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CP3-HS-2004 FRev. 3A	TITLE: Job Hazard Analysis	Page 1 of 31

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REVISION/CHANGE LOG

Revision/Change Letter	Description of Changes	Pages Affected	Date of Revision/Change
FR0	Bluesheet Initial Release	All	10/20/17
FR1	Non-intent Changes to Remove From Bluesheet	All	12/07/17
FR2	General revision.	All	3/20/2018
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1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides direction for protecting workers from dangerous safety and health conditions, establishing and implementing a hazard prevention and abatement process to ensure that all identified and potential hazards are prevented or abated in a timely manner, identifying workplace and environmental hazards, performing analyses, developing controls and creating a documented Job Hazard Analysis (JHA) consistent with other site documents of that nature. The JHA is a documented "tool" that provides assistance in implementing the Paducah Gaseous Diffusion Plant (PGDP) Deactivation and Remediation (D&R) Contractor's Integrated Safety Management System (ISMS), applicable performance documents, and approved Activity Level Work Control Document (ALWCD). Industrial Hygiene Work Permits (IHWP) are extensions of the Hazard Analysis process that support the JHA development and ALWCDs.

1.2 Scope

This procedure applies to the completion of JHAs associated with the workplace and environment, including hazard identification, hazard analysis, and determination of hazard controls.

This procedure encompasses activities within work categories delineated by contract requirements which introduce hazards uniquely addressed by each of the following programs at the company and/or project level:

- CP2-HS-2000, *Worker Safety and Health Program*
- CP2-RP-0001, *Radiation Protection Program*
- CP3-NS-1031, *Nuclear Criticality Safety Program*

This procedure applies to PGDP D&R Contractor personnel, vendors and suppliers, and subcontractors when performing activities that require identification and analysis of workplace and environmental hazards before work is performed. This includes:

- Preparing a JHA or IHWP for a procedure being developed or revised according to an ALWCD or work package.
- Developing or revising a procedure, according to CP3-OP-0002, *Developing and Maintaining Performance Documents*
- Preparing a JHA or IHWP for vendors or suppliers
- When a JHA or IHWP revision is required.

2.0 REFERENCES

2.1 Use References

- CP2-SM-1000, *Activity Level Work Planning and Control Program*
- CP3-HS-2009, *Stop/Suspend Work*
- CP3-OP-0002, *Developing and Maintaining Performance Documents*
- CP3-OP-0025, *Document Control Process*
- CP3-SM-1101, *Work Package Development*
- CP3-SM-1102, *Activity Level Work Execution and Closeout*

2.2 Source References

- CP2-HS-1000, *Integrated Safety Management System Description*
- CP2-HS-2000, *Worker Safety and Health Program*
- CP2-RP-0001, *Radiation Protection Program*
- CP3-HS-2009, *Stop/Suspend Work*
- Occupational Safety and Health Association (OSHA) Publication 3071, *Job Hazard Analysis*
- Title 29 CFR § 1910, *Occupational Safety and Health Standards*
- Title 29 CFR § 1926, *Safety and Health Regulations for Construction*

3.0 COMMITMENTS

None

4.0 RESPONSIBILITIES

4.1 Supervisor

4.1.1 Prepares and provides an accurate and detailed scope of work being performed.

4.1.2 Reviews work requests, and requests Safety & Health (S&H) support Work Planners to determine whether existing JHA(s) is adequate, or determines the need for a new JHA to address work scope.

4.1.3 Assigns the members of the JHA Development and Planning Team, including a Preparer to author the JHA.

4.1.4 Assigns additional Subject Matter Expert (SME)(s), as needed, to the JHA Development Team.

4.1.5 Initiates the JHA process and/or assigns a designee who has been trained and is familiar with the scope of work.

4.1.6 Ensures on a daily basis that the assigned JHA is the latest revision, and that the JHA is within expiration date prior to use when making job assignments.

4.1.7 Acts as the JHA Approver for JHAs initiated or developed by the assigned team.

4.1.8 Brief the workers on hazards and hazard control requirements (for example, JHA, IHWP, ALWCDs, etc.) according to CP3-SM-1102, *Activity Level Work Execution and Closeout*.

4.1.9 Monitors work area conditions and work activities to ensure compliance with JHA hazard control requirements.

4.1.10 Monitors work area conditions and work activities to ensure the effectiveness of hazard control measures.

4.1.11 Coordinates in-field (redline) revisions, as needed according to Step **6.3.5**.

4.1.12 Ensures that JHA revisions are incorporated in the associated procedure or ALWCD.

4.2 Facility Manager

4.2.1 Determines whether a facility is to have a representative required on the walkdown team when notified of a walkdown in his or her facility.

4.2.2 Provides support to the JHA Development and Planning Team in identifying hazards and controls within their assigned area and/or facility on an as-needed basis, as needed.

4.2.3 Determines the Safety Basis document requirements when working in identified work area.

4.3 Work Planner or JHA Development Team

4.3.1 Performs and documents walkdowns to identify workplace and environmental hazards and establishes CP3-HS-2004-F01, *Hazard Identification Checklist (HIC) (*sample provided in Appendix C, *HIC Checklist*).

4.3.2 Performs talk-through, table top or interactive planning reviews to identify hazards and establish controls required to perform the work scope safely, using the HIC to document findings.

4.3.3 Performs concurrence reviews of JHAs before they are finalized by the Preparer.

4.3.4 Screens Work Orders according to CP3-SM-1101, *Work Package Development,* to ensure the proper level of Safety & Health involvement. Chg A

4.4 Safety & Health or Industrial Hygiene Professional

4.4.1 Provides compliance oversight and guidance regarding safety standards and regulations.

4.4.2 Acts as a primary concurrence reviewer as a member of the JHA Development or Planning Team.

4.4.3 Prepares Industrial Hygiene Work Permits (IHWP) for work packages meeting the criteria of Appendix D. Chg A

4.4.4 Ensures General JHAs are submitted to Document Control and revised, as required.

4.4.5 Ensures General JHAs are submitted to Records Custodian for records management.

4.4.6 Provides support to supervision in monitoring workplace conditions and activities on a regular basis to ensure compliance with hazard control requirements.

4.4.7 Provides assistance identifying additional Safety & Health or Industrial Hygiene (S&H/IH) SME support needed to assist the JHA Development or Planning Team.

4.4.8 Concurs with redline revisions to the JHA, where applicable.

4.4.9 Reviews and provides concurrence of the JHA content as a required member of the JHA Development Team.

4.4.10 Participates in HIC team walkdowns and provides assistance to the identification of hazards and controls for scopes of work.

4.5 Subject Matter Expert

4.5.1 Provides technical expertise in identifying hazards and determining effective mitigating actions or controls in their subject area for each of the job steps in support of JHA development.

4.5.2 Includes Project Engineers, Contract Technical Representative (CTR) or other qualified personnel (for example, equipment owners) from disciplines including, but **NOT** limited to, the following:

- Environmental Protection (EP)
- Fire Protection (FP)
- Nuclear Criticality Safety (NCS)
- Planning & Design Personnel
- Radiation Protection (RP)
- Emergency Management (EM)
- S&H/IH

4.6 Project Engineer or Contract Technical Representative

4.6.1 Provides technical expertise in support of JHA development for project work involving a Subcontractor.

4.6.2 Ensures JHAs are submitted by Subcontractors according to Paducah Gaseous Diffusion Plant (PGDP) D&R Contractor's subcontract Environmental, Safety and Health Requirements.

4.6.3 Processes submittals according to CP3-OP-0025, *Document Control Process*.

4.7 Work Planner

Reviews and provides concurrence of the JHA content as a required member of the JHA Development Team.

