

Administrative Procedures

HMIS-PRO-SP-079

Job Hazard Analysis

Revision 3, Change 2

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- No USQ Required

JHA: Administrative

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Change Summary

Description of Change

A variance was issued to address concerns from the field regarding LOTO requirements in cold and dark facilities.

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1.0 PURPOSE

This procedure establishes the process for integrating activity-based job hazard analysis for all work. Safety and Health requirements are integrated into work planning and execution, when applicable, using a graded approach. This procedure describes the process, including criteria, to be used to select, apply, and document the result of the appropriate job hazard analysis technique based on the nature and significance of the work being planned. Job hazard analysis is used to identify, evaluate, control, and communicate potential worker safety hazards relative to discrete work activities/tasks to be performed. Job hazards analysis is an integral part of the Hanford Mission Integration Solutions (HMIS) work management process defined in [HMIS-PRO-WC-12115](#), *Work Management*.

[Appendix C](#), “Subcontractor Hazard Analysis,” specifies the job hazard analysis process only for subcontractors performing work managed by the HMIS on the Hanford Site.

NOTE: *Environmental controls are not managed through this procedure (See HMIS-PRO-EFS-15333, Environmental Protection Process).*

2.0 SCOPE

This Level 1 Administrative Procedure applies to the analysis of task-specific hazards that may be encountered during the execution of maintenance, operations, construction, demolition, surveillance, training, performance exercises, and environmental monitoring/remediation work. The job hazard analysis requirements in this procedure apply to the development of work instructions, technical procedures, safety plans, or other documents that prescribe specific actions for performing these activities. This procedure applies to work managed by HMIS and performed by employees for whom HMIS is the responsible company. This procedure also applies to HMIS subcontractors and lower tier subcontractors, whose personnel are required to perform work on site as contracted through statements of work, in accordance with [HMIS-PRO-SC-186](#), *Statements of Work*.

Hanford Patrol Security Police Officer (SPO) non-emergency/tactical response, or non-training activities are subject to the hazard analysis requirements specified in this procedure.

This procedure acknowledges that SPO emergency tactical response is achieved directly through the implementation of DOE Order 473.3A, *Protection Program Operations*, and exempt from the hazard analysis process. All DOE security forces, including HMIS’s Hanford Patrol are required, by contract, to comply with the training and qualification requirements specified in DOE Order 473.3A.

The hazards and related controls for an SPO during training and performance testing are analyzed and incorporated into the HMIS General Hazard Analysis, *Range Operations*, SAS-PRO-HP-62876 HNF-15434, *Range Safety Analysis*, and activity-specific Training Activity Plans. Training Activity Plans will be developed by SAS Line Management and reviewed/approved by the SAS Safety organization. The application of Appendix B does not apply to the development of training and performance testing.

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Hanford Fire Department non-emergency response or non-training activities are subject to the hazard analysis requirements specified in this procedure.

Hanford Fire Department emergency response activities are exempt from the hazard analysis process specified in this procedure.

HFD training activities require hazard analysis documentation and will align with the Job Hazard Analysis documentation categories specified in this procedure. Training hazard analyses will be developed by the HFD Line Management and reviewed/approved by the HMIS Safety and Health Field Support organization.

This procedure acknowledges that the Hanford Fire Department (HFD) Firefighter's emergency response and training requirements are achieved directly by satisfying 10 CFR 851, 29 CFR 1910.120(q), WAC 173-303, WAC 296-305, DOE/RL-94-02, DOE-STG-1066-2016, all applicable NFPA standards, NWCG National Wildfire Qualifications System Guide PMS 310-1, and HFD procedures as implemented through the HFD Training Division. Therefore, the application of appendix B does not apply to the development of HFD training activities.

Training activities conducted at the HAMMER Federal Training Center are subject to a hazard analysis performed in accordance with HHT-PRO-TQ-61051, *HAMMER-Hanford Training Hazard Analysis and Control Process*. A Training Hazard Analysis and safety review is required for all medium and high hazard training activities, as determined by the HAMMER training pre-screening process. The General Hazard Analysis (GHA) HMIS-OTHER-SP-1200369 will govern low hazard training activities.

This document supports implementation of ISMS Core Function #2 "Identify and Analyze the Hazards," Core Function #3 "Develop and Implement Hazard and Environmental Controls" and Guiding Principle #6 "Hazard Controls Tailored to Work Being Performed."

This procedure does not apply to HMIS loaned labor

2.1 **Implementation**

This procedure is effective upon publication. This procedure shall be implemented by all HMIS organizations except as excluded in section 2.0 above. The process prescribed in this procedure shall be implemented in conjunction with work planning requirements specified in [HMIS-PRO-WC-12115](#).

All level 3 "work control" (as defined in HMIS-PRO-MS-589, [HMIS Procedures and Related Documents](#)) planning documents that prescribe work control processes, that establish job hazard analysis process requirements shall be reviewed by the interpretive authority (IA) of HMIS-PRO-SP-079. It is the responsibility of the author of any such documents to obtain this review. Any deviation from the job hazard analysis process as prescribed in this procedure shall be managed using a documented variance as required in HMIS-PRO-MS-589.

When a Level 3 work control document is deemed necessary to prescribe unique/specific job hazard analysis needs of an implementing organization, the Job hazard analysis requirements

prescribed here in shall be referenced and appropriately addressed in such a document. Such a reference may simply indicate that the requirements of HMIS-PRO-SP-079 apply to the work scope as prescribed there in or may specify additional detail unique for implementing the job hazard analysis requirements for that work scope. Additional specific job hazard analysis implementation details shall be consistent with the requirements of HMIS-PRO-SP-079.

3.0 RESPONSIBILITIES

3.1 Validation Authority

- Responsible for the initial screening of work requests and determining the level of job hazard analysis needed.

3.2 Procedure Subject Matter Expert (SME)

- Responsible for determining the level of job hazard analysis that is required when procedures/instructions subject to this level 1 procedure HMIS-PRO-SP-079 are initiated or revised.

3.3 Work Planner

- As a part of the preparation of work packages the Work Planner coordinates/facilitates the job hazard analysis process as determined by the Validation Authority

3.4 Functional Area Subject Matter Experts (i.e., Industrial Hygiene, Engineering, Fire Protection, Building Administrator, Industrial Safety, Management, Radiological Control)

- Participate in the work planning process and contribute to the development of various hazard analysis documents as required by this procedure and according to their areas of expertise.

3.5 Field Work Supervisors

- Participate in the work planning process and approve various job hazard analysis documents as required by this procedure.

3.6 HMIS-PRO-SP-079 Interpretative Authority

- Responsible for the content and maintenance of this procedure, and that of [HMIS-OTHER-SP-1200369, HMIS General Hazard Analysis \(GHA\)](#).
- The HMIS-PRO-SP-079 Interpretive Authority reviews and approves all Craft Specific Hazard Analysis (CSHA) documents and reviews any Level 3 procedure/instruction that specifies work control and/or job hazard analysis process requirements.

4.0 INSTRUCTIONS

4.1 Job Hazard Analysis

Work activities, whether formally planned, or dispatched as no additional planning required (NAPR) shall be evaluated for potential hazards. Organizations that perform work to technical procedures or as a level of effort (i.e., without written direction) shall also evaluate that work for potential hazards. All identified hazards shall be analyzed to determine the source and nature of the hazard and to establish appropriate hazard control measures. Manufacturer instructions, recommendations, safety warnings, and applicable industry codes, standards, and recommended practices shall be considered and incorporated into the hazard controls for applicable work activities involving tools, equipment, etc. The result of the hazard analysis shall be documented using one or a combination of hazard analysis documentation categories as specified in this procedure. Job Hazard Analysis documentation categories specified in this procedure include:

- HMIS General Hazard Analysis (GHA)
- Craft Specific Hazard Analysis (CSHA), and Chemical Use Attachment (CUA), when created
- Various Forms, Permits, or Plans
- HMIS Job Hazard Analysis Checklist (Site Form A-6007-189)

Criteria to be used to determine which documentation category must be used is provided in [Appendix B](#). The process for developing the HMIS GHA is specified in section 4.2. The process for developing a CSHA is specified in section 4.3. Requirements for completing permits are specified in the procedures that stipulate the use of each permit respectively. The process for completing the HMIS Hazard Analysis Checklist is specified in section 4.5.

4.2 HMIS General Hazard Analysis

The HMIS General Hazard Analysis (GHA) has been developed to support a work category described as work where only control measures for hazards common to the core activities of all workers regardless of his or her assigned job position. The scope of the GHA is limited to hazards that any worker can reasonably be expected to recognize and know how to mitigate with a minimum of subject matter expert support or work instructions related to the hazards and controls. Any employee could potentially be exposed to the hazards addressed in the GHA as part of his or her routine daily activities. As such these hazards are considered common across multiple craft disciplines and are therefore not required to be addressed in each Craft Specific Hazard Analysis (CSHA). Each worker is authorized to perform tasks that introduce the hazards addressed in the GHA based on acknowledging that he or she understands the hazard and control content of the GHA. When planned work activities potentially involve hazards beyond those addressed in the GHA, the GHA will be used in conjunction with other hazard analysis documents for the hazards and controls identified in the GHA. For such planned work the other hazard analysis documents should not duplicate the hazards and control that are adequately addressed in the GHA.

4.2.1 Maintain the GHA

The HMIS GHA is maintained by the SME of this procedure (HMIS-PRO-SP-079) and published as HMIS-OTHER-SP-1200369 in accordance with [HMIS-PRO-MS-589](#).

The document identifies the scope of work to which it applies; lists the types of activities; the hazards associated with each listed activity and the limitations of the activity as covered by the GHA; and the controls for each hazard. Manufacturer instructions, recommendations, safety warnings, and applicable industry codes, standards, and recommended practices shall be considered and incorporated into the hazard controls for applicable work activities involving tools, equipment, etc.

The content is arranged using a format that aligns an activity with the hazards inherent to the activity and the control measures necessary to mitigate the hazards. An example of this format is shown in Figure 1 below.

Class and Occurrence Category Requirements		
Beryllium (JHA Checklist #5) See DOE-0342, <i>Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP)</i> ,		
Non Beryllium Related Work While Working in a Beryllium Controlled Facility (BCF) <i>This section does not apply to any work in a Beryllium Regulated Area (BRA) or intrusive work in a Beryllium Controlled Area (BCA). Such work requires a Beryllium Work Permit (BWP).</i>	Beryllium exposure	<ul style="list-style-type: none"> Comply with the Beryllium posting requirements. Ensure the area where the work is performed is not a BRA. When performing activities in a BCA do not alter or modify the area, room, or work area. Do not breach or open items, systems, machinery, ducting, motors or other equipment, including electrical equipment. <p>Administrative, training, staffing, etc.</p> <ul style="list-style-type: none"> The Hanford Site Beryllium Controlled Facility List can be found at: http://www.hanford.gov/page.cfm/BerylliumFacilitiesAreas. Additional information about the beryllium status of a facility can be found using the Safety & Health Reference Information (SHRI) database. "Beryllium Assessments"
Chemical Use (JHA Checklist #8)		
Working with Routine Shop or Office Chemicals <i>Applies only to the following chemical ratings / categories as indicated on the SDS / MSDS:</i> <ul style="list-style-type: none"> Rated as 0 NFPA: 	May be harmful if swallowed, inhaled, or may cause mild skin irritation.	<ul style="list-style-type: none"> Use the chemicals following the manufactures intended use only, When working with or around chemicals follow directions provided in the SDS / MSDS, Check container labeling to verify you are using the intended chemical, Do not use the chemical if it is past the expiration date.

Figure 1. GHA Example

Any limitations related to the activity not covered by the GHA is listed under the activity in the "Activity" column. For example, the GHA may include an activity such as "Using Ladders." Directly beneath the activity a limitation would read: "Does not apply to using a ladder for access to surfaces more than 24 feet above the surface below."

4.2.2 Review

The review, comments, and comment resolution of the GHA will be captured and processed within the HMIS Procedure System in accordance with [HMIS-PRO-MS-589](#).

4.2.3 Approval

Upon completion (*review, comment, and comment resolution*) the GHA will be approved by the IA of this procedure and the responsible Environment, Safety and Health manager.

4.2.4 Craft/Worker Review and Acknowledgement

Each organization shall assure that all workers within the affected organization have reviewed and acknowledged the GHA upon initial assignment to the organization and as a minimum annually thereafter. The review and acknowledgement shall be documented and maintained through the required reading program as a part of the worker's training records.

4.2.5 Periodic Review

The GHA will be reviewed by the assigned IA of this procedure and responsible manager for currency, revised as necessary, and assigned a revision date as a minimum every two years. Revisions may be initiated more often when needed as hazard/control requirements or company scope/needs change.

4.3 Craft Specific Hazard Analysis

The Craft Specific Hazard Analysis (CSHA) as a documentation technique has been developed to establish the control measures for hazards that are common/routine to the core activities of specific craft workers' assigned job position. A CSHA is limited to work referred to as "Category 2" for the subject craft as determined in [Appendix B](#). This means the scope and content of a CSHA must be limited to hazards that the worker can reasonably be expected to recognize and know how to mitigate using only the fundamental knowledge, proficiency, and training provided for his or her job assignment. This includes hazards that may have had a functional area SME evaluate the hazards and the related controls, provided those hazards are routinely/commonly encountered by the workers. The purpose of the CSHA is NOT to reiterate hazard control requirements. Rather the CSHA is intended to evaluate routine activities, identify the hazards introduced by those activities, and establish controls appropriate for the identified hazards in context with the routine activity. (See the description of CSHA content in section 4.3.1 below for a more detailed explanation.)

Each CSHA shall be used in conjunction with the HMIS GHA. Therefore, the content covered by the GHA is not required to be and should not be added to the CSHA, unless there are unique characteristics to an activity for the subject craft that introduce additional or unique hazards not addressed in the GHA. Use the following convention, to name the CSHA: CSHA-*Org-Craft*, where *Org* = an abbreviation for the applicable organization (e.g., MS for Maintenance Services), *Craft* = designator for a specific craft discipline covered (e.g., E for Electrician).

4.3.1 CSHA Content

The content of a CSHA is based on the worker and environmental hazards as associated with the tasks and hazard source. Any hazard that cannot be identified by the worker, or requires a control measure that cannot be determined or implemented by the worker shall NOT be included in a CSHA except as described in the bullets below:

Additional tasks, hazards, and related controls may be included in a CSHA that meet all of the following criteria:

- Are routinely encountered during the performance of tasks and well understood by the workers
- Have been initially analyzed and routine controls specified by a subject matter expert, in the CSHA
- Established hazard categories have been determined, through a documented hazard assessment, to pose no potential exposure risk or are always controlled using exactly the same protective measures
- The hazards and controls are stable (i.e., do not change from one evolution of work to the next)

Examples of such hazards might include the use of common low hazard chemicals, provided they are used as intended; routine waste streams (e.g., used rags, light bulbs, etc.) or noise hazards where the decibel levels and controls/PPE have been previously determined and posted or otherwise communicated (i.e., noise survey where posting is not practical). An example where a hazard category has been determined to pose no potential exposure risk might include; the application of a type of paint (e.g., latex) that contains a toxic or carcinogenic constituent but due to the chemical configuration of the paint the toxic/carcinogenic constituent is very unlikely to result in an exposure to the worker.

