



## Administrative Procedures

# SP-PRO-SP-17916

## Industrial Hygiene Baseline Hazard Assessments

Revision 0, Change 3

Published: 07/16/2024

Effective: 07/16/2024

Functional Service Area: MA-Mission Assurance  
Program: Occupational Safety and Industrial Hygiene  
Topic: Safety Programs

Subject Matter Expert: Coppersmith, Pamela J  
Functional Manager: Nielsen, Christopher E

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Further Dissemination Unlimited



- No USQ Required

**JHA:** Administrative

**Periodic Review Due Date:**04/07/2027

Rev. 0, Chg. 3

## Change Summary

### Description of Change

Minor corrections to referenced document numbers and additional information for clarification

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**1.0 PURPOSE**

This procedure provides instructions to Industrial Hygienists (IH) or other Safety and Health (S&H) professionals conducting Industrial Hygiene Baseline Hazards Assessments (IHBHAs) for Hanford Mission Essential Services Contract (HMESC) operations or work areas.

IHBHAs are intended to:

1. Systematically identify and evaluate recognized potential worker health risks and other hazards with adverse exposure potential as deemed necessary by the project IH.
2. Allow for objective prioritization for future evaluation, monitoring, or sampling activities in effort to make efficient use of Hanford Mission Integration Solutions (HMIS) resources.
3. Serve as a basis for analysis to determine the source and nature of the IH hazards and to establish appropriate hazard control measures documented using one or a combination of hazard analysis documentation categories. Chemical groupings are used to establish the basis for the chemical use attachment (CUA).
4. Assist in communicating information from the IH to line management and affected employees regarding recognized chemical, physical, and biological exposure hazards and controls during the work planning process.
5. Identify and characterize similar exposure groups (SEGs) in a work area.

**NOTE:** The supporting information (e.g., calculations, field observation, or similar sampling data) used to justify the determination for or against sampling as recorded in the IHBHA may also serve as documentation of the exposure evaluation.

The implementation of this procedure provides information to enhance the Job Hazard Analysis (JHA) processes (see HMIS-PRO-SP-079, Job Hazard Analysis) and the Employee Job Task Analysis (EJTA) process (see HMIS-PRO-SP-11058, Occupational Medical Qualification and Monitoring using EJTA) by:

1. Providing an overview of the IH hazards for an operation or work area.
2. Defining and characterizing those IH hazards.
3. Providing a consolidated list of the IH assessment needs.

This document partially implements the ISMS Core Function #2, Identify and Analyze Hazards.

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**2.0 SCOPE**

This procedure applies to HMESC operations or work areas where worker exposures to chemical, physical, or biological hazards warrant identification, evaluation, or control. This includes, but is not limited to, evaluation of compliance with OELs at levels of occupational significance and comparison of other occupational exposures to best practice guidelines issued by standards bodies or professional organizations.

This procedure is not intended to address:

- Radiological Control Manual; *See HMESC-OTHER-RC-5173*
- Biological Hazards (Including Bloodborne Pathogens); *See HMIS-PRO-SP-45039*
- Ergonomics; *See HMIS-PRO-SP-62772*
- Heat Stress Control; *See HMIS-PRO-SP-121*
- Bulk or wipe samples taken for identification or investigational purposes only.
- Indoor air quality (IAQ) investigations where there is no direct correlation to an OEL or other quantifiable risk criteria.

In addition, operations and work areas specifically included in a HMESC subcontractor hazard analysis per HMIS-PRO-SP-079, APPENDIX C Job Safety Analysis (JSA) where sampling requirements, IH hazard analysis, or control measures are communicated are not required to perform or document IHBHAs.

Although this procedure establishes the basis for planning and prioritizing quantitative and qualitative exposure assessment activities, Initial Hazard Analysis Screening Criteria as found in HMIS-PRO-SP-079, APPENDIX B shall be utilized for implementation of hazard controls including IH monitoring activities when used for hazard control.

This procedure is effective on publication.

**3.0 IMPLEMENTATION**

IHBHAs will be updated with any new procedural requirements during their next scheduled revision and when the CSHA and CUA documents are updated that effect the IHBHA. The Tracking Schedule for IHBHA reviews is located on the Safety and Health Field Support SharePoint site and is available to all Industrial Hygienists.