4.8 JHA Preparer

Authors and develops, or revises, the JHA, using input from the JHA Development Team.

4.9 Worker

NOTE:

Workers must acknowledge being informed of the hazards and protective measures associated with assigned work activities. Workers that fail to utilize appropriate protective measures are subject to disciplinary process.

Participates on the JHA Development Team by identifying job tasks, providing relevant background or experience information, recognizing hazards, and suggesting hazard controls and acts as a Primary Concurrence Reviewer of JHAs.

4.10 Technical Writer, SME, or Work Planner

4.10.1 Based on initiating actions of Supervisor, coordinates JHA requests and communicates activity or job steps and other necessary aspects of the planned work.

4.10.2 Participates as a member of the HIC and JHA Development or Planning Team when the JHA is required, pursuant to the development of an ALWCD.

5.0 GENERAL INFORMATION

5.1 The JHA process integrates the identification of activities or job steps with potential hazards, followed by a determination of hazard controls to mitigate or eliminate the hazards. These determinations are derived from the key disciplines of the organization and incorporated into work planning and execution throughout all work areas, as a function of the ISMS. This process implements ISMS Core Function 2, Analyze Hazards; Core Function 3, Develop and Implement Hazard Controls; and the associated Guiding Principle 5, Identification of Safety Standards and Requirements; Guiding Principle 1, Line Management Responsibility for Safety, and Guiding Principle 6, Hazard Controls Tailored to the Work.

5.2 The JHA is **NOT** a procedure or stand-alone ALWCD. Activities that present an identified or potential hazard, along with associated controls to address the hazard(s) are included in the JHA. The hazards and controls from the JHA, IHWP, or equivalent can be incorporated into the procedure or ALWCD according to procedural requirements.

5.3 Hazards and controls defined in the JHA will be derived from a regulatory standard, an approved technical basis, or other approved hazard evaluation (such as, IHWP, engineering evaluation) for incorporation of hazards into the JHA.

5.4 An Industrial Hygiene Work Permit (IHWP) must be prepared for projects or work packages which meet the criteria in Appendix D.

5.5 All IHWP information which Workers, Front Line Managers (FLMs) and other support personnel need to know to safely execute work should be included in the JHA or work instructions.

5.6 The JHA and work instructions should include specific controls and Special Instructions, and not just refer back to the IHWP as the sole source of this information. Chg A

5.7 Special Instructions communicate all necessary information on the control measure(s) which is not in other work control documents or procedures. Special Instructions should not be generic but refer to project, facility, work practice or equipment specifics not addressed elsewhere in Work Controls. If a Special Instruction is intended only to communicate to the IH/HS Specialist on the coverage or sampling of a project, it does not need to be included in the JHA (such as, performing an off-normal sampling type, sampling strategy and sample quantities).

5.8 For hazards identified either in the facility design or during the development of procedures, controls are incorporated in the appropriate facility design or procedures.

5.9 Sensitive data (such as, Official Use Only (OUO) is prohibited in all JHAs.

5.10 IHWP's will expire in less than or equal to (≤) 365days from approval date.

5.11 According to CP3-OP-0025 the established effective and use date will be the date Document Control posts to the Controlled Document folder.

5.12 Two types of JHAs are prepared: General and Job-Specific. Each type is described as follows:

- **General JHA** - A type of job hazard analysis designed to address hazardous activities and/or conditions common to a craft, area/facility, site, etc. for which it's identified hazards and developed controls are considered neither unique nor specific in nature.
- **Job-Specific JHA** - A type of job hazard analysis designed to focus on identified hazards and developed controls considered unique and specific in nature for a given scope of activities.

NOTE:

Walkdowns at the worksite are the preferred method of identifying hazards and controls through the HIC process.

Chg A

5.13 **If** a walkdown is **NOT** feasible due to accessibility, As Low As Reasonably Achievable (ALARA), etc., **then** actions shall be included in the ALWCD to verify expected conditions **and, if** additional hazards are identified, **then** work shall pause until hazards are properly addressed.

5.14 Workplace hazards are identified in a number of ways including:

- Reviewing steps in the procedure or work task for routine and non-routine job or activity.
- Table-top review (for example, procedure reviews and validation, HIC development)
- Walkdowns
- Performing inspections
- Reviewing existing procedural activities and their associated precautions and limitations, warnings, and cautions
- Analysis of designs of new facilities and modifications to existing facilities and equipment for potential workplace hazards
- Selecting or purchasing equipment, products, and services
- Development of IHWP's, and/or equivalent that includes the consideration of Hierarchy of Controls and approved by HSS&Q management.
- IHWPs shall **NOT** be downgraded without the IH Program Manager, Senior Industrial Hygienist, or S&H Field Lead review and approval concurrence signature.

Chg A

- Technical procedures must comply with CP3-OP-0002, *Developing and Maintaining Performance Documents*, for hazard analysis.

NOTE:

For further explanation when analyzing risks and hazards CP3-SM-1101 may be referenced.

5.15 **Hazard Analysis** - The process of determining and implementing appropriate measures to control or mitigate hazards begins by considering the following:

- Severity of the hazard in question
- Prioritization and implementation of abatement actions by risk
- Interaction between workplace hazards and other hazards
- Knowledge about the hazard

- Availability and suitability of ways to remove or mitigate the hazard
- Cost of removing or mitigating the hazard, including feasibility
- Unintended secondary hazards which may be created by a proposed control

5.16 Hierarchy of Controls - Having identified the potential hazards, the JHA Development Team is responsible for identifying controls for those hazards. The preferred hierarchy for developing controls is provided below.

- **Elimination** - A hazard control method which eliminates or removes the danger. This can be done by changing a work process in a way that will remove a hazard, such as having workers perform tasks at ground level rather than working at heights.
- **Substitution** - A way to control a hazard by replacing it with something non-hazardous or less hazardous. An example is a non-toxic chemical substituted for a toxic chemical.
- **Engineering** - Controls that provide a means to mitigate a hazard or keep the hazard from reaching the worker such as, using a noise dampening technology to reduce noise levels).
- **Administrative Controls** - Controls that involve use of workplace policies, practices, and/or procedural requirements for worker protection. The application of administrative controls to hazards may include such actions as limiting the time of exposure, rotating workers, and training/re-training of workers.
- **Personal Protective Equipment (PPE)** - The provision of PPE is the least-preferred option and does **NOT** eliminate the hazard, but only shields the individual from the hazard. Such action should be coupled with training in the correct use of the equipment.

5.17 Continuous Hazard Analysis and Monitoring of Controls

The PGDP D&R Contractor will conduct regular assessments through the performance assurance process. In addition, assigned groups will perform inspections of workplaces, continue to identify hazards, and develop or implement appropriate control measures. These assessments and inspections will monitor the pre-task planning process to verify that the process is effective; analyses are modified, as necessary; hazards are being mitigated; and control measures are appropriate and implemented. Where improvements are identified, JHAs, procedures and/or ALWCDs will be revised.

5.18 Training and Required Reading

Persons assigned to complete JHAs using the Alliant Corporation software are required to complete Job Hazard Analytics Trade Mark ™ software and JHA development training prior to creating a JHA. This is training specifically provided by Alliant Corporation or designee. **NO** individual will be allowed to create a JHA in the Alliant System unless they have completed the Alliant Training.

6.0 INSTRUCTIONS

6.1 Hazard Control Determination and Assignment

PGDP D&R Contractor Personnel

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6.1.1 Prepare an HIC, JHA and/or, IHWP and/or equivalent for applicable chemical hazards with the appropriate Work Planner, SME, or Technical Writer, as applicable.

