

Management Control Procedure

Hazard Identification, Analysis, and Control of Operational Activities

**Idaho
Cleanup
Project**

CH2M ♦ WG Idaho, LLC is the Idaho Cleanup Project contractor for the U.S. Department of Energy

HAZARD IDENTIFICATION, ANALYSIS, AND CONTROL OF OPERATIONAL ACTIVITIES	Identifier: MCP-3562 Revision*: 13 Page: 1 of 16
---	--

Companywide	Management Control Procedure	For Additional Info: http://EDMS	Effective Date: 09/06/13
-------------	------------------------------	--	--------------------------

Manual: 9–Operations

USE TYPE 3

Change Number: 339425

Entire document revised

CONTENTS

1.	INTRODUCTION	2
1.1	Purpose.....	2
1.2	Scope and Applicability	2
2.	RESPONSIBILITIES	3
3.	PREREQUISITES	3
4.	INSTRUCTIONS.....	3
5.	RECORDS	7
6.	DEFINITIONS.....	7
7.	REFERENCES	10
8.	APPENDIXES	10
	Appendix A, Flow Diagram for Operational Activities Hazard Mitigation	11
	Appendix B, Hazard Evaluation Group Guidance.....	12
	Appendix C, Procedure Basis	16

**HAZARD IDENTIFICATION, ANALYSIS, AND
CONTROL OF OPERATIONAL ACTIVITIES**

Identifier: MCP-3562

Revision*: 13

Page: 2 of 16

1. INTRODUCTION

1.1 Purpose

This procedure directs the process for performing hazard identification, analysis, and control for *operational activities* (see def.).

1.2 Scope and Applicability

This management control procedure (MCP) directs the process for performing hazard identification, analysis, and control for operational activities in accordance with PRD-25, “Activity Level Hazard Identification, Analysis, and Control,” Appendix A. This procedure provides the method by which the following functions of the Integrated Safety Management System (ISMS) are achieved:

- A. Define the work
- B. Analyze the hazards
- C. Develop controls to prevent/mitigate hazards
- D. Work to the established hazard controls.

Additionally, this procedure provides the method to ensure that quality assurance controls are maintained, and Environmental Management System (EMS) functions are implemented.

This MCP applies to operational activities performed for the Idaho Cleanup Project (ICP) at the Idaho National Laboratory (INL) Site. This MCP does not apply to personnel performing activities that are administrative in nature and are considered to be low risk for injuries or illnesses resulting from job or area occupational hazards. Personnel performing administrative activities are not exempted from complying with appropriate Environment, Safety, and Health (ES&H) requirements.

Appendix A, Flow Diagram for Operational Activities Hazard Mitigation, displays the logic flow for determining the three methods for performing operational activities:

- A. *Operational exempted work (OEW)* (see def.)
- B. *Operations related task (ORT)* (see def.)
- C. *Operations procedure* (see def.).

HAZARD IDENTIFICATION, ANALYSIS, AND CONTROL OF OPERATIONAL ACTIVITIES	Identifier: MCP-3562 Revision*: 13 Page: 3 of 16
---	--

Steps 4.1 through 4.3 provide instructions for hazard identification and mitigation for operational activities. Step 4.4 provides instructions for revising operations procedures if new, different, or changed hazards are involved.

Completing this procedure for an operational activity satisfies the requirements of performing the review required by MCP-3480, “Environmental Instructions for Facilities, Processes, Materials, and Equipment.”

2. RESPONSIBILITIES

Performer	Responsibilities
<i>Operations management</i> (see def.)	Perform screening to identify hazards associated with operational activities. If the operational activity is not operational exempted work (OEW), complete a hazard profile screening checklist (HPSC). Designate the appropriate subject-matter experts to participate in the <i>hazard evaluation group (HEG)</i> (see def.). Review and approve operations procedures and job safety analyses (JSAs) to ensure that hazards have been identified, analyzed, documented, and controls have been incorporated.
HEG members	Perform review of operational activities and identify associated hazards and mitigations. Based on the complexity, rigor required and hazard consequences of the operational activity, determine if the operational activity may be performed as an ORT or requires the creation of an operations procedure. Document the hazards and controls that will be incorporated into a JSA (stand-alone or ORT) or the body content of a JSA form included in an operations procedure as an appendix.