IHs shall utilize recognized exposure assessment and testing methodologies and accredited and certified laboratories. These specific methodologies are referenced in the sample plan and analytical laboratory requests found in Site Wide Industrial Hygiene

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Database (SWIHD) as described in HMIS-PRO-SP-409, *Industrial Hygiene Monitoring, Reporting and Records Management*.

### 4.0 PROCESS

#### 4.1 Initial Assessment

The steps listed below are typical components of an initial IHBHA. However, because each operation or work area is different, these steps can be rearranged as necessary.

Actionee	Step	Action
HMIS S&H professional	1.	<p>PERFORM review of available documentation. This may include:</p> <ul style="list-style-type: none"> <li>• Past IHBHA's</li> <li>• Hazard Analysis</li> <li>• Past monitoring data</li> <li>• Hazard Communication (HAZCOM) plans</li> <li>• Material Safety Data Sheets (MSDS)</li> <li>• Chemical and Carcinogen Inventories</li> <li>• Other documentation if available</li> </ul>
	2.	<p>PERFORM interviews of project management, supervision, or lead workers.</p> <p><i>NOTE: This step can provide an opportunity to ask questions relating to the information that was encountered during the document reviews and may provide additional information that will provide insight into the work processes that will be encountered.</i></p>
	3.	<p>PERFORM a walkthrough inspection of the work area or the operations performed by the SEG being assessed. Identify the hazards which present a potential for occupational exposure to chemical, physical, or biological hazards.</p> <p><i>NOTE 1: Not all operations with a potential chemical, physical, or biological hazard can or will be identified during one walkthrough. Some operations may be performed on an infrequent basis and will only be identified through employee interviews or multiple walkthroughs.</i></p> <p><i>NOTE 2: Prior to entering a work area you may be required to review and sign the applicable hazard analysis or be accompanied by an escort.</i></p>
	4.	<p>PERFORM employee interviews.</p>

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**4.2 Hazard Evaluation, Exposure Assessment Prioritization, and Documentation**

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
HMIS S&H Professional	1.	<p>DOCUMENT the IHBHA report, including the use of Field Evaluation (FEV) Table (see Appendix C), per the following guidelines<sup>1</sup>:</p> <ol style="list-style-type: none"> <li>1. A completed IHBHA will consist of the following items:               <ol style="list-style-type: none"> <li>a. A report or text regarding the work being performed including information about:</li> <li>b. The tasks or area being evaluated,                   <ol style="list-style-type: none"> <li>1) Hazard Description including:</li> <li>2) Summary of the work where the hazard is encountered</li> <li>3) Current controls used</li> <li>4) Summary of past monitoring results</li> <li>5) Information related to additional assessment needs</li> </ol> </li> </ol> </li> <li>2. A Completed FEV Table</li> <li>3. Include SWIHD references of the IH Survey Numbers for the past 2 years.</li> </ol>

NOTE 1: *The IHBHA is intended to assist in systematically characterizing the potential for occupational exposure and serving as the basis for recommending hazard control measures. However, pertinent information found in the IHBHA should be flowed-down into the job hazard analysis documents for the managers, supervisors, and craft employees who may not be interested in the full technical basis for the conclusions that were reached in the IHBHA.*

NOTE 2: *Be aware of the needs of intended audience when completing these documents. For ease in communicating the conclusions of the IHBHA assessment, it may be more appropriate to retain some technical documentation as a separate attachment from the main IHBHA.*

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<sup>1</sup> This exposure assessment strategy is based in part on the American Industrial Hygiene Association's (AIHA) publication titled "A Strategy for Assessing and Managing Occupational Exposures".

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<i>Actionee</i>	<i>Step</i>	<i>Action</i>
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2. LIST each hazard that is within the scope of this procedure, namely chemical groups (by type or category), physical, or biological hazards on the FEV table (see Appendix C). Suggested information may include:

<b>Location</b>	<b>Source Hazard</b>
Description	Hazard Control
Work Process or Activity	Exposure Rating
SEG's where applicable	Qualitative Exposure Rating
Health Effect Rating	Priority Rating
Past Sample Data (Survey Numbers)	

3. EVALUATE each hazard using the ratings listed in Table 1-3 and Industrial Hygiene hazard evaluation techniques and record the rating in the FEV table.
4. ASSIGN a Qualitative Exposure Assessment Rating by multiplying the numbers obtained from Table 1 and Table 2 and record the rating in the FEV table.

