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Administrative Procedure

HLMI-PRO-SH-50578

Industrial Hygiene Exposure Assessments

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Change Summary

Description of Change

Added document numbering formats and clarifications to the document types in sections 3.2 through 3.5. Corrected records management submission information.

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1.0 INTRODUCTION

This procedure defines the Industrial Hygiene Exposure Assessment (IHEA) process for Hanford Laboratory Management and Integration, LLC (HLMI) operations and work areas.

The IHEA process is intended to:

- Systematically identify, evaluate, and clearly document recognized potential worker health risks and other hazards with adverse exposure potential as deemed necessary by the industrial hygienist (IH)
- Define and characterize exposure profiles in work areas
- Evaluate hazards associated with task-specific activities in previously characterized and/or evaluated locations
- Allow for objective prioritization for future evaluation, monitoring, or sampling activities to support efficient use of HLMI resources
- Serve as a basis for recommending hazard control measures
- Assist in communicating recognized chemical, physical, and biological exposure hazards and controls to line management and employees.

1.1 Purpose

This procedure provides a process for conducting and recording IHEA process hazard evaluation and control considerations and provides the framework to support safe work through characterization, documentation, and control of exposures to occupational health hazards.

1.2 Scope

This procedure implements Industrial Hygiene requirements specified in 10 CFR 851.21 "*Hazard Identification and Assessment"* and 10 CFR 851 *Worker Safety and Health Program* Appendix A, Section 6, as implemented by HLMI-PLN-SH-51119, *Worker Safety and Health Program*. The IHEA process identifies and evaluates anticipated biological, chemical, ergonomic, and physical agent hazards potentially present in products, materials, equipment, and legacy wastes associated with HLMI-directed work activities. The IHEA process is used to develop and assess control measures, and to maintain occupational exposures as low as practicable.

This procedure does not address the following exposure hazards:

- Radiological hazards covered under 10 CFR 835, *Occupational Radiation Protection*
- Bloodborne pathogens covered under 29 CFR 1910.1030, "Bloodborne Pathogens"
- Facility/process exposure hazards and controls addressed through design engineering.

1.3 Application

This procedure applies to HLMI activities and work areas where worker exposures to chemical, physical, ergonomic, or biological hazards warrant identification, evaluation, or control. This process includes, but is not limited to, the evaluation of compliance with occupational exposure limits (e.g., ACGIH, *TLVs and BEIs: Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices*) and comparison of other occupational exposures to best practice guidelines issued by standards bodies or professional organizations (e.g., American Industrial Hygiene Association, *A Strategy for Assessing and Managing Occupational Exposures*). IHEA process documents are to be integrated to existing work control processes (e.g., HLMI-PRO-SH-50885, *Job Hazard Analysis*) to support effective implementation of controls.

1.4 Implementation

This procedure is effective on the date shown in the header on page 1. Existing IHEA process documents may continue to be used and are to be updated to new procedural requirements during their next revision.

2.0 RESPONSIBILITIES

Responsibility for implementation of this procedure exists with Industrial Hygienists (IH) as authors and reviewers of IHEA process documents.

An IH is expected to:

- Have sufficient knowledge and skills to adequately identify and evaluate hazards and determine controls for HLMI work activities or work areas where workers may be exposed to chemical, physical, ergonomic, or biological hazards
- Coordinate with work planners, supervisors, employees, and others to ascertain the project scope and incumbent hazards
- Complete IHEA process documents
- Review IHEA related documents and validate that controls are implemented.

3.0 PROCESS

Whenever possible, IHs shall utilize recognized exposure assessment and testing methodologies as well as accredited and certified laboratories. These specific methodologies are referenced in the sample plan and analytical laboratory requests found in the Site Wide Industrial Hygiene Database (SWIHD), as described in HLMI-PRO-SH-50575, *Industrial Hygiene Monitoring, Reporting, and Records Management*. If the laboratory does not have a method for which they are accredited, the IH may utilize a process or method for which an accepted quality plan has been developed.

Forms and documents required by agent-specific procedures may be used as equivalent to the forms identified in the following subsections. These equivalent forms and documents are specified in Appendix A of this procedure.

3.1 Screening Form

When reviewing work activities, the Industrial Hygiene Screening Form (IHSF) [A-6008-385] is an optional tool available to help IHs determine if an IHEA or equivalent hazard evaluation document is required. The IHSF may be retained for informational purposes but is not considered a record.

Actionee	Step	Action
IH	1.	COMPLETE the IHSF using site form A-6008-385 or equivalent.
	2.	COMMUNICATE screening results to the responsible manager, work planner, or similar.
	3.	PROVIDE the applicable required documentation indicated on the IHSF.