Work Planner, Technical Writer, or SME

6.1.2 Define the work scope by identifying all activities required to complete the work.

Supervisor

6.1.3 Support development of a JHA to identify potential hazards associated with performing work scope and required mitigating actions and hazards controls.

6.1.4 **If** the current situation requires improvements or enhancements to hazard controls, perhaps to address Stop or Pause Work, **then** ensure interim protective measures are in place pending final mitigation control, for example, the placement of a temporary barrier to protect workers from the hazard until the final mitigation controls can be implemented**.**

NOTE:
The worker who walks down the job, reviews the JHA, and ultimately performs the work does **NOT** have to be the same individual, provided they are representative of the work force doing the work.

6.1.5 Ensure each type of work scope discipline supervisor, as well as workers and functional area representatives, and S&H are included on the planning team and during JHA development to aid in identifying work scope hazards and controls.

6.1.6 Engage Craft, Subject Matter Experts (such as, RADCON, Sr. Industrial Hygienist, Environmental, etc.) as needed to develop a complete, concise scope of work in preparation of a JHA and IHWP creation.

Facility Manager

6.1.7 **When** requested, provide facility information and participate on the JHA Development Team and walkdowns.

Supervisor

6.1.8 Ensure HIC hazards and controls are coordinated **if** other job related planning session are performed separately.

6.1.9 Schedule a facility or work area walkdown or tabletop planning session with JHA Development team.

6.1.10 Ensure availability of CP3-HS-2004-F01 (sample provided in Appendix C) for use during the walkdown, **and** assign a team member to fill in relevant sections of the form using Appendix B, *Instructions for Completing the Hazard Identification Checklist*.

6.1.11 Review work scope with the Development Team.

6.1.12 Prior to the walkdown, ensure that appropriate PPE, training qualifications, and applicable authorizations, such as, Radiological Work Permit (RWP), appropriate rad dosimetry , security clearance, etc., are in place or being followed for the work being assessed for the JHA development process.

6.1.13 **If** a walkdown is **NOT** feasible due to accessibility, ALARA, etc., **then** actions shall be included in the ALWCDs to verify expected conditions **and, if** additional hazards are identified, **then** pause the work until hazards are properly assessed.

6.1.14 Ensure planning team members are present for the walkdown or tabletop.

NOTE:
Walkdowns at the worksite are the preferred method of identifying hazards and controls through the HIC process.

JHA Development Team

6.1.15 Ensure planning team members perform the walkdown, tabletop, or interactive sessions using a graded approach (see definitions) commensurate with the type of work, complexity, and potential risk.

6.1.16 During, or shortly following the walkdown, conduct a talk through of the activities by job step, analyze each hazard and begin development of mitigating actions and/or hazard controls. The team shall consult a SME, as necessary for example, RADCON, S&H/IH, Environmental, etc.). Chg A

6.1.17 Using the HIC, identify **and** record known and potential activity or job hazards.

6.1.18 **If** the work will be performed at multiple locations where the hazards and/or controls may vary, **then** walk down additional work locations to determine if there are hazards **NOT** previously identified and document on the HIC.

6.1.19 Identify any special plans (for example, ALARA, IHWP, Lift Plans, etc.) required to complete the job and document on HIC.

6.1.20 Identify any permits required, such as lockout/tagout (LOTO), radiological, confined space, hot work, etc.

6.1.21 Document the sources of historical data used for the analyses in the HIC NOTES section (such as, building characterization data, Arc Flash Analysis, IH monitoring or Exposure, Assessment data or Negative Exposure Assessment data, etc.).

6.1.22 Document team attendance, including walkdown participants, on the HIC and/or attendance roster.

6.1.23 **If** an existing JHA effectively addresses the work scope without requiring revisions, **then** inform the Work Planner, Technical Writer, or SME to continue with document development process.

6.1.24 **If** a new JHA is required, or an existing JHA can be revised to effectively address the work scope, **then** select JHA Development Team members, as follows:

- Concurrence reviewer(s)
- Facility Manager (FM) (invited, but **NOT** required, to participate in the walkdown of the affected area or facility)
- SME, as needed
- JHA Preparer

- Supervisor or Front Line Manager, as appropriate
- Member of work team performing the work (for example, craft)

6.2 New JHA Preparation

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JHA Preparer

6.2.1 Create **or** revise the JHA, using Alliant Job Hazard Analytics TM web-based software.

6.2.2 Implement the Hierarchy of Controls identified in Section **5.11** of this procedure.

6.2.3 Identify measures to be taken to eliminate, substitute or control each identified hazard, including PPE, training, and the need for permits or plans (for example, confined space entry, hot work, IHWP, excavation or penetration, lockout/tagout, environmental, etc.). Refer to the completed CP3-HS-2004-F01 from the walkdown for assistance.

6.2.4 Ensure controls address additional hazards that could be created or compounded by multiple hazards and/or multiple controls in multiple site locations.

6.2.5 Evaluate additional hazards that may be introduced by PPE (for example, heat stress, lack of dexterity or mobility, ergonomics, limitations on the field of vision conflicts with Rad Con) **and** indicate on the JHA.

6.2.6 **If** a hazard involving chemicals exists, **then** review the Safety Data Sheet (SDS) **and** confer with S&H/IH to determine an SME to identify the specific hazards and controls.

6.2.7 **If** methods for elimination or substitution were **NOT** found to be feasible for chemical hazards, **then** inform S&H/IH of the need to develop an IHWP or equivalent to detail the necessary controls.

6.2.8 **If** chemical, engineering, administrative, and PPE controls are primarily listed in the IHWP, **then** include the following statement under the applicable "control" section of the JHA. "Follow the requirements of the Industrial Hygiene Work Permit (IHWP) #.

6.2.9 Ensure planning team members are present for the walkdown (such as, SME, S&H, RADCON, Craft) to ensure work planning promotes integration.

6.2.10 Review the existing site lessons learned database by accessing the Lessons Learned Home Page, or contact Quality Assurance (QA) to obtain applicable lessons learned and include relevant controls in the controls section of the JHA.

6.2.11 Ensure Expiration Date of JHA is at least three (3) years from JHA Supervisor's Approval date.

6.2.12 Submit to Document Control according to CP3-OP-0025.

Note:

An IHWP preparation template is available in the S:\HSS&Q\Safety & Health\IH\Exposure Assessments\Industrial Hygiene Work Permits\IHWP Preparation Template.docx, folder which includes common Controls and Special Instructions examples to be tailored to the project specific conditions and requirements.

Chg A

S&H/IH

6.2.13 **If** applicable, develop an IHWP to detail the necessary controls using Appendix D, *Instructions for Completing CP3-HS-2004-F03*, *Industrial Hygiene Work Permit*.

JHA Development Team

6.2.14 Perform concurrence review of the JHA either electronically or by paper copy.

6.2.15 **If** any corrections are identified that need to be made to the JHA before concurrence, **then** enter the suggested revisions in the Comment box in the Alliant software **or** offer comments or red lines on a hard copy.

6.2.16 **If NO** corrections to the JHA are needed, **then** click the Approve button in the Alliant software **or** verify there are **NO** comments to the Preparer via e-mail.

6.2.17 Review JHA for the following attributes:

- Legibility
- Pagination
- Completeness

6.2.18 **If** the JHA does **NOT** satisfy any one of the above attributes, **then** return the JHA to the preparer to be corrected.

6.2.19 Ensure JHA Development Team's signatures are made prior to the date of the Supervisor's review and signature dates.