3. PREREQUISITES

- 3.1 The scope of the operational activity has been sufficiently defined such that all existing and reasonably potential hazards and *environmental aspects* (see def.) can be identified.

4. INSTRUCTIONS

- 4.1 Operations Management: Perform the following steps:
- 4.1.1 Evaluate the operational activity and potential hazards.

**HAZARD IDENTIFICATION, ANALYSIS, AND
CONTROL OF OPERATIONAL ACTIVITIES**

Identifier: MCP-3562

Revision*: 13

Page: 4 of 16

- 4.1.2 IF the operational activity does NOT require environmental mitigation (see def)
AND the employee will NOT be exposed to unmitigated hazards identified in the facility hazards list Category B (see def.)
AND the activity will NOT require specific mitigation for hazards identified in facility safety basis documents (such as, SARs, TSRs, HADs.)
THEN consider the activity operational exempted work (OEW) and exit this procedure.

NOTE: *Operations management is responsible for demonstrating the following regarding the individual assigned to perform OEW:*

- A. *The person will not be performing an activity requiring environmental mitigation*
- B. *The person will not be exposed to unmitigated hazards identified in the facility hazards list Category B or hazards identified in facility safety basis documents that require specific hazard mitigation*
- C. *The person has adequate training and/or qualification to perform the operational activity without an ORT JSA or operations procedure.*

- 4.1.3 IF the operational activity can be performed without an operations procedure based on the training and/or qualification of the individual performing the activity
AND the hazards would be mitigated on an approved ORT JSA,
THEN consider the operational activity an ORT and perform the following steps:

NOTE: *Operations management is responsible for demonstrating that the individual assigned to perform an ORT has adequate training and/or qualification to perform the operational activity using an ORT JSA without needing an operations procedure.*

- 4.1.3.1 Complete the HPSC by entering data into Form 430.10, “Hazard Profile Screening Checklist for Integrated Work Control Process.”
- 4.1.3.2 Assemble a hazard evaluation group (HEG) consisting of, as a minimum, operations management, a worker, and the subject-matter expert(s) identified by the HPSC.
- 4.1.3.3 Provide a copy of the completed HPSC to the HEG.

**HAZARD IDENTIFICATION, ANALYSIS, AND
CONTROL OF OPERATIONAL ACTIVITIES**

Identifier: MCP-3562

Revision*: 13

Page: 5 of 16

4.1.4 IF the operational-activity complexity, level of rigor, or level of hazard requires specific direction for operating systems or equipment using an operations procedure in accordance with MCP-2985, “Chapter XVI—Operations Procedures,” THEN perform the following steps for an operations procedure with hazard controls incorporated:

4.1.4.1 Complete the HPSC Form 430.10.

4.1.4.2 Assemble a HEG based on the outcome of completing the HPSC.

NOTE: *A HEG meeting is normally held for the hazards evaluation of a new operational activity.*

4.1.4.2.1 IF the operational activity includes an item that is identified as a *highly hazardous activity* (see def.), THEN consider including a member of the INL Fire Department.

4.1.4.3 Provide a copy of the completed HPSC to the HEG.

4.2 Hazard Evaluation Group: Perform the following steps:

4.2.1 Analyze the hazards and identify controls by completing the applicable portions of Appendix B, Hazard Evaluation Group Guidance.

4.2.2 IF the operational activity was determined to be an ORT, THEN create a stand-alone JSA for the ORT.

4.2.3 IF the operational activity was determined to need an operations procedure with hazard controls incorporated, THEN incorporate the hazards and controls from the HPSC into a JSA that will document the hazards and mitigations to be incorporated into an operations procedure.