3.2 Technical Evaluation

An Industrial Hygiene Technical Evaluation (IHTE) is a document that may be used to establish a decision basis or process not otherwise specified by regulation or industry standard (sometimes referred to as a white paper or interpretative guidance). An IHTE cannot be used in lieu of an IHEA. If an equivalent form as listed in Table A-1 has been completed in accordance with an applicable procedure, performance of this section is not required. The document number is unique to each IHTE using the format IHTE-222S-###.

Actionee	Step	Action
IH	1.	OBTAIN an IHTE number from the HLMI SWIHD Administrator.
	2.	PREPARE the IHTE using site form A-6008-386.
	3.	IDENTIFY Peer Reviewer.
	4.	FORWARD IHTE to the IH Peer Reviewer for review and approval signature.

Actionee	Step	Action
IH Peer Reviewer	5.	REVIEW the IHTE.
	6.	PROVIDE an approval signature after the review is complete.
	7.	RETURN the IHTE to the IH.
	8.	IF the IHTE cannot be approved as is, THEN WORK with the IH who prepared the IHTE to resolve.
IH	9.	IF changes and/or a periodic review of the IHTE is required, THEN REVISE the IHTE.
	10.	OBTAIN Peer Review signature approval.
	11.	PROVIDE a clean signed electronic copy of the IHTE to the SWIHD Administrator.
SWIHD Administrator	12.	SUBMIT IHTE to ^HLMI_Records_Management.

3.3 Exposure Assessment

An IHEA documents the evaluation of exposure to biological, chemical, ergonomic, and/or physical hazards. If an equivalent form as listed in Table A-1 has been completed in accordance with an applicable procedure, performance of this section is not required to address the covered hazard(s). The document number is unique to each IHEA using the format IHEA-222S-#### where the first two digits represent the two-digit year and the third and fourth digits are unique to the sequence of IHEAs prepared that year (e.g., IHEA-222S-2403 would be the third IHEA prepared in 2024).

Actionee	Step	Action
IH	1.	OBTAIN an IHEA number from the SWIHD Administrator.
	2.	PREPARE the IHEA using site form A-6008-377.
	3.	IDENTIFY IH Peer Reviewer.
	4.	FORWARD IHEA to the IH Peer Reviewer for review and approval signature.
IH Peer Reviewer	5.	REVIEW the IHEA.
	6.	PROVIDE an approval signature after the review is complete.
	7.	RETURN the IHEA to the IH.
	8.	IF the IHEA cannot be approved as is, THEN WORK with the IH who prepared the IHEA to resolve.
IH	9.	IF changes and/or a periodic review of the IHEA is required, THEN REVISE the IHEA.
	10.	OBTAIN Peer Review signature approval.
	11.	PROVIDE a clean signed electronic copy of the IHEA to the SWIHD Administrator.
SWIHD Administrator	12.	SUBMIT IHEA to ^HLMI_Records_Management.

3.4 Sample Plan

An Industrial Hygiene Sample Plan (IHSP) documents the monitoring expectations for surveyors in support of either an IHTE or IHEA. If an equivalent form as listed in Table A-1 has been completed in accordance with an applicable procedure, performance of this section is not required to address the covered hazard(s). The document number uses the format IHSP-222S-#### where the numbers match the IHEA that the IHSP supports. Should more than one IHSP be needed to support an IHEA, the IHSP number may be appended with a lower-case letter (e.g. IHSP-222S-2403a) such that each IHSP is uniquely identified.

Actionee	Step	Action
IH	1.	PREPARE the IHSP using site form A-6008-473.
	2.	IDENTIFY IH Peer Reviewer.
	3.	FORWARD the IHSP to the IH Peer Reviewer for review and approval signature.
IH Peer Reviewer	4.	REVIEW the IHSP.
	5.	PROVIDE an approval signature after the review is complete.
	6.	RETURN the IHSP to the IH.
	7.	IF the IHSP cannot be approved as is, THEN WORK with the IH who prepared the IHSP to resolve.
IH	8.	IF changes and/or a periodic review of the IHEA are required, THEN REVISE the IHSP.
	9.	OBTAIN Peer Review signature approval.
	10.	PROVIDE a clean signed electronic copy of the IHSP to the SWIHD Administrator.
SWIHD Administrator	11.	SUBMIT IHSP to ^HLMI_Records_Management.

3.5 Work Permit

The Industrial Hygiene Work Permit (IHWP) summarizes the IH hazards and controls, including components of a compliance plan. The IHWP incorporates the information documented on the associated IHEA. The IHWP is required when a regulatory compliance plan is necessary. An IHWP may be used to support control implementation across multiple work instructions or procedures. IH hazards covered by the General Hazard Analysis controls are not listed on the IHWP. The IHWP works in parallel with the Job Hazard Analysis Checklist and provides how/where IH hazards associated with the activity are controlled. If an equivalent form as listed in Table A-1 has been completed in accordance with an applicable procedure, performance of this section is not required to address the covered hazard(s). The document number uses the format IHWP-222S-#### where the numbers match the IHEA that the IHWP supports.