6.3 JHA or IHWP Revision

NOTE:

An exception to the requirement for immediate JHA, IHWP, or equivalent revision is granted when a change to a hazard control(s) results in a control(s) which is more conservative or more specific. The change and approval to the affected JHA, or IHWP document must be coordinated with the work crew Supervisor or designee, S&H or Senior IH, IH Manager, or S&H Field Lead if applicable. Chg A

If the parent JHA is a general JHA for which more conservative or specific controls cannot be added**, then** it is acceptable to copy the original HIC form and annotate those more conservative or specific revisions and note on the HIC the specific work performance documents to which the annotations are applicable.

Within fifteen (15) working days of a **redline revision**, a job-specific JHA, IHWP or equivalent must be formally revised.

Field revisions or revisions to procedures and other performance documents are made according to CP3-OP-0002, *Developing and Maintaining FRNP Performance Documents*.

Supervisor or Safety and Health/Industrial Hygiene Chg A

6.3.1 **If** new hazards or modifications to existing hazards or controls are identified under any of the following circumstances (may **NOT** be all inclusive):

- Scope of the work or method of accomplishment revisions,
- Following any accident/incident, or,

- Work site conditions change,
- Work practices observed by IH that negatively impact the effectiveness of the Engineering Controls, Chg A

then, prepare to revise the associated JHAs/IHWPs according to the following steps.

6.3.2 **If** work is in progress, **then** pause or stop the work and remain paused or stopped pending completion and approval of any necessary JHA/IHWP revisions. Refer to CP3-HS-2009, *Stop/Suspend Work*, where applicable.

6.3.3 Review necessary HICs and JHAs/IHWPs, and **if** determined to require modification, **then** consult with S&H/IH and other SMEs to determine required revisions and concurrence.

6.3.4 Determine what change(s) the JHA or IHWP requires.

NOTE:

When finalizing or downgrading a JHA or IHWP, review and approval concurrence from one of the following is required:

- IH Program Manager,
- Senior Industrial Hygienist,
- Text Deleted Chg A
- S&H Field Lead.

6.3.5 **If** an in-field JHA or IHWP revision is needed, **then** consult with S&H/IH and other SME's **and** obtain the most current copy of the document and perform the following:

- Use a different color ink (for example, red) than the printed text to indicate revisions
- Draw a horizontal line through the text being deleted
- Print revisions **and** mark deletions clearly
- Circle revisions that are small or hard to read
- Attach additional pages, as needed, to include all revisions
- Initial **and** date revisions

6.3.6 Brief the affected workforce **and** then resume work.

6.3.7 Give a copy of the JHA or IHWP or the original back to the work group for inclusion with work documents.

6.3.8 Submit to the preparer, to incorporate needed revisions into the JHA or IHWP.

6.3.9 Within 15 working days, formally revise the JHA or IHWP and submit to Document Control.

JHA Preparer

6.3.10 Refer to Alliant software for formal revisions to JHAs **and** notify Document Control that a revision to the JHA is being processed.

6.3.11 **If** formal revisions are required, **then** perform the following:

- Revise the JHA or IHWP using the Alliant software instructions.
- Seek input from other team members **and** make the suggested corrections, as necessary.
- Supervisor's review and approval signature is made after the Development Team's review signature dates.
- Ensure Expiration Date or Required Review Date is three (3) years from JHA Supervisor's approval date.
- **When** all corrections have been incorporated, **then** finalize the JHA or IHWP.

6.3.12 Submit to Document Control according to CP3-OP-0025.

6.3.13 Retain HIC form in JHA files in the S&H/IH Department.

6.3.14 Retain IHWPs in S&H/IH Department files.

7.0 RECORDS

7.1 Records Generated

The following records may be generated by this procedure:

- CP3-HS-2004-F01, *Hazard Identification Checklist (HIC)*
- CP3-HS-2004-F03, *Industrial Hygiene Work Permit (IHWP)*
- Job Hazard Analysis, as produced by Alliant Software

Forms are to be completed according to CP3-OP-0024, *Forms Control*.

7.2 Records Disposition

The records are to be maintained in accordance with CP3-RD-0010, *Records Management Process*.

Appendix A - Acronyms/Definitions

ACRONYMS

ALWCD – Activity Level Work Control Documents

ALARA – As Low As Reasonably Achievable

CAAS – Criticality Accident Alarm System

CFR – Code of Federal Regulations

D&R – Deactivation and Remediation

DSA – Documented Safety Analysis

EP – Environmental Protection

FLM – Front Line Manager

FM – Facility Manager

FP – Fire Protection

HIC – Hazard Identification Checklist

IHWP – Industrial Hygiene Work Permit

ISMS – Integrated Safety Management System

JHA – Job Hazard Analysis

LOTO – lockout/tagout

NCS – Nuclear Criticality Safety

OSHA – Occupational Safety and Health Association

OUO – Official Use Only

PGDP – Paducah Gaseous Diffusion Plant

PPE – Personal Protective Equipment

QA – Quality Assurance

RP – Radiation Protection

RWP – Radiological Work Permit

SDS – Safety Data Sheets

S&H/IH –Safety & Health/Industrial Hygiene

Appendix A - Acronyms/Definitions (Continued)

SME – Subject Matter Expert

TI – Task Instructions

DEFINITIONS

Activity Level Work Control Document (ALWCD) – Documents that define authority, requirements, and appropriate processes to safely, compliantly, and efficiently perform a defined work scope, or a specific task included in a defined work scope. Examples are Work Planning Exceptions (WPE), Task Instruction (TI), Enhanced Planning Task Instruction Packages, etc.)

Concurrence Reviewer - A member of the JHA Development/Review/Planning Team who provides experiential or technical expertise for the identification of hazards and the determination of controls to eliminate or mitigate the hazards.

Facility - The buildings, utilities, structures, and other land improvements associated with an operation or service and dedicated to common and multiple functions.

Facility Manager - Acts as a single point of contact for ensuring the facility is operated according to procedures. The FM is responsible for the overall safety of the facility and approves facility work start activities. The FM roles, responsibilities, and authorities may be assigned (in writing) to a member of his/her operations team where the individual's knowledge and/or work scope can effectively support the FM's role; however, the FM remains accountable.

General JHA - A type of job hazard analysis designed to address hazardous activities and/or conditions common to a craft, area/facility, site, etc. for which it's identified hazards and developed controls are considered neither unique nor specific in nature.

Graded Approach - The process of ensuring that the level of analysis and documentation, as well as the actions used to comply with requirements, are commensurate with the following:

- The relative importance of safety, safeguards, and security
- The magnitude of any hazard involved
- The life-cycle stage of a facility or item
- The programmatic mission of a facility
- The particular characteristics of a facility or item
- The relative importance to radiological and non-radiological hazards
- Any other relevant factors

Hazard - A source of danger with the potential to cause illness, injury, or death to personnel or the public, or damage to a facility or the environment, without regard for the likelihood or credibility of accident scenarios or consequence mitigation.

Appendix A - Acronyms/Definitions (Continued)

Hazard Identification Checklist (HIC) - A form (CP3-HS-2004-F01) which serves as an aid/tool to the JHA Development/Planning Team in identifying hazards and controls in and for work areas and activities, and to the Preparer in filling out the JHA document. Once completed, the HIC is a record to be maintained separately from the ALWCD.

Industrial Hygiene Work Permit (IHWP) – A document to identify the hierarchy of controls (such as, Engineering, Administrative, PPE, and other controls) to be implemented and the necessary level of S&H/IH monitoring and project coverage. IHWPs are developed to support various ALWCDs. Chg A

JHA Approver - The work group Supervisor or designee who is a Primary Concurrence Reviewer and approves job hazard analyses.