4.2.3.1 IF the JSA is a stand-alone document OR is utilized for more than one operations procedure, THEN perform the following steps:

4.2.3.1.1. Process the JSA (Form 442.17) as a stand-alone document in accordance with MCP-3450, “Developing and Using Job Safety Analysis” and MCP-135, “Document Management”

**HAZARD IDENTIFICATION, ANALYSIS, AND
CONTROL OF OPERATIONAL ACTIVITIES**

Identifier: MCP-3562

Revision*: 13

Page: 6 of 16

4.2.3.1.2. Incorporate the hazard controls into the procedure and reference the supporting JSA in the procedure basis.

4.2.3.2 IF the JSA is for one procedure only AND a stand-alone JSA is NOT required, THEN perform the following steps:

4.2.3.2.1. Attach the JSA content to the operations procedure as a Procedure Hazard Analysis appendix (see TEM-5, “General-Use Procedure Template”)

4.2.3.2.2. Incorporate the hazard controls into the procedure and reference the supporting Procedure Hazard Analysis appendix in the procedure basis.

NOTE: *The Procedure Hazard Analysis appendix will stay in the procedure. Future reviews, revisions and changes to this appendix will occur in the procedure DRF process.*

4.2.4 Review the Document Revision Form (DRF) for the JSA or operations procedure to confirm that the applicable hazard controls have been incorporated.

NOTE: *The HPSC and any other materials used to document the hazard controls may be retained as references in EDMS (as supporting information or captured in the DRF case file) for the future revision of an operations procedure or JSA.*

4.3 Operations Management: Approve the DRF for the JSA and/or operations procedure per MCP-135.

4.4 Operations Management: WHEN revising an operations procedure and/or JSA AND the revision involves a change to the previously identified hazards, a different hazard, or a new activity that may create a new hazard, THEN repeat Steps 4.1 through 4.3 as needed for the operations procedure and/or JSA.

NOTE: *A HEG meeting is not required for subsequent evaluations of the same operational activity, unless directed by operations management. A graded approach to Steps 4.1 through 4.3 may be used.*

**HAZARD IDENTIFICATION, ANALYSIS, AND
CONTROL OF OPERATIONAL ACTIVITIES**

Identifier: MCP-3562

Revision*: 13

Page: 7 of 16

5. RECORDS

Stand-Alone or ORT “Job Safety Analysis” (JSA)

NOTE: *“MCP-557, “Records Management,” the INL Records Schedule Matrix, and associated record types list(s) provide current information on the storage, turnover, and retention requirements for these records.”*

6. DEFINITIONS

Environmental aspects. The element of an organization’s activities, products, or services that can interact with the environment, as identified in LST-96, “Environmental Aspects of ICP Work Activities.”

Environmental mitigation. Mitigation actions that are required by a permit, agreement or commitment – such as a ROD, RCRA, CERCLA or other environmental protection action in accordance with MCP-3480.

Facility hazards list Category B. Potential hazard that does not pose an immediate threat requiring mitigation actions by personnel entering the area. Unintentional interaction with Category B hazards or a system failure may present additional risk to personnel requiring some form of mitigation. The mitigations are determined based on evaluation of the job scope of the work. (See MCP-6206, “Maintenance and Use of the Facility Hazards List.”)

Hazard evaluation group (HEG). A group of operations personnel, subject matter experts and other professionals assembled to perform a hazard evaluation. A HEG meeting is not required for subsequent hazards evaluation of the same activity, unless directed by operations management. A HEG, at a minimum, consists of operations management, a worker, and appropriate subject-matter expert support person(s) as deemed appropriate by operations management.