The management of each craft organization must confirm that each craftsperson is able to recognize and mitigate the hazards listed in the CSHA. Confirmation may be demonstrated by a signature page on the CSHA, formal training, OJT, required reading, meeting attendance roster, documented work experience, journeyman credentials, etc. **All organizations with workers performing activities as a craft discipline shall have in place a CSHA specific to the organization, the craft type/discipline and the activities they perform.** Other organizations with non-craft workers performing tasks in the field shall also develop a CSHA for the scope of the field work they perform, unless a determination is made that the work activities are unlikely to ever introduce hazards beyond those addressed in the GHA. Such a decision shall be documented, and that document made available in the CSHA module in the SHRI database.

4.3.2 Initiate A Craft Specific Hazard Analysis

Each organization with workers affiliated with a union craft discipline, skilled trade, or other field work technician shall develop a CSHA for each of these worker categories. Each CSHA shall identify the scope of work activities to which it applies, including the craft and organization covered by its content, and limitations of its use. Similar to the GHA, the content shall be arranged using a format that aligns an activity with the hazards inherent to the activity and the control measures necessary to mitigate the hazards. Figure 2 provides an example of the format aligning the tasks, hazards, and controls. The author of the CSHA should consult with the workers to help identify the tasks performed by the organization and corroborate on identifying hazards and establishing related controls.

Each CSHA shall be developed using the following format:

ii Title page with approvals

The title shall be formatted as follows: CSHA-Craft type/discipline-Organization

1.0 Purpose

State the purpose of the CSHA including the organization and craft type/discipline to which it applies.

2.0 Scope

Describe the type and scope of work subject to this CSHA.

3.0 Use

Describe how the CSHA is intended to be used. For example:

This Craft Specific Hazards Analysis (CSHA) is to be used in conjunction with the HMIS General Hazards Analysis (GHA) as described in the requirements of HMIS-PRO-SP-079, Appendix B. After reviewing the work scope and the hazards involved, determine if this CSHA adequately bounds the work activity. Work hazards not covered by this CSHA and the HMIS GHA requires the development of additional hazards analysis in accordance with HMIS-PRO-SP-079 Job Hazard Analysis.

4.0 Task/Activity, Hazards Description, and Hazard Controls Table

- The task/activity column should describe the type and nature of the work to be performed. It is important to understand that the purpose of the task/activity column is intended to identify routine tasks/activities performed by the subject craft. A task/activity should NOT be stated as exposure to a hazard. For example, "Use of hazardous chemicals." Rather the activity might be something like "cleaning mechanical components." In this example if chemicals are required when cleaning the mechanical components, those chemicals and the related hazards should be listed in the hazard's column.

- Any limitations or bounding statements should be listed directly under the task/activity. Scenarios where the activity is not appropriate for Category 2 (i.e., a CSHA) in accordance with Appendix B should describe the threshold/limit and indicate that activities beyond that limit are not covered by the CSHA and additional hazard analysis is required.
- Manufacturer instructions, recommendations, safety warnings, and applicable industry codes, standards, and recommended practices shall be considered and incorporated into the hazard controls for applicable work activities involving tools, equipment, etc. The hazard description shall list the potential hazards introduced by the activity e.g., causes serious eye irritation, may be fatal if swallowed, cut or puncture, pinch point, etc. This is an important distinction because the actual hazard may be more or less significant in context with the nature of the task/activity.
- The hazard controls column shall identify control measures for each hazard. Administrative actions may be included but should be added at the bottom of the controls with the header “Administrative Actions.” Administrative actions include Notifications, Required Training, Staffing, EJTA Enrollment, Reporting, etc. (See Figure 2 below for an example of a CSHA section 4.0 table).

No.	TASK	HAZARD DESCRIPTION	HAZARD CONTROLS
4	Manual T-weed collection using compactor truck (RCT survey support)	Cut or puncture, trap, wheel, pinch point, crushing hazard, and dust creation	<ul style="list-style-type: none"> Do not stand or stay clear of personnel using pitchforks or other tools. Wear leather gloves (or equivalent) if there is a need to handle tumbleweeds. Operators should discontinue collection of T weeds when wind speeds reach 15 mph (sustained). Be aware of uneven ground surfaces and typical tripping hazards. Stay clear of the compactor when being operated. N95 filtering dust masks may be used on a voluntary basis. Wear leather gloves (or equivalent). Live animals should be tagged or otherwise contained by Pest Control Technician. Listen to instructions from trained MSA Pest Control Technician. <p>Administrative Actions:</p> <ul style="list-style-type: none"> Wear minimal hand/face exposure identified in employee EJTA.
5	Survey Live Animal/Reptile (trapped/captured)	Bites, scratches, venom, rabies	<ul style="list-style-type: none"> Wear gloves (or equivalent) when handling traps. Live rodents should be tagged or otherwise contained by Pest Control Technician. Use bagged rodent traps/enclosed mouse/exterminator traps.
6	Survey rodents in traps (glue boards, snap traps, live traps)	Inhalation, bites, laceration	<ul style="list-style-type: none"> Wear gloves (or equivalent) when handling traps. Live rodents should be tagged or otherwise contained by Pest Control Technician. Use bagged rodent traps/enclosed mouse/exterminator traps.

Figure 2. CSHA Example

Section 4.0 (continued)

When Chemical hazards are addressed in a CSHA, each chemical must be specifically or categorically identified, the routine/typical use of the chemical identified, the related hazards and the control measures for those hazards addressed (10 CFR 851.21). There are two alternatives that can be used to provide sufficient analysis of the routinely use chemical hazards and establish controls to mitigate:

- **Alternative 1:** At the discretion of the IH specific chemical can be listed in section 4.0 with the related hazards and controls related to the use of the chemical for the listed activity.

- **Alternative 2:** When the IH determines that it is more efficient, Section 4.0 of the CSHA will indicate when an activity introduces a chemical hazard and will refer to a specific section of the Chemical Use Attachment (CUA) for the hazards and controls specific to that chemical. The format for the CUA is described below. The CUA can be a living attachment and can be updated by the Industrial Hygienist without publishing a new revision of the CSHA. Each revision of the CUA shall be entered into the SHRI database as an attachment to the CSHA. The CUA shall identify the specific chemical SDS-MSDS number, manufacturer, product name, how it is used, and the controls for handling and use. When new chemicals, including the determination of new hazards or the assignment of new controls are added to the CUA, those changes shall be emphasized in a change summary available to the craft workers. Chemicals listed in the CUA shall be arranged in logical groupings of chemicals with the same hazards and controls*.

An IH Baseline Hazard Assessment, developed in accordance with HMIS-PRO-SP-17916 “Industrial Hygiene Baseline Hazard Assessments” shall be used to establish the basis for the chemical groupings. The chemicals associated with each group shall be listed under the group definition, hazards, and controls.

* The hazards for all of the chemicals included in a grouping may not necessarily be identical, provided common control measures are used to mitigate the hazards. For example, if one chemical product lists “Harmful if inhaled” while another product lists “May cause respiratory irritation” but both hazards are controlled by the same type of respirator.

** The IH may determine that a combination of alternatives 1 and 2 may best meet the needs of the craft discipline.

The chemical use attachment shall be presented using the following format:

CHEMICAL USE ATTACHMENT

NOTE: The most current version of this attachment can be obtained in the SHRI database for this CSHA.

The CUA shall start with the CUA Title, General Comments, and the Effective Date, Industrial Hygienist’s Name/Signature, followed by a summary of the activity based chemical groupings. Each grouping will be indicated using a letter. When needed, the tasks in the CSHA will reference the appropriate CUA section by the letter indicator.

A summary table of contents for the following activities are addressed in this CUA:

- A: Sanitizing chemicals
- B: Calibration and bulk gases
- C: Reagents and buffers
- D: Adhesives and epoxies
- E: Electronic repair, lubricants/greases/solvents
- F: Soldering

Figure 3. CSHA CUA Example

CUA Chemical Group Letter and Title	CUA ITEM D: Adhesives and Epoxies																				
Description of the Group	The following general handling control requirements in this section apply to the spot application of adhesives and epoxies while calibrating or repairing instruments. This activity relates to the MS-IS CSHA section #7, Calibrating and Repairing Instruments																				
Hazards	Skin irritation, Potential sensitization with prolonged contact																				
Controls	<ul style="list-style-type: none"> • Routine use of safety glasses and side shields. • Gloves for adhesives if more than drop wise use, or to preclude incidental contact • Disposable gloves during epoxy mixing 																				
Analysis Comments	Adhesive application in small quantities: mixing epoxy in pre-measured small gram quantity packets. Low exposure potential.																				
Chemicals in the Group	<p>The following list of chemical products are considered adhesives and epoxies used by IS:</p> <table border="1"> <thead> <tr> <th>Mfg.</th> <th>Product Name</th> <th>SDS-MSDS</th> <th>Comments</th> </tr> </thead> <tbody> <tr> <td>LOCTITE</td> <td>LOCTITE SUPERFLEX CLEAR RTV SILICONE ADHESIVE SEALANT</td> <td>054338</td> <td></td> </tr> <tr> <td>HENKEL</td> <td>LOCTITE 565 PST PIPE SEALANT H PTFE THREAD SEALANT</td> <td>067355A</td> <td></td> </tr> <tr> <td>ROYAL ADHESIVES & SEALANTS</td> <td>DOUBLE BUBBLE EPOXY EXTRA FAST SETTING RED PKG PART A (04001)</td> <td>016282A, 016282C</td> <td></td> </tr> <tr> <td></td> <td>DOUBLE BUBBLE EPOXY EXTRA FAST SETTING RED PKG PART A (04001)</td> <td>016283A</td> <td></td> </tr> </tbody> </table>	Mfg.	Product Name	SDS-MSDS	Comments	LOCTITE	LOCTITE SUPERFLEX CLEAR RTV SILICONE ADHESIVE SEALANT	054338		HENKEL	LOCTITE 565 PST PIPE SEALANT H PTFE THREAD SEALANT	067355A		ROYAL ADHESIVES & SEALANTS	DOUBLE BUBBLE EPOXY EXTRA FAST SETTING RED PKG PART A (04001)	016282A, 016282C			DOUBLE BUBBLE EPOXY EXTRA FAST SETTING RED PKG PART A (04001)	016283A	
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	DOUBLE BUBBLE EPOXY EXTRA FAST SETTING RED PKG PART A (04001)	016283A																			

Figure 4. CSHA CUA-D Example

NOTE 1: *Keep in mind that chemical products deemed as not hazardous according to Appendix B, criterion 8, are authorized for use under the GHA and do not need to be addressed in the CSHA.*

NOTE 2: *See also section 4.4 “Forms, Permits, and Plans” regarding when the use of the “Task Specific Chemical Hazard Analysis” form is allowed.*

4.3.3 Review and Approval

The author/SME developing the CSHA should consult with workers within the craft discipline to establish the general work scope and hazards typically encountered. The discussion with workers should involve this procedure, particularly the content of [Appendix B](#) as it relates to the roles of the GHA, CSHA, forms/permits/plans, and the job hazard analysis checklist. Each CSHA shall be approved by the craft organization Functional Manager, the applicable Union Safety Representative, the SME for Work Management, the SME for this procedure, HMIS-PRO-SP-079, and the assigned Industrial Safety and Industrial Hygiene SMEs. Approved CSHA documents shall be posted in the SHRI database by CSHA title (*CSHA-Organization-Craft type/discipline-*).

A CUA used with the CSHA is a living document. The IH shall sign and date the CUA and post a .pdf copy as an attachment with the CSHA in the SHRI database. The approval date will suffice as the revision identification of the CUA.

4.3.4 Craft/Worker Review and Acknowledgement

Each craft organization shall assure that each worker within the affected organization has reviewed and acknowledged the CSHA (and CUA, as applicable) upon initial assignment to the organization and as a minimum once every year. The review and acknowledgement shall be documented and maintained in the SHRI database as a part of the worker's training records. This can be achieved by roster(s) with CSHA ID, and date signed by one or more workers. The roster(s) shall be signed/authorized by the respective craft organization's manager.

The intent of this review is to perform a review of the CSHA content by the craft group and led/facilitated by the Cognizant Manager/delegate. The recommended approach is to divide the CSHA, and CUA (as applicable), into "bite size" slices which can be reviewed weekly/bi-weekly, during "Back to Work Meetings," or other appropriate venues, such that the entire scope is reviewed within the required annual interval. The intent is to promote continual worker awareness of the scope and content of the CSHA. Required reading should not be used as the vehicle to accomplish this review, except as a last resort under special circumstances.

4.3.5 Periodic Review/Revision of the CSHA

Each CSHA shall be reviewed as indicated in step 4.3.3 above and assigned a new review date at least once every two years.

NOTE: A CSHA may need to be updated more often if new task/hazard/control information is ascertained. (e.g., a new chemical appropriate for inclusion in a CSHA as indicated in the Task Specific Chemical Hazard Analysis form.)

4.3.6 Use of the CSHA

The purpose of the CSHA is to establish the control measures for hazards that are common/routine to the core activities of specific craft workers' assigned job position. The workers for which the CSHA was written are expected to be familiar with the content of the CSHA (See 4.3.4 above) and implement the hazard controls as prescribed. It is recommended, but not required, that a copy of both the GHA and the CSHA be available in the field during the performance of work activities.

If hazards, not addressed in the GHA, CSHA, or the Job Hazard Analysis (JHA) checklist, are encountered during the performance of work that cannot be resolved immediately, the workers and/or the Field Work Supervisor are expected to address the new hazard according to the stop work process defined in [DOE-0343](#), *Hanford Site Stop Work Procedure*. In addition, no matter how it was resolved, the new hazard and the resolution/related actions taken shall be recorded in the work record section of the work package, along with a statement regarding the action needed, to communicate the new hazard to the author of the applicable CSHA. This will ensure that as part of the closure of the work document, an action will be generated such that the new hazard is communicated to the author of the CSHA to be considered for inclusion in the related CSHA.

4.4 Forms, Permit and Plans

Permits for various activities are required by site wide standards and in some cases by HMIS procedures. Each procedure requiring a form/plan/permit identifies the requirements for the permit content, effective duration, review and approval. Forms required when various hazards are identified, are listed in [Appendix B](#) of this procedure. When a permit is required, it shall be included in the work package in accordance with [HMIS-PRO-WC-12115](#). Other safety related forms, considered optional, may be used as allowed in accordance with a level 2 procedure. The "Task Specific Chemical Hazard Analysis" form (Site Form [A-6007-195](#)) is allowed by this procedure (HMIS-PRO-SP-079) when new chemical hazards are introduced by a job and no other hazards associated with that job require the use of the Category 4 JHA Checklist. This form includes a section to justify adding the chemical to a future revision of the CSHA as a common / routinely used chemical when appropriate.

The hazard analysis will likely involve the GHA, any applicable CSHAs as well as the required form/permit. This hazard analysis technique is referred to as Category 3. Specific criteria for selecting the Category 3 (form/permit) hazard analysis technique are prescribed in [Appendix B](#).

4.5 HMIS Job Hazard Analysis Checklist (Site Form [A-6007-189](#))

The HMIS Job Hazard Analysis (JHA) Checklist can be found in Site Forms as [A-6007-189](#). The current revision of this form is listed on the form and is independent of this procedure. A revision to this form template does not require a revision to this procedure.