JHA Development Team - Personnel identified by the Supervisor(s) as being required to perform hazard identification and development of hazard controls through a job hazard analysis process. The team consists of a minimum of Primary Concurrence Reviewers; Concurrence Reviewers may also be invited to join, but are **NOT** required.

Job Hazard Analysis (JHA) - A system that identifies hazards associated with each step of a job and develops solutions for each hazard that will either eliminate or control the hazard. This process is also known as activity hazard analysis, job task analysis, or other names.

Job-Specific JHA - A type of job hazard analysis designed to focus on identified hazards and developed controls considered unique and specific in nature for a given scope of activities.

Operation - The activities and equipment associated with a specific function.

Preparer - An individual assigned by supervision who is trained in the use of the Job Hazard Analyses web-based software, and who creates (prepares) a JHA. The software term applied to this individual is "Author."

Primary Concurrence Reviewer - A mandatory member of the JHA Development/Review Team (Supervisor; S&H/IH; Worker).

Project - A unique undertaking for essentially a single purpose, which is defined by scope, quality, schedule, and cost objectives.

Safety Basis - The document (or collection of documents) that formally describes and analyzes the operations, hazards, and controls associated with a project, facility, or activity; and indicates management approval to operate according to a resulting set of safety requirements and conditions (safety envelope) that have been determined to provide an acceptable level of risk. For the PGDP D&R Contractor, the Documented Safety Analysis (DSA) are included as part of the Safety Basis.

Senior Industrial Hygienist – A person recognized by ESH&Q management considered qualified as a result of his/her experience, education, knowledge, and skills in the practice and science of Industrial Hygiene.

Subject Matter Expert (SME) - A person assigned to a system, program, project, discipline, equipment, or other topic, which has comprehensive knowledge and relevant expertise based on qualification, training, experience, and/or education. His/her responsibilities include serving as the authority for development and/or interpretation of performance documents within his/her subject matter area.

Appendix A - Acronyms/Definitions (Continued)

Supervisor - Person responsible for direct supervision of work activities. The Supervisor can organizationally be a Maintenance or Operations Supervisor/Project Manager or Engineer, CTR or any other designated person qualified to supervise work directly.

Working Copy - A copy of a controlled document marked “Working Copy” that has been verified per procedure as approved for use. Documents marked “Electronic Working Copy” or “Working Expedited Copy” are also considered Working Copies upon verification.

Appendix B - Instructions for Completing CP3-HS-2004-F01, Hazard Identification Checklist (HIC)

1. **Task Description**: Fill in block with the name/title/description of the technical procedure or activity level work control documents; include document numbers when available. Chg A
2. Fill in the **Area/Facility** block with an area/facility description or, preferably, a facility number or project name.
3. **If** an adjacent or related project(s) or facility(ies) will impact this project or activity, **then** note it in the assigned block.
4. Fill in **Completed By** block with name of individual who completes the form.
5. Fill in **Function/Title** block with the function or title of the individual who completes the form.
6. Fill in **Date** block with the date the form is completed.
7. Check all appropriate boxes in the **General Activities** section. Write in **other** activities **NOT** included in the checklist.
8. Check all appropriate boxes in the **Facility Type** section. Write in **other** facility types **NOT** included in the checklist.
9. Check all appropriate boxes in the **Hazard Identification** section. Write in other hazards **NOT** included in the checklist.
10. While completing the HIC form use the letters T, M, P, and C as a reminder to the JHA Development Team, Planners, Supervisors, etc. areas in hazard analysis that Training, Medical Surveillance, Permits, OSHA Competent Persons should be discussed and implemented if applicable.
11. Text Deleted. Chg A
12. In the **Special Controls Notes/Other Information** section, provide notes and other information to tie hazards with selected hazard controls, rationalize hazard control selections, or to later de-select a hazard control which was deemed **NOT** appropriate. In providing these notes and other information, be certain to:
    - Clearly define the scope **and** boundaries.
    - Review the work scope and determine/evaluate the best method to perform the associated steps.
    - Discuss **and** document if relevant to the scope of work.
    - Identify alternative approaches and/or special tools or equipment that may be safer and/or more efficient, as long as safety is **NOT** compromised.
    - Consider the ability to maintain direct communication between work group members where noise level or equipment enclosures may warrant use of communication devices (for example, portable radios with headsets, etc.).
    - Incorporate the detail that needs to be in the JHA, based on activity hazard level and worker training, qualifications, and experience.
    - Consider equipment needs, including topics such as adequate floor-load capacities, size of doorways, lift plan, adequate power availability (voltage, amperage, and plug configuration), etc.
    - Consider need for a Criticality Accident Alarm System (CAAS) audibility determination, based on work location and equipment or tool noise level.
    - Consider material compatibility issues, such as use of non-spark producing equipment in the presence of flammable materials/wastes.

Appendix B - Instructions for Completing CP3-HS-2004-F01, Hazard Identification Checklist (HIC) (Continued)

- Consider whether temporary area/system modifications are required to accommodate the work.
- Consider potential abnormal events or conditions that could result from the work being performed. Include recommended compensatory measures or corrective actions for these events or conditions.
- Review, with assistance from the Facility Manager, as necessary, any work activities that are complex, utilize new techniques, involve unique hazards, or will be performed in hazardous environments, to determine if mock-ups and/or dry run exercises are required prior to starting the work activity.
- Ensure, for steps that involve filling waste containers, controls are identified and are in place to prevent mixing of incompatible chemicals and/or wastes.
- Make notations, as necessary, within the checklist or in the **Notes/Other Information** sections of the form to clarify rationale for entries made.
- Include any mobilization and demobilization job steps in the evaluation of the scope of work.
- .Use this section to assist the planning and review teams by including any information that will support the identification of controls for the JHA, ALWCD, IHWPS, procedures, etc.

ATTENDANCE ROSTER

Have each attendee of the walkdown/tabletop session fill in their name, signature, functional role, badge number, and date.

Appendix C - CP3-HS-2004-F01 - Hazard Identification Checklist (HIC)

TASK DESCRIPTION:		JHA/WCD NO:
AREA/FACILITY:	Related Project/Facility activities that may impact this project:	
COMPLETED BY:	FUNCTION/TITLE:	DATE:

General Information

Note: Hazard areas where Training, Medical surveillance, Permits, and OSHA Competent Person requirements exist [T], [M], [P], and [C] are denoted in the corresponding blocks.

General Activities

☐	Preliminary Investigation	☐	Construction	☐	Tank Cleaning/Removal
☐	Site Characterization	☐	Waste Characterization [T]	☐	Demobilization
☐	Decontamination/Decommissioning	☐	Sample Collection	☐	Welding/Cutting/Burning ("Hot Work") [T], [C]
☐	Site Remediation	☐	Waste Management [T]	☐	Other:
☐	Mobilization	☐	Demolition	☐	Other:
☐	Surveillance & Maintenance	☐	Excavation/Penetration [T], [C]	☐	Other:

Facility Type

☐	Operational	☐	Indoor	☐	Under Demolition
☐	Abandoned	☐	Outdoor	☐	New or Modified Design:
☐	Office (administration)	☐	Burial Ground	☐	Other:
☐		☐	Industrial (shops, labs, etc.)	☐	