Examples of HEG members include:

- A. Crafts/Operations workers/representatives
- B. Procedure owners, planners, supervisors
- C. Industrial Safety
- D. Industrial Hygiene
- E. Fire Protection
- F. RadCon
- G. Quality Assurance
- H. Environmental
- I. Subsurface investigation team members
- J. Power Management

**HAZARD IDENTIFICATION, ANALYSIS, AND
CONTROL OF OPERATIONAL ACTIVITIES**

Identifier: MCP-3562

Revision*: 13

Page: 8 of 16

- K. Process or facility Engineering
- L. Criticality Safety
- M. Utilities
- N. Fire Department
- O. Emergency Management
- P. Management representative
- Q. Procedure writer.

Hazard profile screening checklist (HPSC). A method for identifying hazards related to an operational activity and indicating which subject matter experts will participate on the associated HEG. The HPSC is completed on Form 430.10.

Highly hazardous activity. An unfamiliar activity that, when performed, and special hazard controls fail, the workers could be exposed to hazards in such a manner that immediate serious physical harm could be reasonably expected. Examples of such activities include:

- A. Workers using diving equipment to inspect the inside of water tanks
- B. Painters suspended inside a 60-ft-tall stack painting
- C. Workers placed in known immediately dangerous to life or health (IDLH) environments
- D. Hoisting workers 40 ft down into a pit without other access
- E. Post-incident reentry.

Operational activity. Activity involving the conduct of business of hardware-related facilities, processes, systems, structures, or equipment that produce products or services (such as experimental test facilities, nuclear reactors, waste processing facilities, sampling and analysis activities, or operating and storage facilities.)

Operational exempted work (OEW). An operational activity which may be performed without an operations procedure or ORT JSA based on the training and/or qualification of the individual performing the activity. The operational activity requires no environmental mitigation, the employee is not exposed to unmitigated hazards identified in the facility hazard list Category B, or is not exposed to hazards identified in facility safety analysis documents that require specific hazard mitigation.

Operations management (OM). The responsible facility manager as defined in PDD-1005, "ICP Management and Operations Manual." OM is responsible for hazard identification, analysis, and control of an operational activity; and the point of contact for resolving related issues. The actions required by this procedure may be delegated, but the responsibility for the proper execution of this procedure remains with the appropriate OM.

**HAZARD IDENTIFICATION, ANALYSIS, AND
CONTROL OF OPERATIONAL ACTIVITIES**

Identifier: MCP-3562

Revision*: 13

Page: 9 of 16

Operations procedure. A controlled document (for example, technical procedure [TPR], emergency, abnormal operating, and alarm response procedure [EAR], or sampling procedure [SPR]) which provides specific direction for operating systems and equipment during normal and postulated abnormal, emergency, or serious-accident conditions. An operations procedure is required for any task that is complex, requires additional rigor to be performed, has a serious level of hazard, or a critical attribute of a safety management program (for example, criticality safety) is involved.

Operations related task (ORT). An operational activity that may be performed without an operations procedure based on the training and/or qualification of the individual performing the activity. The HEG will use an HPSC, appropriate for the work activity, to determine the hazards associated with the operational activity. The hazards are controlled/mitigated by a JSA. The ORT JSA contains the scope of the task, hazard controls, PPE, operations management approval, required training/qualification, and has been reviewed and approved by the HEG. The ORT JSA is developed using Form 442.17 and MCP-3450, “Developing and Using Job Safety Analysis.” The ORT is authorized for work on the POD/POW and released for work by operations management.

**HAZARD IDENTIFICATION, ANALYSIS, AND
CONTROL OF OPERATIONAL ACTIVITIES**

Identifier: MCP-3562

Revision*: 13

Page: 10 of 16

7. REFERENCES

10 CFR 851.21, “Hazard Identification and Assessment”

10 CFR 851.22, “Hazard Prevention and Abatement”

DEAR 970.5223-1, “Integration of Environment, Safety, and Health into Work Planning and Execution”

Facility Hazards List, <http://icpweb1/fhl/>

Form 430.10, “Hazard Profile Screening Checklist for Integrated Work Control Process”

Form 430.13, “Walkdown Checklist for IWCP HIM Process”

Form 433.24, “Task Evolution Feedback Form”

Form 442.17, “Job Safety Analysis”