4.5.1 Use of the JHA Checklist

The process for screening work activities to determine if the JHA Checklist is required, is specified in section 4.7.5 “Work that Requires the Use of the HMIS Job Hazard Checklist,” and [Appendix B](#) of this procedure. The process for completing the JHA checklist is specified in section 4.8 of this procedure. **The HMIS Job Hazard Analysis Checklist is required for all Category 4 hazard analyses, as indicated in Appendix B.**

Even though a specific work activity is performed frequently, [Appendix B](#) or management may require the use of the JHA Checklist due to the severity/significance of the hazards associated with the work. All Category 4 (JHA Checklist) hazard analyses shall be for as narrow a scope of work as practical and identify only the hazards that can reasonably be expected to be encountered during the conduct of this work, and the specific controls necessary and sufficient to mitigate each hazard identified. The intent is **NOT** to use the JHA checklist to identify indeterminate hazards (hazards not yet confirmed to be present for the activity being analyzed). Such an approach is NOT acceptable, as it leads to a hazard evaluation document where much of the content is not applicable to a given work evolution. Such hazard analysis documents are not specific, are unwieldy, and therefore much less useful to the FWS and workers.

The following criteria apply to the development of a JHA Checklist:

- The scope of the work / activity must be adequately developed, such that potential hazards are identified based on that described scope of work/activity (i.e., not a generic scope of work). The roles of all of the workers involved (by discipline) should be included in the supporting description of the scope. For each discipline involved, specify craft discipline/unique craft ID / role(s).
- The specific controls necessary and sufficient to mitigate each hazard are specified, explicit for the work activity. The JHA checklist shall provide sufficient hazard control information to clearly identify the intended control measure.
 - Manufacturer instructions, recommendations, safety warnings, and applicable industry codes, standards, and recommended practices shall be considered and incorporated into the hazard controls for applicable work activities involving tools, equipment, etc.
 - The JHA checklist is designed to function as an index (i.e., road map) to the selected hazard controls determined for a given specific work activity. The JHA checklist is used to record the results of the hazard analysis for the specific work activity. Approvers of a completed JHA checklist are confirming that there is a clear connection between the methods selected on the JHA checklist and the documents that those methods represent (forms, permits, plans, location in work instructions, and whether associated with a Critical Step). These approvals indicate the approvers agree that the details specified in the documents indicated are accurate and sufficient for controlling the hazards identified for the specific work activity.

4.5.2 Standing JHA Checklist

When the JHA checklist is used to analyze hazards with the intent of re-use, for a specific work activity that will likely be performed repeatedly within the same year, a “good from and through date” must be applied.

The following criteria applies specifically to a Standing JHA Checklist, in addition to the criteria given in 4.5.1:

- Those hazards that can reasonably be expected to be encountered during the conduct of this work overtime, and **only those hazards**, are identified.
- The valid date of the JHA checklist shall not exceed one year.
- Any referenced forms and permits must be valid during the performance of work covered by the standing JHA Checklist.
 - a. Some forms or permits may have a shorter active valid date range. In any case, if a form/permit is required for the work addressed in the standing JHA checklist, a current form/permit shall be valid during the performance of work covered by the standing JHA checklist.

When used as a “Standing JHA Checklist” enter a unique identification number on the JHA Checklist in the “Work Package/Procedure No.” block using the following format: SJHA-ORG-WORK TYPE-SEQUENCE, where:

- SJHA indicates that it is intended as a “Standing” JHA checklist (This provides a distinction between a standing JHA and other work control numbering)
- ORG = an abbreviation for the applicable organization (i.e., MS for Maintenance Services)
- WORK TYPE = One of the following abbreviations for the type of work activity:
 - CAL = Calibration
 - OPS = Operations
 - PM = Preventative Maintenance
 - CM = Corrective Maintenance
 - SUR = Surveillance
- SEQUENCE = A unique sequential number starting with 1 and in increments of 1 (i.e., 1, 2, 3) applied to each combination of the first three elements. For example, SJHA-MS-PM-1, SJHA-MS-PM-2, SJHA-MS-PM-3, etc., whereas a different combination of the first three elements would also begin with 1 (e.g., SJHA-PSRP-SUR-1, SJHA-PSRP-SUR-2, SJHA-PSRP-SUR-3).

All Standing JHA Checklists shall be entered into the SHRI database, JHA Checklist module. By searching on the “JHA Checklist No.” field using the first three elements, the next available sequence number will become evident.

4.5.3 Field Changes

Field changes to a completed and approved JHA checklist will be determined to be a minor change or a substantive change. Minor changes include corrections to errata such as spelling changes or reference errors that have no effect on the hazard and control content of the completed JHA checklist. Substantive changes include revisions that affect the hazard and control content.

- The use of a “line through” technique with reviser’s initials and date is acceptable change documentation method for minor changes.
- Substantive changes might include a “line through” technique (*with reviser’s initials and date*) and/or the addition of new hazard and/or control content. Substantive changes as a minimum shall be signed and dated by the Field Work Supervisor using the “Substantive Change” section on the cover page. Any substantive changes to JHA checklist line items where an SME approval is designated, shall also be signed and dated by the applicable SME. A summary of the changes made shall be added to the Substantive Change section of the cover page. For changes which affect the content of controls specified in work instructions, [HMIS-PRO-WC-12115](#) (Section 5.6) will require additional approval, by the work document Approval Authority, at a minimum.

4.5.4 Review and Approval

A new revision number shall be assigned to the JHA checklist for any of the following:

- If the work is suspended AND the hazard analysis was re-conducted prior to restarting the work.
- If the JHA Checklist was finalized more than one year prior to starting the job.
- At least once each year, if a Standing JHA checklist is used; i.e., used for multiple evolutions of a specific work activity (see section 4.5.2).
- Controls developed for technical procedures through the JHA process shall be incorporated into the steps of technical procedures and will be reviewed when changes are made to the procedure or during specified periodic review cycles in accordance with HMIS-PRO-MS-589. JHAs developed for technical procedures only need to be revised if changes to the procedure introduce additional hazards.

4.6 Subcontractor Job Hazard Analysis

The job hazards analysis requirements and processes for subcontracted work to be performed by HMIS subcontractors (CONTRACTOR) as an HMIS managed on site activity is addressed in [Appendix C](#). The requirements specified in this appendix are applied at the specific job/activity level. Establishing the overall safety requirements for the scope of work to be performed by a subcontractor shall be done in accordance with [HMIS-PRO-SP-48065](#), *Subcontractor Safety Processes*.

4.7 Process

All work activities shall be screened, using [Appendix B](#) of this procedure, to determine the appropriate job hazard analysis document type (i.e., JHA Category 1-GHA, 2-CSHA, 3-Form/Permit, or 4-JHA Checklist). Once the JHA category has been determined, the supporting JHA documents will be referenced, and controls included in the work package or technical procedure as specified below. The controls identified in the GHA, CSHA are not to be reiterated in the work instructions. Similarly, the controls identified in required forms, permits and plans are not to be reiterated in the work instructions. JHA Category 4-JHA Checklist controls shall be defined (if not defined on a required form, permit or plan) or referenced (if defined in a required form, permit or plan) in the work instructions, as indicated by the methods prescribed in the checklist.

4.7.1 Screening to Determine the Job Hazard Analysis Documentation Category

In all cases screeners must take a holistic approach to the identification of job hazards including consideration of the tasks to be performed; the location where the work will be conducted; the materials to be used; the equipment, including the manufacturers' warnings and recommendations; and the impacts on or by adjacent activities. Manufacturer instructions, recommendations, safety warnings, and applicable industry codes, standards, and recommended practices shall be considered and incorporated into the hazard controls for applicable work activities involving tools, equipment, etc. The screening process is designed to result in a progressive determination of applicable JHA documents. This progressive determination represents a graded approach to selecting the appropriate job hazard analysis category (See Figure 5). The job hazard analysis category determination for all Category 2 – CSHA, Category – 3 Forms/Permits/Plans, and Category 4 – JHA Checklist, shall be recorded, including the date and who made the determination in an appropriate work control document, or when applicable a level 3 procedure.

The objective is to use only the GHA to address those hazards and related controls that are common to all HMIS workers. As such, these hazards do not need to be and should not be addressed in other hazard analysis documents. In the case where a job does not involve any hazards beyond those addressed in the GHA, the GHA is sufficient hazard analysis documentation for such a work activity. This is referred to as a "Category 1-GHA" hazard analysis (See section 4.2). When other hazards beyond those addressed in the GHA are identified additional hazard analysis documents will be required.

Some jobs involve hazards that are unique to a given craft discipline. Even though these hazards are unique to the craft discipline, these hazards and the related controls are routinely handled by the workers of that craft discipline. Therefore, those hazards and related controls can be identified in a Craft Specific Hazard Analysis (CSHA). Because the hazards and controls common to all workers are addressed in the GHA, they do not need to be and should not be addressed in the CSHA. However, it is anticipated that at least some of the hazards addressed in the GHA are likely to exist during most work activities. Therefore, work that involves hazards unique to a craft discipline will require both the GHA and the CSHA. For such work activities, the combination of the GHA and the CSHA are sufficient Documentation.

The hazard analysis for such work activities is referred to as a “Category 2-CSHA” hazard analysis technique.

In addition to the GHA and CSHAs, some hazards require the completion of a form, permit, or plan. Forms/permits/plans typically focus on the hazards and controls required for the hazard that triggered the form/permit/plan. When a form/permit/plan is required, it will be used in conjunction with the GHA and applicable CSHA(s). The hazard analysis for such work activities is referred to as a “Category 3-Forms/Permits” hazard analysis technique.

When a work activity involves one or more hazards that require a functional area subject matter expert’s (SME) review and/or approval (beyond the SME approval of a form/permit), as prescribed in [Appendix B](#) (Category 4-JHA Checklist), completion of the job hazard analysis checklist is required. This approach to the job hazard analysis is referred to as a “Category 4-JHA checklist” hazard analysis technique. The use of the JHA checklist is also recommended when multiple craft and/or multiple forms/permits are involved. Similar or equivalent forms/permits from other Hanford contractors (OHC) may be used when work activities occur within OHC facilities or the activity is supervised by OHC personnel (i.e., matrixed employees). JHA checklists (or similar job hazard analysis documentation) from OHC shall not be utilized. In such cases the JHA checklist will act as a “road map” indicating which craft disciplines involved are exposed to which hazards, and which hazard analysis document/method addresses each of the hazard controls (see section 4.7.5).

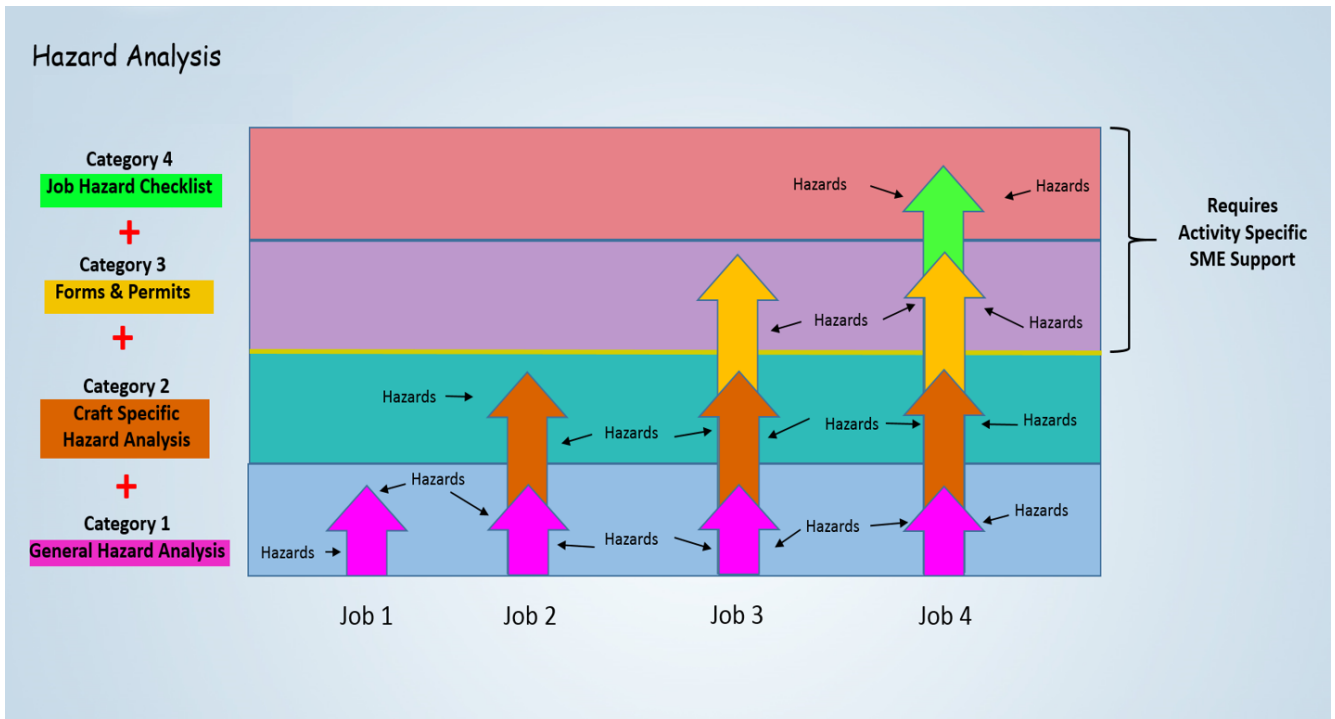


Figure 5. Hazard Progression

4.7.2 Work Hazards Sufficiently Covered by the HMIS GHA (Category 1-GHA)

It is assumed that at least some of the hazards reflected in the GHA will most likely apply to any work activity. Therefore, it is expected that the GHA will always be a part of the hazard analysis. When all hazards identified are addressed in the GHA, the GHA is the only hazard analysis documentation required. When a work document is required, in accordance with [HMIS-PRO-WC-12115](#), the decision that the job involves only hazards addressed in the GHA (i.e., the work is JHA Category 1-GHA) shall be recorded in the work document including the name of the individual that made that determination.

4.7.3 Work Hazards Sufficiently Covered by a CSHA AND GHA (Category 2-CSHA)

A CSHA applies when the work involves hazards and related controls that are beyond those addressed in the GHA, are specific to the subject craft, and have been evaluated and determined to be skill based for the subject craft as prescribed in section 4.3 of this procedure. When no other hazards beyond those addressed in the CSHA(s) and GHA can be identified, the CSHA(s) and GHA constitute sufficient hazard analysis documentation. When such a determination is made it shall be recorded in the work document including the name of the individual that made the decision (i.e., the work is JHA Category 2-CSHA), and the specific CSHA(s) used (unless already provided via a completed JHA checklist). Note any CSHA used for this screening step shall have been developed and published in accordance with section 4.3 and [Appendix B](#) of this procedure.

4.7.4 Work Hazards Sufficiently Covered by a Permit/Form/Plan use in Conjunction with a CSHA and GHA (Category 3-Forms/Permits)

Some work activities require a permit, form, or plan (that is associated with the hazard analysis process). Some of the work activities that require a permit/form/plan have been determined to be JHA Category 4-JHA Checklist and require the use of the HMIS Job Hazard Analysis Checklist regardless of the content of the permit. Other work activities that require a permit / form/plan, when used in conjunction with a CSHA and the GHA may constitute sufficient hazard analysis documentation. The required permit/form/plans and criteria for this category are specified in [Appendix B](#) as Category 3-Forms/Permits. In this case, because the controls specified in the permit/form/plans are not required to be defined in the work instructions, copies of the permit/form/plans shall also be included in the work package.