Hazard Identification

1. Physical Hazards

☐	Cold Stress (Temperature Extremes) [T]	☐	Ergonomics/ Manual Lifting/ Repetitive Motion	☐	Explosive/Flammable
☐	Heat Stress (Temperature Extremes) [T[,[M]	☐	Compressed Cylinders Gases/ Air [T	☐	Vibration/Shock-Sensitive
☐	Noise [T],[M]	☐	Pressurized/Vacuum Systems	☐	Mechanical/Moving Parts
☐	Slip/Trip/Fall/walking/working surface	☐	Hazardous Energy (electr/hydr/pneum)/ LOTO[T],[P]	☐	Sharp Edges/Corners/Injection
☐	Confined Space [T], [C],[P], [M]	☐	Concealed/Underground Hazards	☐	Inclement Weather
☐	Fire	☐	Excavation/Penetration (Engulfment/Cave In/ Trenching/ Shoring) [T],[C],[P]	☐	Work On or Near Water/ Drowning
☐	Demolition	☐	Compressed Air	☐	Moving Equipment/Vehicles
☐	Drum Handling	☐	Pinch Points	☐	Hoisting/Rigging /Critical Lifts [T],[M], [C]
☐	Elevated Work/Fall Protection [T], [C]	☐	Flying Particles/Dust	☐	Overhead Hazards (Bump hazard, powerlines, falling objects)
☐	Oxygen Deficient / Oxygen Enriched	☐	Hot/Cold Surfaces/Materials	☐	Welding/Cutting/Burning/Grinding [T],[P],[M]
☐	Lighting	☐	Electrical/Arc Flash/NFPA 70e	☐	Other:

2. Chemical Hazards

☐	Asbestos/Manmade Mineral Fibers [T], [M],[C],	☐	Metals (check applicable) [M], [T]	☐	Volatiles (check applicable)
☐	PCBs [T]	☐	Arsenic [T], [M],[P]	☐	Acetone
☐	Citric Acid	☐	Barium	☐	Benzene [M], [T]
☐	Hydrochloric Acid	☐	Beryllium [T, M], [C]	☐	2-Butanone
☐	Nitric Acid	☐	Cadmium [M],[P], [T]	☐	1,4-Dichlorobenzene
☐	Sulfuric Acid	☐	Chromium[P]	☐	Ethylbenzene
☐	Corrosive (Chemical Burns)	☐	Ferric Oxide	☐	MEK
☐	Carcinogen [M]	☐	Hexavalent Chromium [M]. [T]	☐	Tetrachloroethylene
☐	Mutagen	☐	Lead [T],[M],[P]	☐	Toluene
☐	Reproductive Toxin	☐	Mercury	☐	1,1,1-Trichloroethane
☐	Reactive	☐	Selenium	☐	Trichloroethylene
☐	Pyrophoric	☐	Silver	☐	Xylene
☐	Eye Irritant	☐	Other:	☐	HAZWOPER/HazMat-[T], [M]
☐	Inhalation Hazard (check applicable)M], [T]	☐	Hydrocarbon Impacted Waste	☐	Other:
	☐ Chlorine	☐	Level < 100 ppm		
	☐ Fluorine/ HF / ClF_3 / UF_6 (circle one) [T]	☐	Level > 100 ppm		
	☐ Other:				
☐	Skin Hazard/Irritant(check applicable)				
	☐ Corrosives:				
	☐ Fluorine /HF / ClF_3 / UF_6 (circle one)[T]				
	☐ Other:				

Example

Appendix C - CP3-HS-2004-F01 - Hazard and Control Identification Checklist (HIC) (Continued)

Hazard Identification (cont.)					
3. Ionizing Radiation Hazards [T],[P],[M]		**4. Non- Ionizing Radiation Hazards**		**5. Biological/Vector Hazards**	
☐	External Exposure	☐	High Voltage	☐	Mold/Bacterial/Fungi
☐	Internal Exposure	☐	Radio Frequency (RF)	☐	Plants (Allergens)
	☐ Ingestion	☐	Ultraviolet	☐	Bloodborne Pathogens/Medical Waste [M], [T]
	☐ Inhalation	☐	Other:	☐	Wildlife
	☐ Absorption	☐	Other:	☐	Rodents, Snakes, etc.
☐	Other:			☐	Insects (e.g., spiders, wasp, parasites, etc.)
☐	Other:			☐	Other:
6. Equipment Hazards					
☐	Forklift [T]	☐	Heavy Equipment:[T],[M] Mobile crane [M], etc.	☐	Generator
☐	Crane [T], [C]	☐	Drill Rig	☐	Compressor
☐	Hoists/Lifting Devices [T]	☐	Hydraulic Ram	☐	Pump
☐	Slings, Rigging Accessories	☐	Hydraulic Shear	☐	Steam Cleaner
☐	Elevated Work Platform (Lift/JLG) [T],[M]	☐	PPE [T]	☐	Hand Tools
☐	Scaffolding [T,C]	☐	DOT [T], [M]	☐	Powered Hand Tools [T]
☐	Ladders (Fixed / Portable) [T], [C]			☐	Powder-actuated Tools
☐	Temporary Enclosures			☐	Other:
7. Environmental Hazards		**8. Miscellaneous Hazards/Impacts**			
☐	Discharges/Emissions	☐	Water Supply	☐	Ventilation (Exhaust Hood/Air Movers, etc.)
☐	Storm Water Runoff	☐	Dumpster	☐	Chemical/Fuel/Radioactive Storage Tank System
☐	Spills	☐	Drums/Waste Containers	☐	Other:
☐	Biota Damage/Disturbance	☐	Salvage ("Overpack") Drums	☐	Other:
☐	Wetlands Disturbance	☐	Sampling Supplies		
☐	SWMU	☐	Other:		

Special Control Notes/Other Information

Information in this section can contain information (e.g., Hierarchy of Controls, Special PPE, etc.) that should be considered in the development of JHAs, Procedures, or other Activity Level Work Documents.

ATTENDANCE ROSTER

NAME	SIGNATURE	FUNCTIONAL ROLE	BADGE NO.	PHONE NO.

Example

Appendix D – Instructions for Completing CP3-HS-2004-F03 - Industrial Hygiene Work Permit (IHWP)

Chg A

An Industrial Hygiene Work Permit (IHWP) must be prepared for projects or work packages which meet the following criteria:

- Senior IH or IH Manager Determination:
  - a. Historical IH sampling data of similar work showing exposures at or above occupational exposure limits
  - b. Projects where special engineering controls, administrative controls (i.e. Regulated Areas or prescribed work practices) and/or PPE are required.
  - c. Plasma Arc Cutting Operations
  - d. Welding, Brazing and other Hotwork
  - e. Any project with unknown or indeterminate estimates of chemical or physical agent exposures.
  - f. All new work tasks with unknown or indeterminate estimates of chemical or physical agent exposures and with no previous IH sampling data.
- Hazard Identification Checklist (HIC) Requirements
  - a. HIC identifies need for IHWP (listed in Special Control Notes)
  - b. JHA Development Team conducts the HIC review and makes this determination
- Project Manager or Work Planner Determination:
  - a. Projects where special engineering controls, administrative controls (i.e., Regulated Areas or prescribed work practices) and/or PPE are required by a regulatory requirement of 10 CFR 851.
  - b. Projects with unknown estimates of exposures to chemical hazards specifically regulated by OSHA chemical-specific regulations (e.g., Lead, Asbestos, Beryllium, Arsenic).
  - c. Chemical hazards from hazardous materials introduced as a new work practice could not be feasibly controlled by means or methods of elimination or substitution.
- Level C or higher Personal Protective Equipment (PPE): The OSHA Hazardous Operations (HAZWOPER) Regulation, 29 CFR 1910.120, has four levels of personal protective equipment (PPE) coverage. Level C is an exposure condition requiring PPE in which the concentration(s) and type(s) of airborne substance(s) or chemicals are known, and the criteria for using air purifying respirators (APR) are met, usually with a predicted chemical exposure above an occupational exposure limit. Projects with PPE wear requirements which meet HAZWOPER PPE Levels A, B or C will require an IHWP to be prepared.