LST-96, “Environmental Aspects of ICP Work Activities”

MCP-135, “Document Management”

MCP-2985, “Technical Procedures”

MCP-3450, “Developing and Using Job Safety Analysis”

MCP-3480, “Environmental Instructions for Facilities, Processes, Materials, and Equipment”

MCP-6206, “Maintenance and Use of the Facility Hazards List”

PDD-1005, “ICP Management and Operations Manual”

PRD-25, “Activity Level Hazard Identification, Analysis, and Control”

8. APPENDIXES

Appendix A, Flow Diagram for Operational Activities Hazard Mitigation

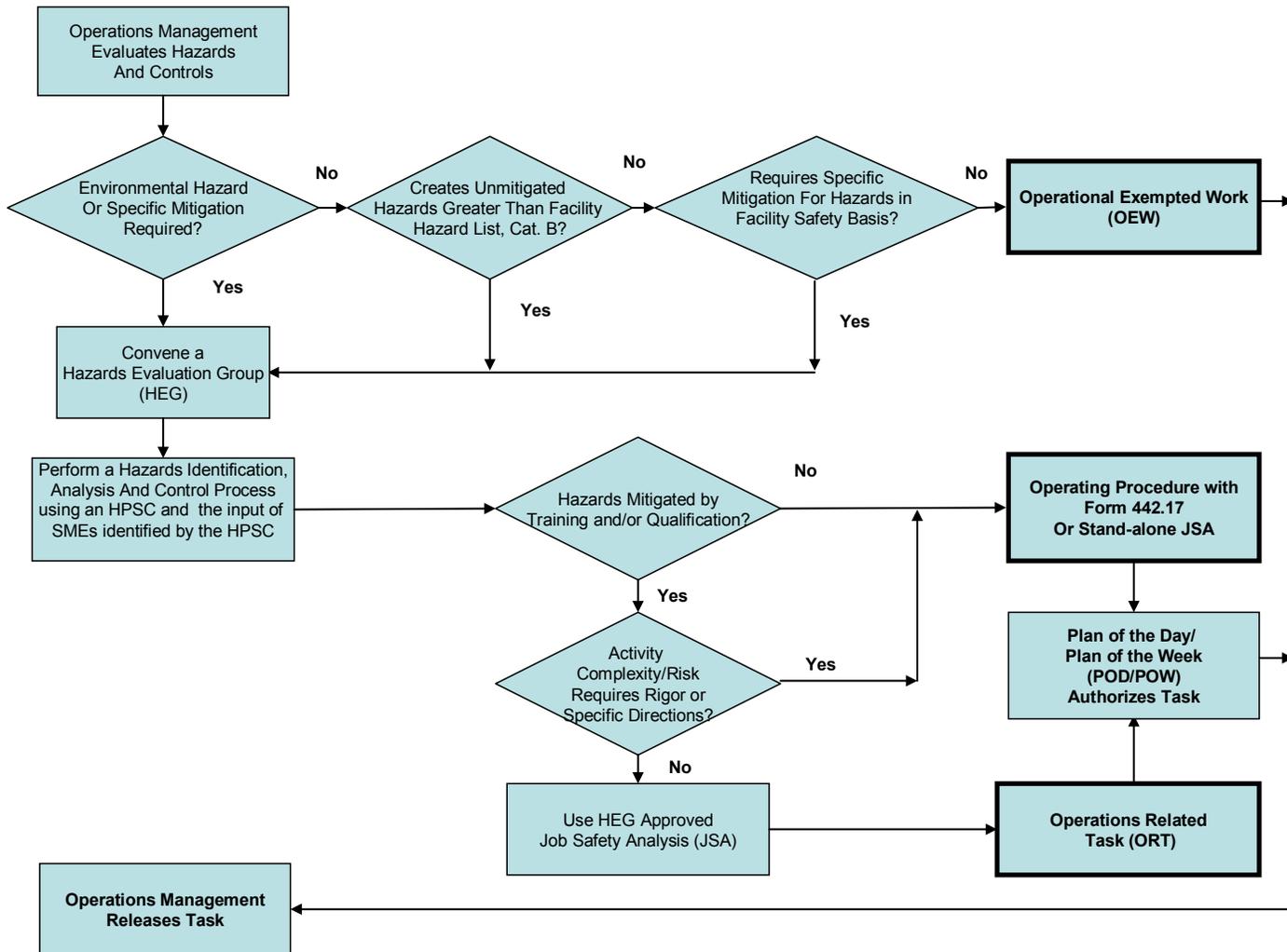
Appendix B, Hazard Evaluation Group Guidance