However, there are two circumstances where use of a permit/form/plan as the sole method for defining a control is not sufficient:

- When a hazard/control set has been associated with a Critical Step ([HMIS-PRO-WC-12115](#), Definitions).
- When a determination is made that hazards related to the subject of a permit/form/plan (e.g., excavation, confined space, etc.) are not sufficiently addressed in the permit/form/plan itself.

In either case, those hazards must be addressed as Category 4-JHA Checklist, using the HMIS JHA Checklist. For the 2nd circumstance, this determination shall be recorded on the JHA checklist, including the name of the individual that made the decision, and the specific permit/form/plan(s) in question.

4.7.5 Work that Requires the use of the HMIS Job Hazard Analysis Checklist (Category 4-JHA Checklist)

When any of the criteria in [Appendix B](#) indicate that Category 4-JHA Checklist applies, the HMIS JHA Checklist must be completed for the subject work activity. Any work that involves other hazards not identified in [Appendix B](#) of this procedure and not addressed in one of the Category 1-GHA, 2-CSHA or 3-Forms/Permits documents, also requires the use of the HMIS JHA Checklist. When such a determination (JHA Category 4-JHA Checklist) is made it shall be recorded in the work document including the name of the individual that made the decision. In addition to the hazards to be addressed in the JHA checklist, most likely work that requires a Category 4-JHA Checklist hazard analysis will also involve some of the hazards addressed in the GHA, some hazards addressed in one or more CSHAs, and possibly hazards addressed in one or more form, permit, or plan(s). The JHA checklist is designed to function as an index (*i.e., road map*) to the selected hazard controls established for a given specific work activity. Unlike a procedure that prescribes methods and criteria, the JHA checklist is used to record the actual results of the hazard analysis for the specific work activity.

Each hazard listed in the JHA checklist is to be answered [Yes] or [No]. Those hazards answered yes, are evaluated and the necessary control measures established distinctively for the activity being analyzed. The JHA checklist will indicate when controls for the activity being analyzed are sufficiently addressed in the GHA, a CSHA, or a form/permit/plan. When controls are addressed in a form, permit, or plan select the appropriate form/permit/plan checkbox.

When controls that address Category 4-JHA Checklist hazards are required, the appropriate Category 4-JHA Checklist checkbox shall be selected. Enter a summary of the control(s) in the box provided and enter the documentation method code in the method box. The documentation method codes are listed at the bottom of each JHA checklist page. A clear connection between the selections made on the JHA checklist and the method (*i.e., precise document/location*) indicated shall be confirmed (*i.e., the control summary must be sufficiently descriptive to make the related control details entered into the work instructions readily evident*).

“When a hazard checkbox is not selected, it has been determined that the hazard does not apply to that work activity and nothing in the “Category 3 / 4 column applies to that hazard.”

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4.8 Performing the JHA Using the HMIS JHA Checklist

Actionee	Step #	Action
Validation Authority (work request) or Procedure SME [new technical procedures, technical procedure changes]	1.	PERFORM initial screening for determination of the hazard analysis documentation Category.
	2.	REFER TO Section 4.7.1 and Appendix B of this procedure.
	3.	SELECT and RECORD the JHA Category to be used.
Validation Authority (work request) or Procedure SME [new technical procedures, technical procedure changes]	4.	For technical procedures, UPLOAD applicable JHA documentation as supporting documents in the procedure system): <ul style="list-style-type: none"> • <u>Category 1: HMIS GHA</u> – LIST category and enter your name in the CMMS or work document when applicable (See 4.7.2 of this procedure). • <u>Category 2: CSHA & GHA</u> – LIST category and enter your name in the CMMS or work document. IDENTIFY the applicable CSHA(s) in the work document or a completed JHA checklist. • <u>Category 3: Permit + CSHA and/or GHA</u> - LIST category and ENTER your name in the work document. IDENTIFY the applicable CSHA(s), forms, permits, and plans in the work document or in a completed JHA checklist. • <u>Category 4: HMIS JHA Checklist</u> – LIST category, and FORWARD to work planner. Procedure SME will coordinate with Field Safety and Industrial Hygiene to initiate JHA Checklist.
	5.	For JHA Category 1-3, CONFIRM hazard controls are sufficient for the work activity, and that there are no Critical Steps .
	6.	Once confirmed, EXIT this section

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Actionee	Step #	Action
Work Planner or Procedure SME	7.	<p>PREPARE an initial draft of the HMIS Job Hazard Analysis Checklist Site form A-6007-189 with the following:</p> <ul style="list-style-type: none"> • ENTER header information. The scope of the work/activity must be adequately developed, such that potential hazards are identified based on that described scope of work/activity (i.e., not a generic scope of work). • INCLUDE the roles of all of the workers involved (by discipline) in the supporting description of the scope. • For each discipline involved, SPECIFY <i>craft discipline/unique craft ID/role(s)</i>. • Using the checkboxes provided SELECT or ANSWER hazards Yes or No, based on available information. • SELECT the checkboxes for any applicable sub-hazard(s) listed. • For each hazard selected, ADD hazard detail as needed, and DESCRIBE the task where the hazards will be encountered. • In the hazard detail text box, IDENTIFY the craft that will be (potentially) exposed to this hazard. • ENTER <i>ALL</i> or enter the <i>specific craft IDs</i> given in the scope description above for the identified craft. • LIST applicable CSHA(s) for each identified hazard. • INDICATE hazards addressed in the GHA and applicable CSHAs. • SOLICIT input on the initial draft from subject matter experts (SMEs) as needed (normally Industrial Safety and/or Industrial Hygiene).
Functional Area SMEs	8.	<p>REVISE the initial draft checklist prepared by the Work Planner or TA.</p> <ul style="list-style-type: none"> • ADD or correct hazard information. • SPECIFY Category 4-JHA Checklist controls and basis, as needed.

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Actionee	Step #	Action
Work Planner/Workers/ FWS/Functional Area SMEs or Procedure SME/Functional Area SMEs	9.	<p>REVIEW Initial Draft of JHA as follows:</p> <ul style="list-style-type: none"> • REVISE checkbox selections as appropriate • ENTER hazard details as needed • CORRECT or ADD Category 4-JHA Checklist control summaries, as needed
Procedure SME/Functional Area SMEs	10.	<p>REVISE/AUGMENT scope description, hazard selection, details, and task descriptions, as needed.</p>
Work Planner or Procedure SME/Functional Area SMEs	11.	<p>For each hazard, FINALIZE the control measures:</p> <ul style="list-style-type: none"> • Using the checkboxes provided INDICATE if the needed controls are sufficiently addressed in the GHA, CSHA, and/or a required permit/form/plan. • For each Category 4-JHA Checklist control checkbox selected: <ul style="list-style-type: none"> – EVALUATE the hazard and DETERMINE the appropriate set of controls necessary to mitigate the hazard, applying the hierarchy of controls given below. – ENTER a summary of the control(s), and next to the summary confirm/enter one or more of the methods, as applicable: <ul style="list-style-type: none"> A - Precaution/Limitation/Prerequisite B - Work/Procedure Instruction C - Permit/Form/Plan D - Parallel Process E - Critical Step
Work Planner or Procedure SME/Functional Area SMEs	12.	<p>APPROVE the checklist.</p> <ul style="list-style-type: none"> • Author required as a minimum, AND • Additional Functional Area SME approvals, as required based upon the Category 4-JHA Checklist Appendix B criteria/checklist items selected.

Actionee	Step #	Action
Work Planner or Procedure SME/Functional Area SMEs	13.	DEFINE all Category 4-JHA Checklist hazard controls or referenced in the appropriate sections of the work instructions, in accordance with the method selected above.
	14.	<u>IF</u> a technical procedure, <u>THEN INCORPORATE</u> controls from the hazard analysis process into the procedure steps.
Functional Area SMEs	15.	CONFIRM the GHA, CSHA, Forms/Permits/Plans, and the work instructions adequately describe the hazard control measures for the specific work activity, by craft discipline.
		<i>NOTE: Your approval of the work instructions indicates that you have confirmed the controls in the hazard analysis documents listed and/or the work instructions sufficiently address the specific hazards for the job.</i>

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5.0 RECORD IDENTIFICATION

All records are generated, processed, and maintained in accordance with [HMIS-PRO-RM-10588](#), *Records Management Processes*, or [HMIS-PRO-RM-32281](#), *Electronic Records Management*, as applicable.

Table 1. Records Capture Table

Name of Record	Submittal Responsibility	Retention Responsibility
<p>GENERAL HAZARD ANALYSIS (GHA) HMIS-OTHER-SP-1200369, <i>General Hazard Analysis (GHA)</i> is published in accordance with HMIS-PRO-MS-589, <i>HMIS Management System Documents</i>. The periodic review and approval of the GHA is managed in accordance with Section 4.2 of this procedure</p>	<p>Job Hazard Analysis (JHA) Subject Matter Expert (SME)</p>	<p>HMIS-OTHER-SP-1200369, <i>General Hazard Analysis (GHA)</i> is published in accordance with HMIS-PRO-MS-589 which also captures the record in the Integrated Document Management System (IDMS).</p>
<p>CRAFT SPECIFIC HAZARD ANALYSIS The Craft Specific Hazard Analyses (CSHA) are developed and published in accordance with Section 4.3 of this procedure.</p> <p>CHEMICAL USE ATTACHMENTS Some CSHAs may include a Chemical Use Attachment (CUA). While these documents are an integral part of the CSHA, they are maintained separately in the SHRI database in accordance with Section 4.3.2 of this procedure.</p>	<p>Facility/Project Designated Personnel</p>	<p>Each completed CSHA is published in the Safety and Health Reference Information (SHRI) database. The SHRI database has been designed to automatically post the CSHA files to the appropriate folder in (IDMS).</p>
<p>CSHA ACKNOWLEDGEMENT ROSTERS Each craft organization is required to create a craft/worker review and acknowledgement record, typically a signed roster, in accordance with Section 4.3.4 of this procedure.</p>	<p>Facility/Project Designated Personnel</p>	<p>A .pdf file copy of these rosters are published in the SHRI database. The SHRI database automatically posts the CSHA Acknowledgement Rosters to the appropriate folder in IDMS.</p>

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Name of Record	Submittal Responsibility	Retention Responsibility
<p>JOB HAZARD ANALYSIS (JHA) CHECKLIST When a JHA Checklist is required by the hazard analysis criteria defined in Appendix B of this procedure it is developed in accordance with Section 4.5 of this procedure.</p>	Facility/Project Designated Personnel	The record copy of each instance of a JHA Checklist created for a specific work activity will be maintained in the appropriate work package in accordance with HMIS-PRO-WC-12115, <i>Work Management</i>
<p>FORMS, PERMITS, AND PLANS</p> <p>Forms, permits, and plans identified as required by the hazard analysis criteria defined in Appendix B of this procedure are developed according to the process requirements prescribed in the related working procedure. The Site Forms number and the related working procedure are listed in Appendix B of this procedure. See also Section 6.2 References of this procedure.</p>	Facility/Project Designated Personnel	The record copy of each instance of a form or permit created for a specific work activity will be included in the appropriate work package in accordance with HMIS-PRO-WC-12115, <i>Work Management</i>
<p>STANDING JOB HAZARD ANALYSIS (JHA) CHECKLIST</p> <p>When a JHA Checklist meets the criteria specified in Section 4.5.2 of this procedure as a “Standing JHA Checklist” it will be developed in accordance with Section 4.5 (et al.) and numbered and published in the SHRI database in accordance with Section 4.5.2 of this procedure.</p>	Facility/Project Designated Personnel	The copy of the Standing JHA Checklist in the SHRI database will NOT be the record copy. Even though the SHRI database automatically posts the Standing JHA Checklist to the appropriate folder in IDMS, a record copy of each instance of its use with a specific work activity, will be maintained in the appropriate work package in accordance with HMIS-PRO-WC-12115, <i>Work Management</i>

6.0 SOURCES

6.1 Source Requirements

- 10 CFR 830.122, “Quality assurance criteria”
- 10 CFR 851.21, “Hazard identification and assessment”
- 10 CFR 851.22, “Hazard prevention and abatement”
- 10 CFR 851.25, “Training and Information”

6.2 References

10 CFR 851, *Worker Safety and Health Program*
DOE/RL-92-36, *Hanford Site Hoisting and Rigging Manual*
DOE-0336, *Hanford Site Lockout/Tagout Procedure*
DOE-0342, *Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP)*
DOE-0344, *Hanford Site Excavating, Trenching and Shoring Procedure (HSETSP)*
DOE-0346, *Hanford Site Fall Protection Program (HSFPP)*
DOE-0352, *Hanford Site Respiratory Protection Program (HSRPP)*
DOE-0359, *Hanford Site Electrical Safety Program (HSESP)*
DOE-0360, *Hanford Site Confined Space Procedure (HSCSP)*
DOE-O-420.1C, *Facility Safety*
DOE-O-473.3, *Protection Program Operations*
DOE-RL-92-36, *Hanford Site Hoisting and Rigging Manual*
DOE-STD-1066-2012, *Fire Protection*
EU-PRO-ENG-60788, *Electrical Utilities Equipment and System Numbering*
HMIS-MAN-RC-5173, *HMIS Radiological Control Manual*
HMIS-OTHER-NS-61667, *300-265 Inactive Waste Site Hazard Categorization*
HMIS-PLN-SP-32219, *HMIS Worker Safety and Health Program*
HMIS-PRO-ENF -15333, *Environmental Protection Processes*
HMIS-PRO-ENF -51876, *Use of the Regulated Guzzler (Filter Vacuum Truck) Vacuum Excavation System for Radiologically Limited Activities*
HMIS-PRO-EU-066, *Electrical Utilities Lock and Tag Program*
EU Clearance Tag (BT-6001-786)
EU Hold Off Tag (BT-6001-785)
EU Switching Order
HMIS-PRO-FP-38421, *Fire Hazard Development and Implementation Process*
HMIS-PRO-MS-589, *HMIS Procedures and Related Documents*
HMIS-PRO-RM-10588, *Records Management Processes*
HMIS-PRO-RM-32281, *Electronic Records Management*
HMIS-PRO-SP-095, *Scaffolding*
HMIS-PRO-SP-10468, *Chemical Management Process*
HMIS-PRO-SP-10468, *Chemical Management Process*
HMIS-PRO-SP-121, *Heat Stress Control*
HMIS-PRO-SP-31697, *Controlling Exposures to Hexavalent Chromium*
HMIS-PRO-SP-45039, *Biological Hazards (Including Blood Borne Pathogens)*
HMIS-PRO-SP-48065, *Subcontractor Safety Process*
HMIS-PRO-SP-48856, *Roof Assessment Process*
HMIS-PRO-SP-62772, *Ergonomics*
HMIS-PRO-TRANS-37561, *Department of Transportation Federal Motor Carrier Safety Management Plan*
HMIS-PRO-TRANS-52150, *Oversize/Overweight Moves*
HMIS-PRO-WC-12115, *Work Management*
HMIS-RD-FP-7899, *Fire Protection System Testing/Inspection/Maintenance/Discrepancies*
HMIS-RD-FP-8589, *Hanford Fire Marshal Permits*
HMIS-RD-FP-9717, *Fire Protection for Construction/Occupancy/Demolition Activities*

