-down is required on Form 2103, *IWD Part 3, Validation and Work Release*. For high-hazard/complex work, the validation walk-down must also involve appropriate SMEs, and subsequent walk-downs will be determined by the RLM or PIC based on the hazards and complexity of the activities. Any issues identified during the validation walk-down must be resolved before the work is started.

Document Control Requirements

WCDs must be kept current; they must be revised and reauthorized as appropriate, incorporating information from ongoing readiness checks and lessons learned. To ensure that only the most current and approved versions are used to guide work, P300 also requires effective document control for WCDs.

Effective document control must include an effective change control process that communicates changes to workers as soon as these changes are made and approved. The change control process must also ensure that workers have the currently approved work control documentation. For the purposes of change control and records management, the four parts of the IWD (or equivalent WCDs) may be treated as separate documents.

Coordination of Activities with Multiple Workers/Locations

Coordination of activities involving multiple workers, workers from multiple line organizations, or workers at multiple locations poses additional challenges to the work control process. In some cases, the activity may be divided into multiple IWDs, thereby reducing the complexity of the individual IWDs. In such situations, it is important that interfaces between individual IWDs be well defined and not introduce gaps in the work control process or create uncertainty in expected conditions or roles.

In cases where multiple line organizations must be involved within the scope of a single IWD (either because workers are from multiple organizations or because the activity will occur in shared space), P300 requires responsibilities to be defined clearly for each RLM before the work begins. For this purpose, one RLM and one PIC at any given time must have overall responsibility for ensuring that the work is defined adequately, the hazards are analyzed and mitigated, and the team and work site are ready (see P300 Section 3.1.1, *Define the Work*, for a more detailed discussion).

Conduct a Pre-Job Briefing and Release of Work

Pre-Job Brief

For moderate-hazard and high-hazard/complex activities, the PIC must perform a pre-job brief with the workers immediately before beginning work or when resuming work, where conditions or process parameters have or may have changed. At a minimum, the questions listed on Part 3 of the IWD must be covered. The PIC is encouraged to perform a pre-job briefing for low-hazard work. The PIC must then formally release the work by performing the following steps:

- Verify that the RLM and FOD/representative have signed the WCD
- Conduct a validation walk-down
- Confirm that the required controls are in place and functioning and that the initial conditions are as expected
- Confirm that each assigned worker has the required competencies and authorization to perform the activity
- Ensure coordination with any operations manager or other FOD-designated interface POC when required by the FOD
- Sign the WCD work release section

If permits are required for the work activity, applicable portions of each permit must be included in the pre-job brief.

Depending on the scope of the planned activity, the nature of the hazards, the associated work controls, and/or the population of workers, the pre-job brief may be conducted for different phases of work to ensure clear instruction to affected workers. If this approach is taken as determined by the PIC, it is important to capture the date and signature of the workers for each pre-job brief in Part 3 of the IWD or in the equivalent WCD, which validates worker agreement and confirms worker authorization, qualifications, and fitness to perform the work.

Work Approval, Authorization, and Release

A work activity must be approved, authorized, and released before the activity begins. At the completion of work planning, the RLM approves the work activity by reviewing and signing the IWD Part 1 (Form 2100) or equivalent WCD, documenting his or her confidence that the IWD/WCD was properly prepared, the hazard grading determination is appropriate, a PIC is assigned, and the work will be performed in accordance with the IWD/WCD. The FOD signature indicates that the work is appropriate to be conducted in the facility, the work is within the DSA, and work performed in accordance with the IWD/WCD will meet applicable environmental, safety, and security requirements and DOE Orders and regulations.

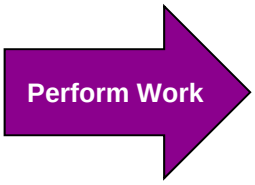
Worker Authorization

The RLM is responsible for the work activity and must authorize workers, including workers from other organizations, to perform work activities.

The RLM is directly responsible for the work activity and is responsible for determining whether each worker (including those deployed by other RLMs) is competent and authorized, meets facility access requirements, and is competent to perform the work. This determination may be delegated by the RLM.

Each worker is responsible for keeping required training current and for ensuring authorization and fitness to perform the work. The PIC's signature on Part 3 of the IWD or on an equivalent WCD verifies that the assigned workers are authorized and fit to perform the work.

Perform the Work Safely, Securely, and in an Environmentally Responsible Manner



After the work is formally released, it may be performed. Work must be executed in strict accordance with the tasks/steps, controls, and preventive measures established in the IWD/WCD. If changes occur, work must be paused or stopped, reevaluated, and not restarted until any issues are resolved in accordance with P101-18, *Procedure for Pause/Stop Work*.

PIC Availability

The PIC is the person assigned responsibility and authority by the RLM for the overall validation, coordination, release, execution, and closeout of a work activity in accordance with IWM.