Appendix C, Procedure Basis

HAZARD IDENTIFICATION, ANALYSIS, AND CONTROL OF OPERATIONAL ACTIVITIES

Identifier: MCP-3562
 Revision*: 13
 Page: 11 of 16

**Appendix A
 Flow Diagram for Operational Activities Hazard Mitigation**



**HAZARD IDENTIFICATION, ANALYSIS, AND
CONTROL OF OPERATIONAL ACTIVITIES**

Identifier: MCP-3562

Revision*: 13

Page: 12 of 16

Appendix B**Hazard Evaluation Group Guidance**

NOTE: *The following guidance is intended for the rigor and complexity expected in a Use Type 1 operations procedure and should be tailored to the level of complexity and hazards associated with the ORT or operations procedure being evaluated. The activities in this appendix may be partially performed and performed in any order as required by the HEG.*

1. Use a tailored approach for hazard evaluation, providing more comprehensive involvement as planned activities become increasingly complex and hazardous or as they require safety controls that are infrequently performed with regard to the qualification and training of the individual(s) performing the activity.
2. Review the hazard profile screening checklist (Form 430.10, HPSC).
3. Review the facility hazards list.
4. Review Form 433.24, “Task Evolution Feedback Form,” results from similar or previous evolutions.
5. Review the applicable lessons-learned information from previous similar activities, from the company lessons-learned system at <http://icpweb.inel.gov/icplessons/>, or from the DOE lessons-learned system as appropriate.
6. IF any of the following conditions exist:
 - A. The activity involves new hazards NOT previously identified
 - B. The activity has never been performed
 - C. The activity involves hazards outside the scope of existing ES&H procedures
 - D. A walk-down is requested by operations managementTHEN perform a walk-down of the work area.

NOTE: *If a walk-down is not possible, equivalent methods (such as photographs, sketches, manufacturer instructions and manuals, document or drawing reviews) may be used to ensure adequate hazard identification.*

- 6.1 Use Form 430.13, “Walkdown Checklist for IWCP HIM Process,” to facilitate consistency among walk-downs.
- 6.2 Review the hazards listed on Form 430.13 before walk-down initiation.
- 6.3 Mark the appropriate hazard box with an “X” during the walk-down and record field notes useful for hazard evaluation in the space below the hazard.

**HAZARD IDENTIFICATION, ANALYSIS, AND
CONTROL OF OPERATIONAL ACTIVITIES**

Identifier: MCP-3562

Revision*: 13

Page: 13 of 16

7. Review technical documents (such as material safety data sheets [MSDSs], manufacturer's written instructions, and vendor information).
8. Evaluate potential accident scenarios involving the operational activities.
9. Ensure the analysis addresses the following elements:
 - A. The activities that are to be performed
 - B. Involved or affected personnel by job function
 - C. Existing or reasonably potential hazards
 - D. Potential human errors.
10. Integrate controls to prevent a specific control or combination of controls from creating new hazards.
11. Select hazard mitigation actions to protect workers, facilities, and the environment using the following hierarchy:
 - A. Elimination
 - B. Engineering controls
 - C. Administrative controls
 - D. Personal protective equipment (PPE).
12. Select applicable hazard controls from the HPSC.
 - 12.1 Evaluate hazard controls related to the hazards indicated on the HPSC Form 430.10.
 - 12.2 Identify the applicable hazard controls on the HPSC.
13. Identify DOE-prescribed regulatory codes and industrial standards.
14. If any quality issues are applicable to the operational activity ensure participation on the HEG by a Quality Assurance representative.
15. If any environmental issues are applicable to the operational activity ensure participation on the HEG by an Environmental representative.
16. Identify facility documented safety analysis requirements (for example, SARs, TSRs, HADs).