HMIS-RD-FP-9900, *Hot Work Performance Requirements*
HMIS-RD-SP-10972, *Elevating Work Platforms*
HMIS-RD-SP-11198, *Storing, Using and Handling Compressed Gases*
HMIS-RD-SP-11812, *Occupational Noise Exposure and Hearing Conservation*
HMIS-RD-SP-12389, *Occupational Lead Exposure Control*
HMIS-RD-SP-15097, *Asbestos Control - Construction Industry*
HMIS-RD-SP-15097, *Asbestos Control - Construction Industry*
HMIS-RD-SP-15245, *Asbestos Control - General Industry*
HMIS-RD-SP-24243, *Portable and Fixed Ladders*
HMIS-RD-SP-49464, *Machine Guarding*
SAS-PRO-HP-62876 HNF-15434, *Hanford Patrol Firing Range Safety Analysis*
WSU-PRO-OP-60416, *Process Hazards Analysis of 283W Water Treatment Plant Chlorination Process*
WSU-PRO-OP-60417, *Process Safety Management of Highly Hazardous Chemicals*
WSU-PRO-OP-60461, *ChlorTainer Operation and Chlorine Cylinder Handling at 283W*

6.3 Forms

Site Excavation Permit Application (SEPA)
Special/Engineered Lift Plan
Waste Planning Checklist (A-6002-827)
Hostile Environment Plan
Hot Work Permit (A-6000-895.1)
Lead Compliance Plan (A-6001-891 or A-6004-296)
Lockout / Tagout Authorization Form (A-6004-460)
Nonemergency Hydrant Tie-In Permit (A-6003-681)
Radiological Hazard Screening Form (A-6003-838)
Radiological Work Permit (A-6007-320)
Respiratory Protection Form (A-6005-593)
Fall Protection Work Permit (A-6004-286)
Good Faith Roof Assessment (A-6004-294)
Hanford Confined Space Entry Permit (A-6005-717)
Hanford Confined Space Hazard Identification Form (A-6005-724)
Hanford PRCS Entry Notification (A-6005-718)
Eight-Criteria Checklist (A-6003-801)
Electrical Risk Assessment Form (A-6007-595)
Electrical Utilities Mobile Crane Site Visit (BC-6005-774)
Electrical Utilities Site Visit Form (BC-6003-941)
Energized Electrical Work Permit (EEWP) (A-6005-704)
Engineering Inspection Report

ALARA Management Worksheet (A-6001-965)
Asbestos Work Permit (A-6003-118)
Beryllium Hazard Analysis (A-6005-852)
Beryllium Work Permit (A-6006-202)
Critical Lift Plan
Danger Do Not Operate Tag (37-8350-035,)

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Appendix A. Glossary of Terms

Administrative Action	An action which is not considered a control directly relied upon to mitigate a hazard but is necessary to ensure that one or more existing ESH&Q internal or external requirements are met. Examples include identifying, scheduling, completing, and confirming required training, notification (to HFD, for example), and/or assignment of personnel to fulfill a required position (e.g., assignment as Competent Person for Excavation).
Competent Person	As used in this procedure, a Competent Person is: one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them [29 CFR 1926.32(f)]
Craft Specific Hazard Analysis (CSHA)	The identification and analysis of the hazards and determination of controls related to the fundamental tasks that constitute the skill- based work of the workers assigned duties for specific craft group.
Critical Step	<p>A procedure step, series of steps, or action that if performed improperly, will result in unacceptable consequences, and therefore require a higher level of planning and discussion.</p> <p>- Unacceptable Consequences: the action would result in an incident, such as an injury, a process shutdown, equipment damage, environmental release, a TSR non-compliance, etc.</p> <p>See the definition given in HMIS-PRO-WC-12115, <i>Work Management</i>, for examples.</p>
General Hazard Analysis (GHA)	The identification and analysis of the hazards and determination of controls related to the fundamental tasks performed by all employees during routine everyday activities.
Graded Approach	The process of <i>tailoring</i> hazard controls to the work being performed, applying a level of planning and rigor that is commensurate to the level of ESH issues, risk, complexity, and work coordination. Graded approach seeks to achieve a balanced combination of craft skills, written guidance/worker instructions, and worksite supervision. For this procedure the graded approach is represented by the JHA categories identified in Appendix B .
Hazard	A workplace hazard means a physical, chemical, biological, or safety hazard with a potential to cause illness, injury, or death to a person.

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Hazardous Energy	Any source of hazardous energy or materials. Sources include electrical, mechanical, hydraulic, pneumatic, chemical (toxic, hazardous, dangerous, radiological, carcinogenic), radiation generating devices, and thermal energies, as well as various forms of potential energy, such as that stored in springs, compressed gases, or in suspended objects (gravitational).
JHA Category	One of four levels of documentation required to identify hazards and establish hazard controls.
Method	An indicator that identifies the document type/process where hazard control details are transcribed. A - Precaution/Limitation/Prerequisite, B - Work/Procedure Instruction, C - Form/Permit/Plan, D - Parallel Process.
Parallel Process	A prescribed set of actions created to identify hazards and establish controls, where those actions are, by design, intended to be performed in sequence along with the performance of work activities, and are specified as such in a separate process (which is parallel to the Hazard Analysis/Work Management process) (e.g., the Lockout/Tagout process).
Subject Matter Expert (SME)	The individual designated by the Functional Manager to provide guidance and instruction for the implementation of safety and health requirements to be applied at the activity level.
Validation Authority	(HMIS-PRO-WC-12115) The individual or position designated by facility, planning center, or project management as having the responsibility and authority to validate work requests and then directs the requests into the proper type of WD for planning and performance. Note that use of a Screener, a Work Control Clerk who screens work requests for duplicates /invalid requests, is allowed; separate from the Validation Authority position.
Worksite Review	The activity/process undertaken to think-through a planned job to assure a level of readiness to perform work. It includes an understanding of the work environment hazards that may be acquired through inherent knowledge, work document review, and work site walkthrough. For ALARA purposes, the use of photography and/or video media may be used.

Appendix B. Initial Hazard Analysis Screening Criteria

This appendix identifies criteria for screening work to determine the job hazard analysis documentation requirements/method(s). The screening is based on the nature of the hazards and level of subject matter expert involvement needed. All work performed or managed by HMIS shall be initially evaluated (screened) using the criteria in this appendix. As a result of such screening, the hazard analysis shall be documented using one or a combination of hazard analysis documentation methods as specified in this procedure and in conjunction with other procedures that specify permit/form/plan requirements. Documentation categories specified in these procedures include:

- HMIS General Hazard Analysis (GHA)
- Craft Specific Hazard Analysis (CSHA)
- Required Permit/Form/Plan(s)
- HMIS Job Hazard Analysis Checklist, (Site Form [A-6007-189](#))

Category:

1. The HMIS General Hazard Analysis (GHA) can be used as the sole hazard analysis documentation method when all of the following are true:

- The job hazards, including those introduced by the environment where the tasks are performed, are limited to hazards that any HMIS worker can reasonably be expected to recognize and mitigate on their own
- No specialized training or special knowledge is required beyond basic safety and equipment operation courses, and the elements of HGET that are common to all workers
- All of the work hazards and related controls are covered in the GHA
- The work does not involve any of the hazards identified in 2, 3 or 4 below

2. A Craft Specific Hazard Analysis (CSHA) used in conjunction with the GHA will be considered sufficient hazard analysis documentation when all of the following are true:

- All anticipated hazards are addressed in the CSHA and/or the GHA.
- Hazards and related controls beyond those addressed in the GHA are unique to the subject craft and have been evaluated and determined to be routine skill based for the subject craft as prescribed in section 4.3 of this procedure.
- The work does not involve any of the hazards identified in 3 or 4 below.

NOTE: If the table below indicates that a listed hazard may be addressed in a CSHA, but it has not yet been added to the subject CSHA, it must be addressed as a Category 4 (JHA Checklist) item until updated into the CSHA.

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3. The permit/form/plan(s) identified in [Table B-1](#) used in conjunction with the GHA or CSHA may suffice as the complete hazard analysis documentation method provided all of the hazards are covered in the permit/form/plan(s), the GHA, and/or the CSHA and none of the criteria in section 4 below apply:

When this hazard documentation category (3-Forms/Permits) is used, all identified forms, permits and plans shall be completed, included in the work package, and reviewed as part of the work document review and approval process. Allowed exceptions to this are forms, permits, and plans that are completed under a parallel process (Method D), such as a TAF.

4. The HMIS Job Hazard Analysis Checklist (Site form [A-6007-189](#)) is required when: The Category 4-JHA Checklist criteria for any hazard listed below is met, or when Category 4 is selected by the planning team (even though no related Category 4-JHA Checklist criteria listed below applies). If all identified hazards screen as Category 3 or lower, use of the checklist is allowed but not required.

NOTE: The use of the phrase “[One Time]” in any of the criteria below indicates subject matter expert analysis is required the first time such a condition is introduced. Once the SME analysis, including any required controls, have been established, the condition may be added to a CSHA as part of an organization’s routine work. For example: “A modification made to an elevating work platform requires approval from the manufacturer or a qualified person. [One Time] (HMIS-RD-SP-10972).” In this example, once the modification has been evaluated and approved for use, it need not be re-evaluated for each work evolution.

Table B-1. Hazard Analysis Screening

Activity/Hazard or Sub-Hazard/Decision Criteria	JHA Category (Functional Area SME)	Required form or permit
1. Adjacent Activity <u>Risk of a worker being exposed to one or more hazards associated with an adjacent activity.</u>		
<ul style="list-style-type: none"> One or more hazards associated with an adjacent activity, which can be mitigated via establishment of a safe work boundary. 	2-CSHA	
<ul style="list-style-type: none"> Work Activity Creates Traffic Impact/Road Closure <ul style="list-style-type: none"> Activity will block or impair emergency response travel through/past the work site. (HMIS-PRO-FP-8589) The activity requires temporary traffic controls (Flaggers, cones, etc.). (HMIS-RD-SP-9237) 	3-Forms Permits	Fire Marshal Permit Traffic Control Plan
<ul style="list-style-type: none"> Any hazard associated with an adjacent activity, which requires one or more controls to mitigate hazard(s) to the HMIS workers (assigned to the HMIS activity being analyzed for hazards). 	4-JHA Checklist (IS)	

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Activity/Hazard or Sub-Hazard/Decision Criteria	JHA Category (Functional Area SME)	Required form or permit
<ul style="list-style-type: none"> Any hazard associated with this activity being planned by HMIS, which poses a hazard to one or more co-located workers involved in an adjacent activity, and thus requires one or more controls to mitigate that hazard, for the co-located workers. 	4-JHA Checklist (IS)	
<p>2. Aerial Lifts/Elevating Work Platforms</p> <ul style="list-style-type: none"> Operating or riding in and aerial lift/elevating work platform within the scope and requirements of HMIS-RD-SP-10972, Elevating Work Platforms, such that no Fall Protection Work Permit is required. Electrical Utilities use of an aerial lift or boom truck within the Minimum Approach Distance of overhead lines. 	1-GHA 2-CSHA	
<ul style="list-style-type: none"> Operation of a lift / platform <20 ft. from an energized overhead electrical line. (DOE-0359) Exiting or entering the platform while the equipment is in an elevated position. (HMIS-RD-SP-10972) A modification made to an elevating work platform requires approval from the manufacturer or a qualified person. [One Time] (HMIS-RD-SP-10972) 	3-Forms/Permits 3-Forms/Permits 4-JHA Checklist (MFCTR or ENG)	Elec. Utilities Site Visit Fall Protection Work Permit (A-6004-286)
<p>3. Airborne Dusts / Particulates (Non-chemical hazard. See also Beryllium, Asbestos, Lead, and Radiological. Nuisance dust is not considered a hazard; PPE use for comfort is voluntary.)</p>		
<ul style="list-style-type: none"> The work is expected to create airborne dusts or particulates that produce: <ul style="list-style-type: none"> Synthetic vitreous fibers, Carcinogenic fibers, Aspiration hazard, or Combustible dusts. 	3-Forms/Permits 3-Forms/Permits 3-Forms/Permits 4-JHA Checklist (FP)	Respiratory Protection Form (A-6005-593)
<ul style="list-style-type: none"> Work that will potentially generate an airborne radiological hazard 	3-Forms/Permits	Radiological Hazard Screening Form (A-6003-838)
<p>4. Asbestos</p>		

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Activity/Hazard or Sub-Hazard/Decision Criteria	JHA Category (Functional Area SME)	Required form or permit
<ul style="list-style-type: none"> ○ Intrusive activities in equipment and/or systems labeled as Internal Beryllium Contamination ○ Intrusive activities in equipment and/or systems labeled as Potentially Internal Beryllium Contamination ○ Intrusive activities in areas, equipment and/or systems labeled for Fixed Beryllium Contamination 		
<p>6. Biohazard</p>		
<ul style="list-style-type: none"> ● Handling/exposure to regulated hazards (blood borne pathogens) covered under an existing Exposure Control Plan. (HMIS-PRO-SP-45039) 	2-CSHA	
<ul style="list-style-type: none"> ● Handling/exposure to regulated hazards (blood borne pathogens) NOT covered under an existing Exposure Control Plan. (HMIS-PRO-SP-45039) 	4JHA Checklist (IH)	
<ul style="list-style-type: none"> ● Handling of non-regulated biological material, and disposal of non-radiologically contaminated carcasses. (HMIS-PRO-SP-45039) 	2-CSHA (for Bio Services)	
<ul style="list-style-type: none"> ● Assistance with live animals. (HMIS-PRO-SP-45039) 	4-JHA Checklist (IH)	
<ul style="list-style-type: none"> ● Survey (Rad. Services) and disposal (Bio. Services) of carcasses and biological material assumed to be radiologically contaminated. (HMIS-PRO-SP-45039) 	2-CSHA (for Bio. Services)	
<ul style="list-style-type: none"> ● Survey (Rad. Services) and disposal (Bio. Services) of carcasses and biological material assumed to be radiologically contaminated. (HMIS-PRO-SP-45039) 	4-JHA Checklist (RADCON & IH)	
<ul style="list-style-type: none"> ● Cleanup and disposal of rodent contaminated areas. (HMIS-PRO-SP-45039) 	2-CSHA (Bio. Services)	
<ul style="list-style-type: none"> ● Cleanup and disposal of rodent contaminated areas. (HMIS-PRO-SP-45039) 	4 JHA Checklist (IH)	
<p>7. Blind Penetration</p>		
<ul style="list-style-type: none"> ● Work where: (DOE-0359) 		
<ul style="list-style-type: none"> ○ drawings, documentation and site inspection/scans confirm no electrical circuits, conductors, or other subsurface obstructions (e.g., steam, water, rebar, etc.) exist at the penetration location 	2-CSHA	