The purpose of this document is to document the steps needed to complete CP3-SH-2004-F03, *Industrial Hygiene Work Permit (IHWP) Form*.

All sections of the IHWP shall be acknowledged by either a check mark or an "X." If a section is not required, then write N/A next to the section for which the N/A applies.

Text Deleted.

The IHWP shall be prepared using the following instructions:

Section 1: Industrial Hygiene Work Permit Number: A unique contractor or subcontractor number shall be entered into this box. It should be tied to the Work Control Document(s), e.g., Technical Instruction (TI), Work Package, etc. that it is supporting.

Section 2: Work Document No: List all work documents and/or procedures that the IHWP supports. If more than one work document and/or procedure applies to the IHWP, ensure they all pertain to the work activity being performed under this IHWP.

Section 3: Date Effective: Enter the month, day and year that the IHWP becomes effective, (e.g., xx/xx/xx).

Section 4: Date Expired: Enter the month, day and year that the IHWP is no longer valid (e.g., xx/xx/xx). This date can be no longer than one year from the date entered in Section 3, *Date Effective*.

Chg A

Appendix D – Instructions for Completing CP3-HS-2004-F03 - Industrial Hygiene Work Permit (IHWP) (Continued)

Section 5: Prime Contractor/Subcontractor: Check the "Prime Contractor" box if the Prime Contractor is responsible for the work conducted under this IHWP. Check the "Subcontractor" box if a subcontractor is responsible for the work; also include the name of the subcontractor responsible for the work.

Section 6: Location/Building: Enter the Paducah Gaseous Diffusion Plant building number and rooms/areas within the building identified in the work package(s)/procedure(s) listed on the IHWP. If the work is to be conducted in an area not specific to a building and rooms/areas within the building, enter specific information that adequately identifies the work location in the "Other" block of this section.

Section 7: Work Activity Description: Explain the specific work activity/activities to be performed. The description must match the activity identified in all documents/procedures identified in Section 2, *Work Document Number.* The detail should be sufficiently detailed to permit someone not associated with the work to understand the scope of work and the choice of engineering and administrative controls, respiratory protection, PPE, etc. presented in the remainder of the IHWP.

Section 8: Potential IH Chemical Hazard(s) of Concern: List the name(s) of the potential contaminant(s) of concern, including those contaminants that may be contacted during the course of implementing the work activities because they are in process tanks, vessels or piping, or are contaminating surfaces in the work areas. For those products being used in the implementation of the work activities, list the names of the products stated on the safety data sheet (SDS) or material safety data sheet (MSDS) and the chemical(s) contained in the product.

1. Include summary of IH personal and area sampling plan, both direct- reading and integrated, for chemicals listed.
2. List Occupational Exposure Limits for all potential chemical hazard of concern.
3. List direct-reading instrument alarm settings and the response actions to direct-reading instrument alarms.
4. Chemical products names and related chemical hazards, and reference to a Safety Data Sheet (SDS).
5. Cite relevant chemical-specific work procedure.

Section 9: **Potential IH Physical Hazard(s) of Concern**: List the type(s) of physical hazard(s) of concern that workers may be exposed to during implementation of the work activities, e.g., high noise levels, heat stress, non-ionizing radiation, etc.

1. Include summary of IH personal and area sampling plan, both direct- reading and integrated, for physical hazards listed (i.e. noise survey,noise dosimetry, heat stress monitoring).
2. List Occupational Exposure Limits and direct-readinginstrument alarm settings, with response actions to alarms, for physical hazards.
3. Cite relevant physical hazard chemical-specific work procedure.

Section 10: Engineering Controls: Identify appropriate Engineering Controls that will be used.

1. Identify the specific Engineering Controls to be used. Be specific to ventilation unit model and flow or volume capacity.
2. Pre-job engineering control testing (i.e. hood ventilation surveys) and acceptance criteria.
3. IH communication of engineering control testing results to Workers and FLM and any needed adjustments.
4. Directions on use and placement of the engineering control (i.e. place hoods within 1 duct diameter for welding fume capture for Negative Air Machines (NAM).
5. IH/S instructions on communication with FLM and Workers on observations of improper use of engineering controls and need to institute a work pause. Work pause conditions and recovery actions are included in direct-reading instrument alarm response actions in Section 8.
6. Cite procedure(s) relevant to the use of the engineering control(s).

Chg A

Appendix D – Instructions for Completing CP3-HS-2004-F03 - Industrial Hygiene Work Permit (IHWP) (Continued)

Section 11: Administrative Controls: Identify appropriate Administrative Controls that will be used.

1. IHWP Template has check blocks to identify the different Administrative Controls to be used:
    - Training
    - Work Instructions and Procedures
    - Permits
    - Competent Persons
    - Medical Surveillance
    - Regulated Areas
    - Exposure Control Plans for OSHA regulated chemicals
    - Specific Work Practices
    - Housekeeping
    - Worker Rotation
    - Alarm or Emergency response actions
2. Include project-specific details on implementing selected Administrative Controls.
3. Identify all required work control permits needed, and specific equipment or locations where required.
4. Identify required Competent Persons or other special qualifications or licensed personnel (i.e. state-licensed asbestos workers and asbestos contractor/supervisor as Competent Person).
5. IH/S instructions on communication with FLM and Workers on observations of improper work practices and need to institute a work pause. Work pause conditions and recovery actions are included in direct-reading instrument alarm response actions in Section 8.
6. Cite work control documents and procedures relevant to administrative controls(s) in use.

Section 12: PPE: Answer questions A-O and then check the appropriate boxes in Section 12 identifying the proper respiratory protection. If full face piece air purifying respirator (APR) or powered air purifying respirator (PAPR) only or full face piece PAPR is selected, then enter the type of cartridge or canister to be used. If respiratory protection is not required, check the none box. If workers choose voluntary use of respiratory protection by workers.

HAZWOPER Personal Protective Equipment (PPE) Levels divided into four categories, A-D, based on the degree of protection afforded. OSHA Regulation 29 CFR 1910.120, Appendix B provides explanations of Levels A, B, C, and D hazards. PPE must be selected which will protect employees from the specific hazards which they are likely to encounter during their work on- site. Key factors involved in PPE level selection are identification of the hazards, or suspected hazards; routes of potential hazard to employees; and the performance of the PPE materials in providing a barrier to these hazards.

1. Identify the PPE Level and summary of hazard exposures or conditions:
2. Complete required PPE in the following types:

- **Respiratory Protection:**
    - Respirator Type:
    - Respirator Cartridge:
    - Change out Schedule:
- **Protective Clothing, Gloves:**
    - Clothing: (include any requirement for Flame-Resistant garments)
    - Outer Coveralls: (include any requirement for Flame-Resistant garments)
    - Inner Gloves:
    - Work Gloves: (include chemical resistant material, cut or puncture resistance rating)
    - Eye Protection:
    - Safety Footwear:
    - Hearing Protection
    - Other

Appendix D – Instructions for Completing CP3-HS-2004-F03 - Industrial Hygiene Work Permit (IHWP) (Continued) Chg A

3. Provide Special Instructions on PPE wear conditions, PPE level changes based on exposure potential and PPE downgrades on monitoring results.
4. Respiratory Protection levels are strictly stated as what is to be worn, and do not require explanation or selection details. Respirator Selection Logic Form is the supporting document that accomplishes this.
5. Include requirements for provision of supplied air or breathing air sources (i.e. Portable Fresh Breathing Air System) and need for attendant.
6. Specify protective glove material types required for contact with specified chemical hazards (i.e. Neoprene, Nitrile, Viton) Protective glove lengths and hand/wrist/arm coverage can be specified.
7. Flame-Resistant (FR) clothing or coveralls for electrical, hotwork, arc flash protection or other requirements are to be included in PPE selection.
8. PPE use, storage, disposal and laundry details for project are listed.
9. Cite work control document or procedure for specified respiratory protection type and any required breathing air supply.