**HAZARD IDENTIFICATION, ANALYSIS, AND
CONTROL OF OPERATIONAL ACTIVITIES**

Identifier: MCP-3562

Revision*: 13

Page: 14 of 16

17. Consider the following techniques for managing error precursors:
 - 17.1 Establish critical parameters for initial conditions or conditional steps before allowing work to proceed.
 - 17.2 Perform self-checking, peer checking, and use hold points.
 - 17.3 Use second party verification for the same action (such as used for lockout/tagout position verification).
 - 17.4 Develop special training to include mockups, dry runs, or drills.
 - 17.5 Develop abnormal-condition response procedures for potential events to lessen failure impacts.
 - 17.6 Implement frequent senior supervisory watch oversight.
 - 17.7 Evaluate how to remove distractions from the work area (including unnecessary personnel, auditors, weather conditions, noise, and conflicting signs).
18. Identify applicable guidance for highly hazardous activities based on evaluation by the INL Fire Department.
 - 18.1 Make arrangements to stage INL Fire Department personnel during highly hazardous activities, including the following notifications:
 - 18.1.1 Contact the INL Fire Department two weeks before the operational activity for their involvement in the planning.
 - 18.1.2 Contact the INL Fire Department 72 hours before the operational activity to schedule them for staging.
 - 18.1.3 Notify the INL Fire Department 24 hours in advance of a confined-space entry prior to beginning the activity.
 - 18.2 Stage the respective emergency equipment during the following activities:
 - 18.2.1 WHEN evaluating a permit-required confined space, THEN stage the following equipment as applicable:
 - A. Rescue equipment
 - B. Emergency medical equipment
 - C. Communication devices.
 - 18.2.2 WHEN operational activities have a drowning potential, THEN stage life saving equipment.

**HAZARD IDENTIFICATION, ANALYSIS, AND
CONTROL OF OPERATIONAL ACTIVITIES**

Identifier: MCP-3562

Revision*: 13

Page: 15 of 16

- 18.2.3 IF the facility is operating under a safety analysis report (SAR),
THEN stage any emergency equipment listed in the SAR.
- 18.2.4 WHEN performing prescribed burns,
THEN stage the emergency equipment listed in the burn plan.
19. Document the hazard controls that will be incorporated into the JSA or the operational procedure using any of the following applicable methods:
- A. Marked up Form 430.10 (HPSC)
 - B. Marked up Form 430.13 (walkdown checklists)
 - C. Marked up facility hazards list
 - D. Marked up lessons learned
 - E. Marked up MSDSs, manufacturer's written instructions, and vendor information
 - F. Marked up DOE-prescribed regulatory codes and industrial standards
 - G. Marked up SAR, TSR, and HAD requirements
 - H. Marked up Form 433.24 (task evolution feedback forms)
 - I. Written guidance from the INL Fire Department.

HAZARD IDENTIFICATION, ANALYSIS, AND CONTROL OF OPERATIONAL ACTIVITIES	Identifier: MCP-3562 Revision*: 13 Page: 16 of 16
---	---

Appendix C

Procedure Basis

Step	Basis	Source	Citation
Entire procedure	Integrate environment, safety, and health controls into work planning and execution.	DEAR 970.5223-1	(c)
Entire procedure	Perform hazard identification and assessment.	10 CFR 851.21	
Entire procedure	Perform hazard prevention and abatement.	10 CFR 851.22	
Entire procedure	Perform identification, analysis, and control of environmental, safety, and health hazards for work performed at the activity level to minimize hazards to the workers, the public, and the environment.	PRD-25	