Activity/Hazard or Sub-Hazard/Decision Criteria	JHA Category (Functional Area SME)	Required form or permit
<ul style="list-style-type: none"> ○ The presence and location of electrical circuits or conductors can be accurately identified and completely de-energized. ○ The suspected presence and location of electrical circuits, conductors, or other subsurface obstructions cannot be confirmed ○ Penetration ≥ 1.5 inches into or through wall, floors, or other surfaces that may contain concealed electrical systems, or other subsurface obstructions. 	<p>3-Forms/Permits</p> <p>4-JHA Checklist (ENG)</p> <p>4-JHA Checklist (ENG)</p>	<p>Electrical Risk Assessment Form A-6007-595</p>
<p>8. Chemical Use/Exposure</p> <ul style="list-style-type: none"> ● Exposure to low hazard chemicals: A chemical where the NFPA hazard ratings are 0 or 1 for health, reactivity, and flammability, and has <u>only</u> the GHS hazard categories of G, 5, or no GHS hazard categories. ● A routinely used chemical specifically evaluated for a given activity. 	<p>1-GHA</p> <p>2-CSHA</p>	
<ul style="list-style-type: none"> ● When a new chemical hazard is introduced by the job and NO other hazards require the use of the JHA Checklist. ● Any chemical for which respiratory protection controls have been specified, either in a CSHA or CUA (Category 2), or on the JHA checklist itself (Category 4). ● A chemical where any of the NFPA health, reactivity, or flammability hazard ratings are greater than 1, or the Globally Harmonized hazard classifications include one or more hazard category more significant than 5 (i.e., Category 1 is the most significant, Category 5 is the least) and is not included in an applicable CSHA, as specified above. ● Use of a chemical which triggers exposure monitoring, where SME involvement to assess potential exposure prior to or during the chemical use is/may be required. ● Exposure to unknown/legacy chemicals. ● Potentially hazardous/incompatible chemical mixtures. 	<p>3-Forms/Permits</p> <p>3Forms/Permits</p> <p>4-JHA Checklist (IH)</p> <p>4-JHA Checklist (IH)</p> <p>4-JHA Checklist (IH)</p> <p>4-JHA Checklist (IH/CMS)</p>	<p>Task Specific Chemical Hazard Analysis Form (A-6007-195)</p> <p>Respiratory Protection Form (A-6005-593)</p>

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Activity/Hazard or Sub-Hazard/Decision Criteria	JHA Category (Functional Area SME)	Required form or permit
9. Compressed Gases – Use, Handling, & Temporary Storage		
<ul style="list-style-type: none"> • Use or handling of compressed or Liquefied Petroleum (LP) gas quantities which are below the Category 3 requirement referenced below. • Temporary storage of compressed or LP gas, provided it is not subject to the Category 3 or 4 requirements referenced below. 	<p style="text-align: center;">2-CSHA</p> <p style="text-align: center;">2-CSHA</p>	
<ul style="list-style-type: none"> • Use or handling of compressed or LP gas quantities which exceed one or more of the amounts listed in Appendix A of HMIS-RD-FP-8589, <i>Hanford Fire Marshal Permits</i>, relative to the specific hazards of the gas. • Temporary storage of flammable gas containers requiring separation from oxidizers in the vicinity/work area (see HMIS-RD-SP-11198, <i>Storing, Using and Handling Compressed Gases</i>). 	<p style="text-align: center;">3-CSHA</p> <p style="text-align: center;">4-JHA Checklist (FP)</p>	<p style="text-align: center;">Fire Marshal Permit</p>
10. Confined Space		
<ul style="list-style-type: none"> • Any proposed entry into a Non-permit Confined Space, in accordance with DOE-0360, Hanford Site Confined Space Procedure. • Any proposed entry into a Permit Required Confined Space, in accordance with DOE-0360, Hanford Site Confined Space Procedure. 	<p style="text-align: center;">3-Forms/Permits</p> <p style="text-align: center;">3-Forms/Permits</p>	<p style="text-align: center;">Confined Space Hazard Identification Form (A-6005-724)</p> <p style="text-align: center;">Confined Space Entry Permit (A-6005-717)</p> <p style="text-align: center;">Hanford PRCS Entry Notification (A-6005-718)</p>
11. Ergonomic		
<ul style="list-style-type: none"> • Work involving one or more ergonomic sub-hazards given in the HMIS GHA, in the absence of any unique, activity specific aspects, but only up to the limits specified in the Washington State WISHA Screening Tool (Modified), site form (A-6006-299). 	<p style="text-align: center;">1-GHA</p>	

Activity/Hazard or Sub-Hazard/Decision Criteria	JHA Category (Functional Area SME)	Required form or permit
<ul style="list-style-type: none"> • Office/General Workstation • Weight/force • Material Handling • Work Overhead • Kneeling Motions • Crawling Motions • Moving Objects/Pulling/Pushing • Hand-Arm Vibration • Repetitive Motion • Climbing Motions • Work Lying on Back or Side <p>• Work involving one or more unique, activity specific ergonomic sub-hazards.</p>	2-CSHA	
<ul style="list-style-type: none"> • For exposure to a specific ergonomic hazard that exceeds any of the criteria in the Washington State WISHA Screening Tool (Modified), site form (A-6006-299), not already addressed in an applicable CSHA. (HMIS-RD-8471) 	4-JHA Checklist (IH / OMSP)	
<p>12. Excavation</p>		
<ul style="list-style-type: none"> • Excavation work involving excavation < 4 ft. in depth. • Excavation activities within 5’ of active, potentially active underground utilities, or known radioactive pipelines or structures. (DOE-0344) • Situation that could result in possible cave-ins, indications of failure of protective systems, • Excavation ≥ 4 ft. in depth, (DOE-0344) • Excavation ≥ 5 ft. in depth. (DOE-0344) • Excavation hazard exposure to co-located personnel (DOE-0344) • Exposure to vehicle traffic (DOE-0344) 	2-CSHA 2-CSHA (CP) 2-CSHA (CP) 2-CSHA (CP) 2-CSHA (CP) 2-CSHA (CP)	
<ul style="list-style-type: none"> • Excavation work > 12 inches in depth or machine excavation at any depth. (DOE-0344) 	3-Forms/Permits	SEPA Elec. Utilities Site Visit
<ul style="list-style-type: none"> • Machine excavation with 20 feet of an overhead power line. 	3-Forms/Permits	
<ul style="list-style-type: none"> • Excavation with fall hazard ≥ 6 ft. in depth. (DOE-0346) 	3-Forms/Permits	Fall Protection Work Permit (A-6004-286)

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Activity/Hazard or Sub-Hazard/Decision Criteria	JHA Category (Functional Area SME)	Required form or permit
<ul style="list-style-type: none"> Hazardous atmospheres, or other hazardous conditions exist. (DOE-0344) The excavation may pose a worker exposure hazard from soil/excavated material that is chemically contaminated or contains other hazardous materials such as asbestos, beryllium, lead, or hazardous waste. 	<p style="text-align: center;">4-JHA Checklist (IH)</p> <p style="text-align: center;">4-JHA Checklist (IH)</p>	
<p>13. Fall Hazard Fall hazards identified elsewhere in this Appendix (e.g., Aerial Lifts, Ladder Use, Scaffold Erection and Dismantling, Walking and Working Surfaces), do not need to be addressed within this hazard category as well, (i.e., duplication is not required or appropriate).</p>		
<ul style="list-style-type: none"> Activity involving exposure to a fall hazard \geq 4 feet as part of general industry activities. Activity involving exposure to a fall hazard \geq 6 feet as part of construction activities. 	<p>3 Forms/Permits</p>	Fall Protection Work Permit (A-6004-286)
<ul style="list-style-type: none"> Performing inspections, investigations and assessments within 6 feet of a leading edge to surface \geq 4 feet below (General Industry), or \geq 6 feet below (Construction). <p>Applies only for a short duration, when other fall protection is not use, and only no other work activities are being performed. HMIS-MD-SP-06952</p>	<p>3 Forms / Permits</p>	Hanford Site Fall Protection Program – Exception Approval (A-6006-584)
<ul style="list-style-type: none"> Activity involving exposure to a fall hazard of \geq 4 feet (General Industry) or $>$ 6 feet (Construction), or any height above dangerous equipment/material or a water hazard. (DOE-0346) 	<p>3- Forms/Permits</p>	Fall Protection Work Permit (A-6004-286)
<ul style="list-style-type: none"> Working near floor holes greater than two inches in their smallest dimension. For holes $<$ 1 foot consider hazards from falling objects. For holes \geq 1 foot complete an FPWP. 	<p>3 Forms/Permits</p>	Fall Protection Work Permit (A-6004-286)

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Activity/Hazard or Sub-Hazard/Decision Criteria	JHA Category (Functional Area SME)	Required form or permit
<p>14. Fire Hazard: Weld, Burn, and Grind</p> <ul style="list-style-type: none"> Hot work performed within a Designated Area, accordance with HMIS-RD-9900, <i>Hot Work Performance Requirements</i> section 2.3, or identified as an “Exclusion” hazard category, in accordance with HMIS-RD-FP-9900, <i>Appendix A, Hot Work Permit Information</i>. 	2-CSHA	NOTE: A Fire Marshal Permit is required to establish a “Designated Area,” however an additional Hot Work permit is not required within the designated area provided the provisions of the Fire Marshal Permit are followed.
<ul style="list-style-type: none"> Hot work that requires a Hot Work Permit (performed at locations other than Designated Areas). (HMIS-RD-FP-9900) Hot work activities that may cause an asphyxiation hazard. Hot work activities on materials containing unknown constituents, or know toxic/carcinogenic constituents such as chromium, cadmium, lead, nickel, etc., or hazards that otherwise require exposure monitoring, 	3-Forms/Permits 4-JHA Checklist (IH) 4-JHA Checklist (IH)	Hot Work Permit (A-6000-895.1)
<p>15. Fire Protection/Life Safety</p> <ul style="list-style-type: none"> Work involving a non-emergency tie-in to a fire hydrant (i.e., use). (HMIS-RD-FP-9717) A planned fire system impairment requires a Fire Marshal Permit to specify compensatory measures (see next entry below). (HMIS-RD-FP-8589) For a planned fire system impairment, the need for a compensatory measure (e.g., fire surveillance) will be determined by facility management and the facility FPE. (HMIS-RD-FP-7899) Entry into a deactivated/unoccupied facility (HMIS-RD-9717) 	3-Forms/Permits 3-Forms/Permits 4-JHA Checklist (MGMT & FP) 4-JHA Checklist (BLDG MGR & IS)	Nonemergency Hydrant Tie-In Permit (A-6003-681) Fire Marshal Permit

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Activity/Hazard or Sub-Hazard/Decision Criteria	JHA Category (Functional Area SME)	Required form or permit
16. Use of Forklift, Pallet Jack, Powered Pallet Jack		
<ul style="list-style-type: none"> • Basic use of forklift trucks, on even surfaces and not utilizing special attachments. 	1-GHA	
<ul style="list-style-type: none"> • Use of forklifts in accordance with DOE/RL-92-36, Hanford Site Hoisting and Rigging Manual. 	2-CSHA	
<ul style="list-style-type: none"> • Operation of a forklift <20 ft. from an energized overhead electrical line. (DOE-0359) • Forklifts which have been modified such that capacity or safe operation may be impacted require written approval (manufacturer, or a Registered PE) prior to use. [One-Time] (DOE/RL-92-36) • Obtain IS concurrence prior to use of forklifts in a hazardous area. [One-Time] (DOE/RL-92-36) • Obtain Management and IS approval prior to use of a forklift for lifting personnel. [One-Time] (DOE/RL-92-36) 	3Forms/Permits 4-JHA Checklist (MFCTR or ENG) 4-JHA Checklist (IS) 4-JHA Checklist (MGMT & IS)	Elec. Utilities Site Visit
17. General Industrial Hygiene Hazards		
<ul style="list-style-type: none"> • Exposure to the following sub-hazards, as scoped within the HMIS GHA. <ul style="list-style-type: none"> ○ Insects, Snakes or Rodents ○ Heat Exposure ○ Cold Exposure ○ Working in proximity to the Tank Farms • Exposure to one or more of the sub-hazards listed above, which includes one or more activity, equipment, or location specific hazards that result in the need for additional controls. 	1-GHA 2-CSHA	
<ul style="list-style-type: none"> • The temperature of the work environment is or is forecasted to be 85°F and above. (HMIS-PRO-SP-121) • The temperature of the work environment is or is forecasted to be 77 °F and above and one or more of the following conditions exists: (HMIS-PRO-SP-121) <ul style="list-style-type: none"> ○ Humidity sources are introduced in the work area ○ Work is conducted near sources of radiant heat, such as asphalt, roof tops, steam pipes, boilers, or heating vessels 	2-CSHA or 3Forms/Permits 2 -CSHA or 3-Forms/Permits	A-6004-062, WBGT Monitoring Field Log A-6004-062, WBGT Monitoring Field Log

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Activity/Hazard or Sub-Hazard/Decision Criteria	JHA Category (Functional Area SME)	Required form or permit
<ul style="list-style-type: none"> ○ Personal Protective Equipment use including but not limited to; Tyvek coveralls, respiratory protection, or semi-permeable chemical suits ○ Moderate to heavy physical labor is required ○ Work requires direct physical contact with hot objects ○ Work is performed in greenhouses, enclosures, or other environments with minimal air movement where heat can build up ● Physiological monitoring is required: (HMIS-PRO-SP-121) <ul style="list-style-type: none"> ○ When the WBGT exceeds the limits of the work rest regimen chart. ○ Impermeable chemical suits are used. ○ Determined as an appropriate control ● Anytime impermeable chemical suits are used. (HMIS-PRO-SP-121) 	<p style="text-align: center;">3- Forms/Permits</p> <p style="text-align: center;">4-JHA Checklist (IH)</p>	<p>A-6006-276, HMIS Heat Stress Physiological Monitoring Form – Pulse Rate Method</p>
<p>18. General Industrial Safety Hazards</p>		
<ul style="list-style-type: none"> ● Exposure to the following sub-hazards, as scoped within the HMIS GHA. <ul style="list-style-type: none"> ○ Danger of head Injury ○ Danger of Foot Injury ○ Danger of Hand Injury ○ Working Outside, High Winds ○ Working Outside, Lightning ○ Remote Locations, Working Alone ○ Poor Lighting ○ Sharp Objects ● Exposure to one or more of the sub-hazards listed above, which includes one or more activity, equipment, or location specific hazards that result in the need for additional controls. 	<p style="text-align: center;">1-GHA</p> <p style="text-align: center;">2-CSHA</p>	
<ul style="list-style-type: none"> ● Outdoor work is deemed necessary during high winds. (HMIS-PRO-SP-28034) 	<p style="text-align: center;">4-JHA Checklist (IS)</p>	
<p>19. General Tool Use</p>		
<ul style="list-style-type: none"> ● Exposure to the following sub-hazards, as scoped within the HMIS GHA. <ul style="list-style-type: none"> ○ Manual Hand Tools ○ Electric / Power Tools ○ Brooms, Shovels, Vacuums, etc. 	<p style="text-align: center;">1-GHA</p>	