Section 13: Area Posting: Identify the type of work area where the work activity will take place. Examples include, but are not limited to: lead work area, hexavalent chrome work area, and arsenic work area.

1. Regulated Areas required by OSHA chemical-specific regulations are to listed and should include information taken from the Exposure Control Plan:
   - Delineation of Regulated Area
   - Exposure Assessment and Sampling
   - Competent Person designation
   - Required labeling and signage
   - Access controls
   - Entrant training and medical surveillance requirements.
2. PPE-required Work Areas may also require signage or posting
   - Hazardous Noise Area
   - Eye Protection Required
   - Eyewash or emergency drench shower required
3. Identify if any special enclosure or isolation room or area is required (i.e. asbestos abatement plastic-sheeting enclosure, PermaCon enclosures)
4. Include specific signage or labeling example if special information is communicated or if specific sign is required by regulation.
5. Cite work control document or procedure for chemical-specific Exposure Control Plan or Technical Basis Document.

Section 14: Access Control: Identify the type of access controls. Examples include, but are not limited to: doors, gates, and fencing.

1. Identify physical barriers or boundaries of work areas or Regulated Areas for certain chemicals.
2. Identify access control restrictions for Workers
   - Designated Observer/Attendant
   - Entrant training and medical surveillance requirements
   - Sign-in sheet requirements
   - Mandatory monitoring or sampling equipment
   - Correct PPE for entry - peer check
   - Required safety equipment (i.e. flashlight)
3. Cite work control document or procedure for chemical-specific Exposure Control Plan on access controls for Regulated Areas.

Section 15: IH/IHT Coverage: Identify the proper IH coverage needed to support the work activity being performed as identified in Section 7 of the IHWP.

Appendix D – Instructions for Completing CP3-HS-2004-F03 - Industrial Hygiene Work Permit (IHWP) (Continued) Chg A

- **Pre-job review**: IH/IHT coverage is required to perform IHWP review as part of the pre-job/evolution but no further coverage is required during the performance of the work activity and no IH/IHT release/clearance surveys are needed from the work area.
- **Intermittent**: IH/IHT coverage is required on a periodic basis, as discussed in the pre-job/evolution, and when requested throughout the entire work activity, e.g., from the pre-job/evolution briefing to the need of release/clearance surveys.
- **Continuous**: IH/IHT coverage is required from the pre-job/evolution throughout the entire work activity, including release/clearance surveys. Continuous coverage means an IH/IHT is physically present with the work crew through the entire work activity.
- **Release/clearance**: IH/IHT coverage is required for the release/clearance survey.

Section 16: Decontamination of Items: Establish decontamination requirements based on the need for contamination control.

1. Decontamination actions taken from chemical-specific Exposure Control Plans.
2. Identify equipment and supplies necessary for decontamination.
3. Identify specific location for equipment decontamination on exit from work area.
4. Identify special enclosures or decontamination stations needed (i.e. asbestos 3-stage decontamination/changing enclosure)
5. Identify acceptance/failure criteria for decontamination.
6. Cite work control document or procedure for chemical-specific Exposure Control Plan on decontamination actions.

Section 17: Decontamination of Personnel: Establish decontamination requirements based on methods for preventive controls needed to eliminate personnel contamination.

1. Personnel decontamination actions taken from chemical-specific Exposure Control Plans.
2. Identify equipment and supplies necessary for personnel decontamination.
3. Identify specific location for personnel decontamination on exit from work area.
4. Identify special enclosures or personnel decontamination and cleaning stations needed (i.e. asbestos 3-stage decontamination/shower/changing enclosure)
5. Identify acceptance/failure criteria for personnel decontamination.
6. Wipe sampling or other clearance testing required following personnel decontamination.
7. Cite work control document or procedure for chemical-specific Exposure Control Plan on decontamination actions.

Section 18: Waste Labeling/Handling: Check for proper identification and disposition of waste generated from the work activity contaminated with the potential contaminants of concern identified in Section 8. Label waste and equipment with the appropriate labels, e.g., lead, asbestos, arsenic, beryllium, etc.

Section 19: IH Instruments Labeling: Check for proper labeling and handling of equipment/instruments used during the work activity. Equipment not deemed waste with confirmed or potential for internal contamination, but determined to be clean on the exterior, shall be posted accordingly. Cite manufacturer's and field/lab calibration and instrument requirements from CP4-HS-2000, *Industrial Hygiene Sampling*, and CP3-HS-2038, *Industrial Hygiene Measuring and Test Equipment Program*.

Section 20: Additional Information: List any additional information that is, or may be, pertinent to the safety of the worker(s) while performing the work activities covered by the IHWP. This section is intended as information only. Any special instructions are to be listed within the appropriate section of the IHWP for which they pertain.

Appendix D – Instructions for Completing CP3-HS-2004-F03 - Industrial Hygiene Work Permit (IHWP) (Continued)

Chg A

Section 21: Prepared By: This identifies the individual who prepared the IHWP. This person shall be knowledgeable of and experienced in the work to be performed. This individual shall be different than the individual identified in Section 23. Printed name and signature are required.

Section 22: Approving IH Supervisor: This identifies the individual who approved the IHWP representing the IH field personnel. This person shall be knowledgeable of and experienced in the work to be performed. This individual shall be different than the individual identified in Section 23. Printed name and signature are required.

Section 23: Approving Sr IH, S&H Field Lead, or IH Program Manager: This individual signs the approval after verifying the validity of the IHWP to the work activities listed on the IHWP. Printed name and signature are required.

Section 24: Approving Craft Supervisor/Manager: This person signs as approver representing the project and affirms that controls identified in the IHWP will be enforced. Printed name and signature are required.

Appendix E - CP3-HS-2004-F03 - Industrial Hygiene Work Permit

Chg A

INDUSTRIAL HYGIENE WORK PERMIT		
1. Industrial Hygiene Work Permit No:		Rev. No:
2. Work Document No.:		JHA No.:
Work Document Title:		
3. Date Effective:	5. Prime Contractor:	
4. Date Expired:	Sub-Contractor:	
6. Location:		
Building:	Room:	Other:
7. Work Activity Description:		
EXPOSURE CONTROL INFORMATION		
8. Potential IH Chemical Hazard(s) of Concern: Special Instructions:		
9. Potential IH Physical Hazards of Concern: Special Instructions:		
10. Engineering Controls: Special Instructions:		
11. Administrative Controls: Special Instructions:		
12. PPE: Special Instructions:		
13. Area Posting: Special Instructions:		

EXAMPLE

Appendix E - CP3-HS-2004-F03 - Industrial Hygiene Work Permit (Continued)

Chg A

14. Access Control: **Special Instructions:**	
15. IH/IHT Coverage: **Special Instructions:**	
16. Decontamination of Items: **Special Instructions:**	
17. Decontamination of Personnel: **Special Instructions:**	
18. Waste Labeling/Handling: **Special Instructions:**	
19. IH Instruments Labeling: **Special Instructions:**	
20. Additional Information:	
APPROVALS	
Print Name/Sign/Date	
21. Prepared By:	**Date:**
22. Approving IH Supervisor:	**Date:**
23. Approving Sr IH or IH Program Mgr:	**Date:**
24. Approving Craft Supervisor/Manager:	**Date:**

EXAMPLE