Actionee	Step	Action
IH	1.	PREPARE the IHWP using Site form A-6008-381.
	2.	IDENTIFY IH Peer Reviewer.
	3.	FORWARD the IHWP to the IH Peer Reviewer for review and approval signatures.
IH Peer Reviewer	4.	REVIEW the IHWP.
	5.	PROVIDE an approval signature after the review is complete.
	6.	RETURN to the IH.
	7.	IF the IHWP cannot be approved as is, THEN WORK with the IH who prepared the IHWP to resolve.
IH	8.	IF changes and/or a periodic review of the IHEA are required, THEN REVISE the IHWP.
	9.	OBTAIN peer review signature approval.
	10.	PROVIDE a clean signed electronic copy of the IHWP to the SWIHD Administrator.
SWIHD Administrator	11.	SUBMIT IHWP to ^HLMI_Records_Management.

4.0 FORMS

Industrial Hygiene Exposure Assessment (IHEA) (A-6008-377)

Industrial Hygiene Sample Plan (IHSP) (A-6008-473)

Industrial Hygiene Screening Form (A-6008-385)

Industrial Hygiene Technical Evaluation (A-6008-386)

Industrial Hygiene Work Permit (A-6008-381)

5.0 RECORD IDENTIFICATION

The Record Capture table identifies the records generated during the performance of this procedure.

Table 1. Records Capture

Record Name	Record Processed By
Industrial Hygiene Technical Evaluation Form (A-6008-386)	ERA-210443
Industrial Hygiene Exposure Assessment (IHEA) (A-6008-377)	
Industrial Hygiene Sample Plan (IHSP) (A-6008-473)	
Industrial Hygiene Work Permit (A-6008-381)	

Documents are controlled in accordance with HLMI-PRO-IRM-50386, *Document Control*.

Completed records are managed in accordance with HLMI-PRO-IRM-50387, *Records Management.*

6.0 SOURCES

6.1 Requirements

10 CFR 851, *Worker Safety and Health Program*

10 CFR 851.21 *Hazard Identification and Assessment*

6.2 References

10 CFR 835, *Occupational Radiation Protection*

29 CFR 1910.1030, “Bloodborne Pathogens”

American Conference of Governmental Industrial Hygienists (ACGIH), *TLVs and BEIs: Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices* (2016)

HLMI-PLN-SH-51119, *Worker Safety and Health Program*

HLMI-PRO-IRM-50386, *Document Control*

HLMI-PRO-IRM-50387, *Records Management*

HLMI-PRO-SH-50575, *Industrial Hygiene Monitoring, Reporting, and Records Management*

HLMI-PRO-SH-50885, *Job Hazard Analysis*

Jahn, Steven D., Bullock, William H., Ignacio, Joselito S., *A Strategy for Assessing and Managing Occupational Exposures,* American Industrial Hygiene Association, Fourth Edition, Falls Church, VA, 2015

APPENDIX A - FORM EQUIVALENCIES

The forms included in Table A-1 are identified as equivalent to meeting the expectations established by this procedure. The purpose of listing here is to indicate that these forms, generated through other procedures, removes the need to generate the referenced IH form in accordance with this procedure.

Table A-1. Form Equivalencies

IH Form	Equivalent Forms
IHSF	None
IHTE	Beryllium Facility Assessment (A-6005-329, SWIHD) Beryllium Facility Assessment for Conex Boxes (A-6006-208, SWIHD) Beryllium Facility Assessment for Structures (A-6006-207, SWIHD)
IHEA	Hanford Beryllium Hazard Assessment (A-6005-852) Office Ergonomics Checklist (A-6008-279) Laboratory/Field Ergonomic Evaluation Checklist (A-6005-772) Hanford Confined Space Hazard Identification Form (A-6005-724)
IHSP	Beryllium Characterization Sampling Plan (A-6006-167, SWIHD) Beryllium Characterization-Verification Sampling Plan for Structures and Conex Boxes (A-6006-206, SWIHD) IHSP (SWIHD)
IHWP	Hanford Job Specific Beryllium Work Permit (A-6006-202) Hanford Confined Space Entry Permit (A-6005-717)

NOTE: *When using a Hanford Confined Space Hazard Identification Form (A-6005-724) as equivalent to an IHEA, an Industrial Hygienist shall sign section 1 of the completed form.*

APPENDIX B - ACRONYMS

Acronym	Definition
HLMI	Hanford Laboratory Management and Integration, LLC
IH	Industrial Hygienist
IHEA	Industrial Hygiene Exposure Assessment
IHSF	Industrial Hygiene Screening Form
IHSP	Industrial Hygiene Sample Plan
IHTE	Industrial Hygiene Technical Evaluation
IHWP	Industrial Hygiene Work Permit
SWIHD	Site Wide Industrial Hygiene Database