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Activity/Hazard or Sub-Hazard/Decision Criteria	JHA Category (Functional Area SME)	Required form or permit
<ul style="list-style-type: none"> ○ Air Operated Hand Tools ○ Hand Trucks, Carts, or Bottle Carts ○ Near or Handling Sharp Objects, Using Cutting Tools ● Exposure to one or more of the sub-hazards listed above, but including some activity, equipment, or locations specific hazards that result in the need for additional controls. 	2-CSHA	
<ul style="list-style-type: none"> ● Obtain Design Engineering approval of any specialty design and/or modified tool(s). [<u>One-Time</u>] 	4-JHA Checklist (ENG)	
<p>20. Grinding, Sanding, or Blasting</p>		
<ul style="list-style-type: none"> ● Surface preparation activities which do not trigger the Category 4 criteria given below. 	2-CSHA	
<ul style="list-style-type: none"> ● Surface preparation activities on materials containing unknown constituents, or known toxic/carcinogenic constituents such as chromium, cadmium, lead, nickel, etc. [<u>One-Time</u>] 	4-JHA Checklist (IH)	
<p>21. Hazardous Energy Sources - Includes LOTO and Electrical Safety (NFPA 70E)</p> <p>This hazard category covers potential unexpected release of ALL non-electrical hazardous energy sources (pneumatic, hydraulic, mechanical, chemical, steam/water, springs, compressed air/gasses, or suspended load), AND electrical hazards (NFPA 70E). (DOE-0336 Appendix B)</p> <p>For hazard control in Closure Facilities (including cold and dark phase), document the lack/absence of hazardous energy sources that would require LOTO if present in the Work Package per HMIS-PRO-WC-12115, <i>Work Management</i>. The lack/absence of hazardous energy sources shall be readily field identifiable. Acceptable forms of documentation are a work-complete Engineering Change Request (ECR) or Design Change Notice (DCN). If drawings don't exist an engineering approved sketch shall be created and included in the work package documenting the configuration.</p>		

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Activity/Hazard or Sub-Hazard/Decision Criteria	JHA Category (Functional Area SME)	Required form or permit
<ul style="list-style-type: none"> • Work on systems/equipment with the potential of an unexpected release of non-electrical stored energy (Pneumatic, hydraulic, mechanical, chemical, steam/water, springs, compressed air/gases, or a suspended load). 	3- Forms/Permits	L&T Authorization form (A-6004-460)
<ul style="list-style-type: none"> • Operation of circuit breakers, electrical disconnect switches, and similar switchgear equipment, ≤ 600 Volts, with doors closed, all covers in place, and no other apparent arc flash hazard. (DOE-0359) 	2-CSHA	
<ul style="list-style-type: none"> • Operation of circuit breakers, electrical disconnect switches, and similar switchgear equipment, ≤ 600 Volts, with doors closed, all covers in place, with an arc flash potential. 	3- Forms/Permits	Electrical Risk Assessment form (A-6007-595)
<ul style="list-style-type: none"> • An ERA is not required for breaker operation for the following: <ul style="list-style-type: none"> ○ DC circuits less than 100 volts ○ Single-phase circuits ○ Three-phase circuits less than 240 volts and supplied by a single transformer (or equivalent), or generator, rated at less than 125kVA 	3- Forms/Permits	Electrical Risk Assessment form (A-6007-595)
<ul style="list-style-type: none"> • Work on battery systems operating at 50 volts or greater (DOE-0359) 	3 – Forms/Permits	Electrical Risk Assessment form (A-6007-595)
<ul style="list-style-type: none"> • Work on capacitors, capacitor banks, or equipment containing capacitors (DOE-0359) 	3 – Forms/Permits	Electrical Risk Assessment form (A-6007-595)
<ul style="list-style-type: none"> • Testing, troubleshooting, voltage/current measurement, calibration, performing safe-to-work checks, work on the load side of Class 2 circuits, removing electrical device covers, resetting overload devices, installing temporary protective measures, visual inspection within the LAB or AFB that does not cross the RAB. 	3 – Forms/Permits	Electrical Risk Assessment form (A-6007-595)
<ul style="list-style-type: none"> • Conduct of LOTO (TAF method). (DOE-0336) 	3- Forms/Permits	Lockout/Tagout Authorization Form (A-6004-460)

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Activity/Hazard or Sub-Hazard/Decision Criteria	JHA Category (Functional Area SME)	Required form or permit
<ul style="list-style-type: none"> • Conduct of LOTO (Eight Criteria method). (DOE-0336) 	3-Forms/Permits	Eight-Criteria Checklist (A-6003-801)
<ul style="list-style-type: none"> • A hazard/risk evaluation, including both an arc flash and a shock hazard analysis, shall be performed and documented for all work containing electrical hazard(s). (DOE-0359) 	3-Forms/Permits	Electrical Risk Assessment form (A-6007-595)
<p>Work within the RAB or the AFB of energized electrical conductors or circuit parts that are not placed in an electrically safe work condition, requiring an EEWP. (DOE-0359)</p>	3-Forms/Permits Senior Management Authorization	Energized Electrical Work Permit (A-6005-704)
<ul style="list-style-type: none"> • Work involving exposure to an energized or potentially energized electrical hazard with an Arc Flash Incident Energy > 12 cal/cm², where use of additional controls (such as hot sticks, increased working distance, other) beyond PPE only, should be evaluated. This bullet does not apply to the operation of circuit breakers/disconnects in normal operating condition. (See bullets above) 	3-Forms/Permits Electrical SME	Electrical Risk Assessment form (A-6007-595) completed by an Electrical Safety SME
<ul style="list-style-type: none"> • Work involves exposure associated with an EU controlled high voltage electrical hazard (source): (HMIS-PRO-EU-066) <ul style="list-style-type: none"> ○ When a requesting organization requires isolation of Electrical Utilities electrical equipment for the purpose of implementing their Controlling Organization’s energy control, the dispatcher will isolate incoming lines via a switching order to place a “Hold Off Tag.”. 	3-Forms/Permits	EU Switching Order EU Hold Off Tag (BT-6001-785)
<p>21a T&D Electrical Hazards - Includes LOTO and Electrical Safety (NESC-10) This hazard category covers ONLY electrical hazards associated with Transmission and Distribution (T&D) equipment under EU control. (HMIS-PRO-EU-481)</p>		
<p>Control of T&D Electrical Hazards</p>		

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Activity/Hazard or Sub-Hazard/Decision Criteria	JHA Category (Functional Area SME)	Required form or permit
<ul style="list-style-type: none"> ● Control of electrical transmission and distribution system sources. (HMIS-PRO-EU-066) ● A hazard/risk evaluation, including both an arc flash and a shock hazard analysis as necessary, shall be performed and documented for all work containing electrical hazard(s). (EU-PRO-OP-60781) 	<p style="text-align: center;">2-CSHA</p> <p style="text-align: center;">2-CSHA*</p>	<p style="text-align: center;">*Follow EU-PRO-OP-60781, <i>EU Safety Program</i>, Sections 3.19.3 (shock) and 3.14 (arc flash).</p>
<ul style="list-style-type: none"> ● Switching required to control electrical transmission and distribution system sources above 600 volts. (HMIS-PRO-EU-066) 		
<ul style="list-style-type: none"> ○ For Electrical System configuration control. 	<p style="text-align: center;">3-Forms/Permits</p>	<p>EU Switching Order EU Hold Off Tag (BT-6001-785)</p>
<ul style="list-style-type: none"> ○ In support of implementation of DOE-0336. 	<p style="text-align: center;">3-Forms/Permits</p>	<p>EU Switching Order EU Hold Off Tag (BT-6001-785)</p>
<ul style="list-style-type: none"> ○ To establish a Cleared Work Area for a high voltage clearance. 	<p style="text-align: center;">3-Forms/Permits</p>	<p>EU Switching Order EU Hold Off Tag (BT-6001-785)</p>
<ul style="list-style-type: none"> ● Work within the Minimum Approach Distance of energized electrical conductors or circuit parts. (EU-PRO-OP-60781) ● High voltage work practices that are outside the scope of UE-A-22.30 Electrical Utilities Safety Program, and/or arc flash Incident Energies > 40 cal/cm². (EU-PRO-OP-60781, Table 7) ● Required clothing or clothing systems (arc rated) has the potential to create additional or greater hazards than the possible exposure to heat energy. (EU-PRO-OP-60781) ● Use of non-arc rated PPE (e.g., respirator) within the arc flash boundary. (EU-PRO-OP-60781) 	<p style="text-align: center;">3-Forms/Permits</p> <p style="text-align: center;">4-JHA Checklist (MGR & IS)</p> <p style="text-align: center;">4-JHA Checklist (MGR & IS)</p> <p style="text-align: center;">4-JHA Checklist (MGR & IS)</p>	<p>EU Energized Work Checklist (E-6007-009)</p>
<p>22. Heavy or Oversize Equipment / Transport</p>		
<ul style="list-style-type: none"> ● Transportation, loading, and unloading of heavy equipment/loads. 	<p style="text-align: center;">2-CSHA</p>	
<ul style="list-style-type: none"> ● Transporting oversize/overweight loads. (HMIS-PRO-TRANS-52150) 	<p style="text-align: center;">3-Forms/Permits</p>	<p style="text-align: center;">KSR Authorization</p>

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Activity/Hazard or Sub-Hazard/Decision Criteria	JHA Category (Functional Area SME)	Required form or permit
<ul style="list-style-type: none"> ○ Movement of vehicular or mechanical equipment over 14 feet high is planned. (DOE-0359) 		
<p>23. High Noise</p>		
<ul style="list-style-type: none"> ● Exposure to high noise environments that has been evaluated and posted with noise warning and PPE requirements. 	1-GHA	
<ul style="list-style-type: none"> ● Exposure to work activities as specified in Appendix B of HMIS-RD-SP-11812, for which the specific work activities and mandatory default actions / controls have been delineated in CSHA(s). (HMIS-RD-SP-11812) 	2-CSHA	
<ul style="list-style-type: none"> ● Exposure to activity or task specific high noise environments that has been evaluated, appropriate controls specified by IH, and delineated in CSHA(s). 	2-CSHA	
<ul style="list-style-type: none"> ● Exposure to noise with a potential to be above the 8-hour TWA of 85 dBA (or equivalent noise dose) that has not been evaluated, or that requires additional evaluation/mitigation. (HMIS-RD-SP-11812) 	4-JHA Checklist (IH)	
<p>24. Hoisting, Rigging and Cranes</p>		
<ul style="list-style-type: none"> ● Hoisting and Rigging Activities conducted in accordance with DOE/RL-92-36, which do not trigger the Category 4 criteria given below. 	2-CSHA	
<ul style="list-style-type: none"> ● Operation of a mobile crane <20 ft. from an energized overhead electrical line. (DOE-0359) 	3-Forms/Permits	Elec. Utilities Mobile Crane Site Visit Form (BC-6005-774)
<ul style="list-style-type: none"> ● Movement of vehicular or mechanical equipment > 14 ft. high. (DOE-0359) 	3-Forms/Permits	Oversize/Overweight Permit (A-6003-609) KSR Authorization
<ul style="list-style-type: none"> ● A Critical Lift Plan is required. (DOE/RL-92-36) 	3-Forms/Permits	Critical Lift Plan
<ul style="list-style-type: none"> ● A Special / Engineered Lift Plan is required. (DOE/RL-92-36) 	3-Forms/Permits	Special/Engineered Lift Plan
<ul style="list-style-type: none"> ● Hoisting and Rigging activity in a hostile environment (requiring deviation from DOE/RL-92-36 requirements, see Sect. 18.0). 	3-Forms/Permits	Hostile Environment Plan
<ul style="list-style-type: none"> ● Evaluation of underground installation and/or bearing pressure is needed. (DOE/RL-92-36, Section 14) 	3-Forms/Permits	Stability/Underground Integrity Plan

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Activity/Hazard or Sub-Hazard/Decision Criteria	JHA Category (Functional Area SME)	Required form or permit
<ul style="list-style-type: none"> • Obtain Management and IS approval prior to implementing special handling control activities involving exposure of hands/other body parts to the load. (DOE/RL-92-36, Sect. 12.0, 13.0, 14.0 and 16.0) • Other means of lifting personnel are more hazardous or not possible, such that use of hoisting and rigging equipment to hoist employees is required. (DOE/RL-92-36, Section 15.0) • Lifts during high wind (≥ 25 mph sustained wind). (HMIS-PRO-SP-28034) 	<p style="text-align: center;">4-JHA Checklist (MGMT & IS)</p> <p style="text-align: center;">3- Forms/Permits</p> <p style="text-align: center;">4-JHA Checklist (IS)</p>	<p style="text-align: center;">Special/Engineered Lift Plan</p>
<p>25. Ladder Use</p> <ul style="list-style-type: none"> • Working from a ladder < 6 feet Construction or < 4 feet General Industry. • Use of a fixed or portable Ladder solely for access < 24 ft. (HMIS-RD-SP-24243) 	<p style="text-align: center;">1-GHA</p>	
<ul style="list-style-type: none"> • Working from a ladder ≥ 6 ft Construction or ≥ 4 ft. General Industry, or any height above dangerous equipment or a water hazard. (HMIS-RD-SP-24243, DOE-0346) • Use of a fixed or portable ladder for access ≥ 24 ft. (HMIS-RD-SP-24243) • Use of an HMIS design non-compliant fixed ladder, step bolt, or manhole step. (HMIS-RD-SP-24243) 	<p style="text-align: center;">3- Forms/Permits</p> <p style="text-align: center;">3- Forms/Permits</p> <p style="text-align: center;">3- Forms/Permits</p>	<p style="text-align: center;">Fall Protection Work Permit (A-6004-286)</p> <p style="text-align: center;">Fall Protection Work Permit (A-6004-286)</p> <p style="text-align: center;">Fall Protection Work Permit (A-6004-286) or a Fixed Ladder Use Justification (A-6007-900)</p>
<p>26. Lead</p> <ul style="list-style-type: none"> • Any activity which will or is likely to result in exposures at or above the Permissible Exposure Limit. Examples of activities that may involve a lead hazard include: (HMIS-RD-SP-12389, Appendix A) <ul style="list-style-type: none"> ○ Lead-brick shielding/handling ○ Weapons firing (Patrol) ○ Pouring molten lead ○ Soldering ○ Welding/cutting/grinding 	<p style="text-align: center;">3- Forms/Permits</p>	<p style="text-align: center;">Lead Compliance Plan (A-6001-891 or A-6004-296)</p>

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Activity/Hazard or Sub-Hazard/Decision Criteria	JHA Category (Functional Area SME)	Required form or permit
<ul style="list-style-type: none"> ○ Sandblasting, abrasive blasting ○ Painting and paint removal ○ Loading lead ballast/shot ○ Use of powder actuated tools ○ Lead cable pulling ○ Maintenance activities involving lead and/or lead containing materials ○ Activities covered under OSHA’s Lead construction standard (see HMIS-RD-SP-12389, Appendix A list) 		
<p>27. Operating Equipment</p> <ul style="list-style-type: none"> ● Operation of machinery and equipment appropriately guarded in accordance with the requirements of HMIS-RD-SP-49464. 	2-CSHA	
<ul style="list-style-type: none"> ● Operation of machinery and/or equipment which is not guarded in accordance with the requirements of HMIS-RD-SP-49464. 	4-JHA Checklist (IS)	
<p>28. Work Activities That Have the Potential to be Within 20 Feet of Overhead Lines</p>		
<ul style="list-style-type: none"> ● Each subsection contains section-specific definitions and requirements (Mobile Cranes, Mobile Equipment, Powered Industrial Trucks, Elevating Work Platforms, Personnel) (DOE-0359 Sec. 6.0) 	3-Forms/Permits	<p>Elec. Utilities Site Visit (BC-6003-941)</p> <p>Electrical Utilities Mobile Crane Site Visit Form (BC-6005-774)</p> <p>Electrical Risk Assessment form (A-6007-595)</p> <p>Lockout / Tagout Authorization Form (A-6004-460)</p>
<ul style="list-style-type: none"> ● Work within the Equipment Performing Work LAB of an overhead power line that cannot be de-energized requires senior management authorization (DOE-0359 4.2.3) 	4- JHA Checklist Senior Management Authorization	