The Work Supervisor/PIC

- Is responsible for facilitating the release of work in accordance with facility-specific protocol (e.g., Plan of the Day and Plan of the Week)
- Is responsible for supervising the performance of work in accordance with approved documents, and has the authority to control and manage activities and work based on organizational assignments. The PIC is expected to reiterate the first three steps of ISM by verifying that the scope of the task is well defined, the hazards have been identified and reviewed with the work team, and the controls in place adequately address the identified hazards
- Is accountable to a line manager
- Ensures SME engagement as required

Conduct Periodic Readiness Checks

The PIC and each involved worker are encouraged to perform frequent checks to confirm that conditions remain within planned parameters while work is in progress. Readiness checks at the start of the workday, the next shift, and the next task are considerations. These checks should determine whether the needed personnel, tools, and materials are available and whether any changes in the operating conditions or work environment have occurred. The option to pause work to resolve questions is always available.

The PIC may address minor changes with revisions to the IWD or equivalent WCD on the job site with worker input by lining out and/or adding text, initialing and dating the revision, and notifying all affected workers of the changes.

Minor revisions are not to be used where the change would increase the safety risk to personnel; create a difference to a source document requirement; require a variance to continue work; alter the purpose or the scope of the procedure; eliminate any required reviews or approvals; impact the safety basis of the facility or exceed established facility-operating limits; or alter the operating, technical, design, process, regulatory, or quality control requirements of a procedure.

Stop and Pause Work and Changing the IWD

As managers, you must communicate stop-and-pause-work expectations to the PIC and workers; an appropriate time to do so is during the pre-job brief. During readiness checks or when performing work, the PIC and/or workers might discover conditions that do not match the IWD. The PIC and workers must assume that any change to the IWD would result in increased risk until proven otherwise.

If unexpected conditions arise, work must be paused or stopped and reevaluated. If a hazard exists that is not effectively mitigated by the existing controls, the work must not be restarted until adequate controls have been established.

Changes in the following areas are of particular significance to the

- Assigned workers
- Work scope
- Hazards or status of controls
- Facility and/or work conditions

If changes remain within bounding conditions specified in the IWD, the work may continue. For all other changes, the PIC must evaluate, with input from the workers, the significance of any identified changes and determine how to proceed.

Significant changes require stopping work, repeating affected parts of the IWM process, and obtaining RLM and FOD approval. Examples of significant changes include

- An increase in scope
- Unanticipated hazards or conditions
- A failure of controls and/or changes in controls
- Any change that would affect the safety or authorization basis of the facility or exceed established facility-operating limits

If the PIC is not sure if a change is minor or significant, he or she should consult with the RLM to make a determination. The PIC and RLM should be conservative and formally revise the IWD if they are unable to determine the significance of the change. The FOD must also approve the revised IWD.

The RLM and FOD must also assess any stop-work situations to determine if they constitute an abnormal or reportable event. They must participate in investigations, identify and correct the cause of the event, and properly report it.

Conduct a Post-Job Review

The RLM, PIC, and workers are expected to monitor in-progress activities and to capture needed improvements as part of the Lessons Learned Program. Moderate-hazard and high-hazard/complex activities require a post-job review soon after completion to close out the job. If the work activity is ongoing and is covered by a standing IWD (SIWD) or other standing WCDs (SWCDs) such that work will not be completed in the near future, then lessons learned should be collected throughout the duration of the work and improvements implemented as needed to ensure safety, security, and environmental compliance. The post-job review and collection of lessons learned should involve a discussion among workers and the PIC to capture the positive aspects of the activities, including human performance improvement concepts; identify inefficiencies, problems during the activity, procedural deficiencies, coordination issues, unanticipated conditions, and near misses; and develop recommendations for improvement. The post-job review should also verify that the activity is complete, make notifications required by the FOD, and ensure that follow-through actions (e.g.,

cleanup, recycle, waste disposal, equipment removal, and secure storage) are completed.

The PIC is expected to document the post-job review and ensure that lessons learned of value to future activities are communicated to affected workers and the RLM for feedback into the Lessons Learned and Operating Experience Archive in accordance with PD323, *LANL Operating Experience Program*. For ongoing work activities, feedback and lessons learned should be obtained during the normal course of the work.

Periodic Reviews

IWDs and other equivalent WCDs should be reviewed periodically to ensure that the WCDs, work activities, and work practices are aligned and to ensure integrated implementation of the ISM System and IWM programs, as well as the adequacy of IWD and hazards identification. Periodic reviews should be established by the RLM or FOD as deemed necessary. Review periods may vary in frequency from monthly to a maximum of 3 years.

Conclusion

Now that you have completed this course, you should be able to recognize the FOD's and the RLM's roles, responsibilities, and requirements associated with the IWM process. The process helps all employees perform work safely and securely and in a manner that protects people, the environment, property, and the security of the nation.

Taking the Quiz

To receive credit for this self-study, you must complete the associated quiz in UTrain. You can access the quiz in either of two ways.

CRYPTOCard

If you have a CRYPTOCard that is assigned to you with administrative authorities to LANL's Integrated Computing Network (ICN):

1. Click on the link below to return to UTrain.
2. Click on the "Return to Content Structure" button.
3. Click on the "Quiz" link to begin the quiz.

To return to UTrain, click on the following link:

http://int.lanl.gov/training/tools/wrapper/submit.html

No CRYPTOCard

If you *do not* have a CRYPTOCard or if you have a CRYPTOCard *without* administrative authorities to LANL's ICN, you will need to locate a worker with UTrain proxy authority to grant you access to the quiz.

Call or email your training administrator for assistance. The following link should help you find your training administrator.

http://int.lanl.gov/services/training/admin-proctor-proxy.shtml