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Activity/Hazard or Sub-Hazard/Decision Criteria	JHA Category (Functional Area SME)	Required form or permit
<ul style="list-style-type: none"> Work in close proximity to one or more obstruction hazards that require SME involvement to evaluate and mitigate. 	4-JHA Checklist (IS)	
29. Breach of Process Piping/ Vessels System		
<ul style="list-style-type: none"> Operational activities involving exposure to a hazardous process chemical (e.g., chlorine) which are addressed in an applicable CSHA. 	2-CSHA	
<p>Activities involving exposure to a hazardous process chemical which are not fully mitigated through application of LOTO process (see hazard #21).</p> <ul style="list-style-type: none"> Potential exposure to unknown substances contained within the piping or vessels. Breach of pressure boundary 	<p>4-JHA Checklist (IH)</p> <p>4-JHA Checklist (IH)</p> <p>4-JHA Checklist (IH)</p>	
30. Radiological		
<ul style="list-style-type: none"> Radiological work. (see definition in HMIS-MAN-RC-5173 Glossary or applicable OHC radiological control manual) Radiological work (Low, Medium, or High Risk). (HMIS-MAN-RC-5173 or applicable OHC radiological control manual) Radiological work (Medium or High Risk). (HMIS-MAN-RC-5173 or applicable OHC radiological control manual) When a potential for changing radiological conditions exists, ensure that the radiological conditions of the work area are verified consistent with the 	<p>3-Forms/ Permits</p> <p>3-Forms/ Permits</p> <p>3-Forms/ Permits</p> <p>4-JHA Checklist (RADCON)</p>	<p>Radiological Hazard Screening Form (A-6003-838) or similar/equivalent OHC form.</p> <p>Radiological Work Permit as developed from Sentential</p> <p>ALARA Management Worksheet (A-6001-965) or similar/equivalent OHC form.</p>

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Activity/Hazard or Sub-Hazard/Decision Criteria	JHA Category (Functional Area SME)	Required form or permit
<p>planning assumptions prior to entry into the work area or commencement of the radiological work activity. (HMIS- MAN-RC-5173, Article 312.5 or applicable OHC radiological control manual)</p> <ul style="list-style-type: none"> • High Risk Radiological Work requires review by a High Radiological Risk Work Review Group (HRRWRG) or similar/equivalent OHC senior management review group. (HMIS-MAN-RC-5173 or applicable OHC radiological control manual) 	<p>4-JHA Checklist (RADCON & MGMT)</p>	
<p>30a. Changes to Nuclear Facilities Formerly classified as an HC-3 Facility or Inactive Waste Sites.</p> <p>Work or surveillance activities that result in a change or discovery of a change to the inventory, form, concentration, barriers, potential dispersion, intrusion (e.g., cutting, coring, digging, etc.), addition of combustible material, or established controls associated with Nuclear Facility formerly classified as HC-3 or an Inactive Waste Site. (HMIS-PRO-NS--61831, 4.1)</p>	<p>3 – Forms/ Permits</p>	<p>HMIS Radiological Facility Change Management Evaluation (A-6006-503) Nuclear Safety SME</p> <p>NOTE: Applicable radiological facilities currently operated by HMIS: B, C, D, DR, F, H, and N reactors, and 300-265 inactive waste site, (inter-facility transfer pipeline between the 324 and 325 buildings [300 area]). (See also HMIS-OTHER-NC-61667)</p>
<p>31. Roof work</p> <ul style="list-style-type: none"> • The following structures require a Good Faith Roof Assessment, prior to employee roof access. (HMIS-PRO-SP-48856) <ul style="list-style-type: none"> ○ Roofs of mobile offices with no known current structural defects. ○ Roofs of maintained structures with no known current structural defects. 	<p>3-Forms/ Permits</p>	<p>Good Faith Roof Assessment (A-6004-294)</p>

Activity/Hazard or Sub-Hazard/Decision Criteria	JHA Category (Functional Area SME)	Required form or permit
<ul style="list-style-type: none"> • Scaffold erection within 20 ft. of an overhead power / communication line. 	3-Forms/ Permits	Elec. Utilities Site Visit
33. Vehicle Use		
<ul style="list-style-type: none"> • Exposure to the following sub-hazards, as scoped within the HMIS GHA. <ul style="list-style-type: none"> ○ Using a government vehicle ○ Off-Road vehicle use ○ Working in close proximity to vehicle traffic • Use of vehicles in accordance with an approved CSHA. (HMIS-RD-SP-9237) 	1-GHA 2-CSHA	
34. Walking and Working Surfaces		
<ul style="list-style-type: none"> • Exposure to the following sub-hazards, as scoped within the HMIS GHA. <ul style="list-style-type: none"> ○ Rough, Slippery, or Irregular Surfaces ○ Using Scaffolding • Near water, ponds, cribs, lagoons, etc., where there is a potential to slip/fall into the body of water. 	1-GHA 1-GHA	
<ul style="list-style-type: none"> • Exposure to location or activity specific walking and working surface related hazards. 	2-CSHA	
<ul style="list-style-type: none"> • Exposure to location or activity specific walking and working surface related hazards not addressed in an approved CSHA (e.g., using open stairways > 4 feet above the surface below, or working between 4 and 6 feet when fall arrest is not feasible). (DOE-0346) 	3-Forms/ Permits	Fall Protection Work Permit (A-6004-286)
<ul style="list-style-type: none"> • Exposure to location or activity specific walking and working 	4-JHA Checklist (IS)	

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Activity/Hazard or Sub-Hazard/Decision Criteria	JHA Category (Functional Area SME)	Required form or permit
surface related hazards requiring SME evaluation. (DOE-0346)		
35. Waste Generation <ul style="list-style-type: none"> • Activities involving exposure of workers to hazards associated with waste generated, or disposal of the waste, beyond the hazards identified for chemicals being used. 	2-CSHA	
<ul style="list-style-type: none"> • Activities involving generation of one or more wastes, for which no existing, established waste stream exists. • Activities involving exposure of workers to hazards associated with waste generated, or disposal of the waste that are NOT addressed in a CSHA. 	3-Forms/ Permits 4-JHA Checklist (IH)	Waste Planning Checklist (A-6002-827)
36. Working During a Declared Epidemic/Pandemic <ul style="list-style-type: none"> • On site activities involving exposure of workers to hazards associated with a declared epidemic/pandemic. 	1-GHA	

Appendix C. Subcontractor Hazard Analysis

1.0 PURPOSE

This appendix specifies the job hazards analysis requirements and processes for subcontracted work to be performed by HMIS subcontractors (CONTRACTOR) as an HMIS managed on site activity. The requirements specified in this appendix are applied at the specific job/activity level. These requirements are intended to ensure the flow down of worker safety and health requirements are communicated in sufficient detail to Contractors at all tiers.

2.0 REQUIREMENTS

The CONTRACTOR shall utilize a systematic and comprehensive process to analyze hazards for HMIS managed onsite work activities provided by the CONTRACTOR. The CONTRACTOR shall recognize and utilize the graded approach to hazard analysis utilizing the four categories of hazard analysis documentation described in this procedure. The CONTRACTOR shall:

1. Ensure workers performing activities in the field have reviewed and adhere to HMIS-OTHER-SP-1200369, *HMIS General Hazard Analysis (GHA)*.
2. Subcontractor may submit a Craft Specific Hazard Analysis (CSHA) and as applicable a Chemical Use Attachment (CUA) as described in section 4.6 of this procedure. NOTE: subcontractors may submit a single CSHA for all craft/worker types as applicable to the scope of their contract.
3. Complete all required safety related forms and permits and adhere to the controls specified therein.
4. When hazards potentially exist that are not covered in the GHA, CSHA/CUA, and applicable form and permits, the CONTRACTOR shall analyze and document hazards and controls using one of the following formats:
 - For a single or specific task/activity, CONTRACTOR may use the HMIS Job Hazard Analysis (JHA) Checklist using HMIS site form A-6007-189 JHA Checklist prior to the commencement of on-site work activities.
 - For analyzing multiple tasks/activities CONTRACTORS may utilize site form A-6008-380 Construction Job Hazard Analysis or a similar format that includes tasks, associated hazards, control measure(s), and any applicable forms/permits/permits. NOTE: These documents must be reviewed and approved by assigned HMIS Safety Professional prior to work commencing.
5. Specific work activities shall be reviewed in sufficient detail to identify any hazards that may be introduced by the work process, tools, materials, equipment, the work environment, and/or adjacent activities. Consideration should also be given to any hazards generated by the work that may have an effect on adjacent work activities being performed by others.

- a. The Contractor shall consider relevant lessons learned, if any, from the OPEXShare.doe.gov website and/or HMIS Activity Level Feedback Databases for consideration during work planning and hazard identification/analysis.
6. Hazards identified shall be documented and clearly associated with the tasks/activities and work locations where the hazard is likely to occur.
7. The CONTRACTOR hazard analysis documents shall be approved by the HMIS Buyer, and when applicable the HMIS BTR or Construction Manager.
8. Hazard analysis documents shall be reviewed and approved by qualified subject matter experts (SME) appropriate for the hazards identified (e.g., Industrial Safety, Industrial Hygiene, Fire Protection, Environmental Compliance, Electrical Safety, etc.).
 - SMEs analyzing hazards shall be individuals with sufficient expertise to establish detailed control measures in compliance with HMIS, DOE, OSHA, State, and local occupational safety, health, and environmental requirements.
 - In addition to established control measures, the details of the SME analysis (e.g., calculations, rationale, references, etc.) shall be documented where warranted. For example: a good faith roof assessment and/or load calculations for roof work access.
9. Worker training, and qualification requirements are identified, and objective evidence the workers meet those requirements shall be provided.
10. Hazards identified during the process of work due to unexpected conditions, changes in methodology and/or change of scope shall be documented in the substantive field changes sections on Site Form A-6007-189 JHA Checklist, reviewed, control measures established, and approved by applicable SMEs.

3.0 IMPLEMENTATION

1. Prior to commencement of affected work, as needed HMIS shall assist CONTRACTOR with the preparation of a job specific hazard analysis (i.e., Site form A-6007-189 JHA Checklist, GHA CSHA/CUA or Forms).
2. The CONTRACTOR provided analysis shall:
 - Identify foreseeable hazards and planned protective measures.
 - Review all hazard analysis documents on an annual basis and whenever modifications are made.
 - Address further hazards revealed by supplemental site information (e.g., site characterization data, Industrial Hygiene Baseline Assessment, as-built drawings) provided by the BTR or construction manager, or as identified during site walkthroughs.

- Provide drawings and/or other documentation of protective measures for which applicable Occupational Safety and Health Administration (OSHA) standards require preparation by a Professional Engineer or other qualified professional.
 - Identify competent persons required for workplace inspections of the activity, where required by OSHA standards.
 - Ensure worker training and qualifications specifically required for the identified work hazards are addressed.
 - Ensure workers are aware of foreseeable hazards and the protective measures described within the specific activity hazard analysis prior to beginning work on the affected activity.
 - Require that workers acknowledge being informed of the hazards and protective measures as associated with the assigned work activities. Those workers failing to utilize appropriate protective measures shall be subject to the CONTRACTOR disciplinary process.
3. The CONTRACTOR shall submit the completed hazard analysis to be approved by the BUYER if applicable and obtain HMIS BTR or construction manager approval.
 4. HMIS Safety and Health shall review and approve the CONTRACTOR hazard analysis document and advise the Buyer as needed regarding the Buyer evaluation of the CONTRACTOR hazard analysis.
 5. BUYER approval shall be documented and in place prior to the commencement of the CONTRACTOR work activities.

Appendix D. Requirements

NOTE: For the tables in this section under the requirement "type" column, "V" means verbatim, and "I" means interpreted.

#	Requirement	Type V or I	Source
1.	Ensure managers assess their management processes and identify and correct problems that hinder the organization from achieving its objectives.	V	10 CFR 830.122 Criterion 9
2.	Perform routine job activity-level hazard analysis.	V	10 CFR 851.21 Section (a)(6)
3.	Hazard analyses are documented through use of the HMIS General Industrial Hazard Analysis (GHA), and/or Craft Specific Hazard Analysis (CSHA), forms, permits, and plans, or the HMIS Job Hazard Analysis Checklist.	I	10 CFR 851.21 Section (a)(5)(6)
4.	Based on the criteria in Appendix B, Initial Hazard Analysis Determination Criteria, determine the appropriate job hazard analysis documentation category (1-GHA, 2-CSHA, 3-Form/Permit, 4-JHA Checklist).	I	10 CFR 851.21 Section (a)
5.	Document assessment for chemical, physical, biological, and safety workplace hazards using recognized exposure assessment and testing methodologies and accredited and certified laboratories.	V	10 CFR 851.21 Section(a) Para 2
6.	Evaluate operations, procedures, and facilities to identify workplace hazards.	V	10 CFR 851.21 (a)(5)
7.	Review site safety and health experience information and consider interaction between workplace hazards and other hazards such as radiological hazards.	V	10 CFR 851 (a)(7)(8)
8.	For hazards identified either in the facility design or during the development of procedures, controls must be incorporated in the appropriate facility design or procedure.	V	10 CFR 851.22 Section (a) (1)
9.	Train and qualify personnel to be capable of performing their assigned work. Provide continuing training to personnel to maintain their job proficiency.	V	10 CFR 830.122(b)(1)(2)
10.	Provide training and information to workers who have worker safety responsibilities that is necessary for them to carry out those responsibilities.	V	10 CFR 851.25(c)

NOTE: Employees may print off this document for reference purposes but are responsible to check HMIS Procedure System to ensure the most current version is used to prevent unintended use of obsolete versions.

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#	Requirement	Type V or I	Source
11.	<p>The following training shall be completed by employees as required here based on the following roles and responsibilities:</p> <ul style="list-style-type: none"> • All employees with responsibility for initiating or updating the HMIS Job Hazard Analysis Checklist, shall attend the job hazard analysis Course 170716 “Craft Specific Hazard Analysis Development Training.” • All Safety and Health SMEs shall attend course 170706 “HMIS Job Hazard Analysis Checklist Process.” • Course 170705 “HMIS Job Hazard Analysis Overview for Craft Personnel” is recommended for all craft personnel. • Course No. 172706 (<i>Use of the Feedback Database</i>) is recommended for all employees. • All employees assigned as SMEs and IA involved in the evaluation of work activities/hazard analysis shall read HMIS-PRO-SP-079. • All HMIS employees shall read the GHA at least annually. 	I	<p>10 CFR 830.122 (b)(1)(2);</p> <p>10 CFR 851.25(c)</p>
12.	Involve workers and their elected representatives in the development of the worker safety and health program goals, objectives, and performance measures and in the identification and control of hazards in the workplace.	V	10 CFR 851.20.(a)(4)
13.	Identify existing and potential workplace hazards.	V	10 CFR 851.21.(a)
14.	<p>Select controls based on the following hierarchy:</p> <ol style="list-style-type: none"> (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) Personal protective equipment. 	V	10 CFR 851.22.(b)

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#	Requirement	Type V or I	Source
15.	Ensure that all identified and potential hazards are prevented or abated in a timely manner. Prioritize and implement abatement actions according to the risk to the workers.	V	10 CFR 851.22. (a)(2)(i)
16.	Contractors must address hazards when selecting or purchasing equipment, products, and services.	V	10 CFR 851.22. (c)
17.	Report hazards not previously identified or evaluated.	V	10 CFR 851 Appendix A