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Actionee	Step	Action
	5.	<p>ASSIGN a Priority Rating based off the Exposure Assessment Rating using the following guidelines:</p> <p style="margin-left: 40px;">11-16    High Priority</p> <p style="margin-left: 40px;">5-10     Medium Priority</p> <p style="margin-left: 40px;">1-4      Low Priority</p> <ul style="list-style-type: none"> <li>• DOE, OSHA, or company specific monitoring requirements elevate the Priority Rating to High Priority.</li> <li>• Hazards without prior exposure monitoring data where respiratory protection is used for personal protective purposes should be assigned a High Priority status.</li> <li>• For exposure scenarios with uncertainty due to lack of information or other factors the Priority Rating should be elevated one category.</li> <li>• For scenarios where monitoring results indicate employee exposures are within guidance limits the Priority Rating may be reduced according to the IHs professional judgment.</li> </ul>

**Table 1**

Category	Exposure Rating
0	No contact with agent.
1	<10% Exposure Limit
2	10% Exposure Limit to Action Level
3	Action Level to Exposure Limit
4	> Exposure Limit

**NOTE:** *The Exposure Rating should be determined excluding the use of PPE.*

**Table 2**

Category	Health Effect Rating
0	No known or suspected adverse health effects

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1	< Moderate, reversible injury /illness
2	Moderate, reversible injury /illness
3	Severe reversible injury/ illness
4	life threatening, or irreversible

NOTES:

1. < Moderate injury/illness – short-term skin discoloration, headache, mild irritation, nausea.
2. Moderate, reversible injury/illness – moderate irritation, 1st degree burn.
3. Severe reversible injury/illness –Severe irritation, severe burns, sensitization.
4. Life threatening or irreversible injury/illness –Carcinogens, fatality, blindness, permanent hearing loss, organ or tissue damage.

**Table 3**

Category	Frequency of Contact Rating
0	No Contact
1	Yearly to Quarterly
2	Quarterly to Monthly
3	Monthly to Weekly Contact
4	Weekly to Daily Contact

**4.3 Issuing IHBHA's**

Actionee	Step	Action
HMIS S&H professional	1.	<p>UPDATE each IHBHA document as industrial hygiene hazards change for the exposure group. Additionally, when the craft specific hazard analysis (CSHA) and CUA documents are updated, the IHBHA shall also be updated if necessary. When the FEV Table identifies a MEDIUM or HIGH priority rating where the controls in place at the time of the assessment do not provide adequate protection to the worker to minimize occupational illness or injury, the documented hazard analysis shall be updated with additional controls for exposure mitigation. When possible, reference specific hazard analysis document(s) within the summary information.</p> <p>New work processes in industrial areas do not require immediate revision of the IHBHA, provided that an adequate hazard analysis is performed and documented. However, that analysis and documentation must be included in the next scheduled revision of the IHBHA.</p>

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Actionee	Step	Action
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NOTE: *This requirement refers to establishing a date to review the accuracy of the IHBHA report/text, FEV table, and the associated controls or recommendations with the intent that new information based off of the completion of the past recommendations is added to the IHBHA.*

*It is not intended to imply that all past monitoring must be renewed or redone. However, the need for renewed monitoring should be assessed at that time.*

HMIS S&H professional

2.. The method of retaining IHBHA documents is to utilize SWIHD as described in HMIS-PRO-SP-409, *Industrial Hygiene Monitoring, Reporting and Records Management*.

PUBLISH the IHBHA using the SWIHD interface:

- Under the “Baseline” tab within SWIHD, obtain a unique number to identify the BHA.
- In the Comments Section, state the reason for the IHBHA revision (i.e., CSHA, process change, etc.).
- While in the Baseline tab, you may use the “Help” link to see a “screen shot” of step-by-step process in uploading and creating the BHA report.

NOTE 1: *Official Use Only (OUO) documents should NOT be uploaded as an attachment to the BHA report in SWIHD. However, IH survey reports containing OUO information may be linked to the BHA in SWIHD and are properly protected.*

- When you complete the BHA report, it will be automatically converted to a record and placed into IDMS.
- While in the “Post BL” tab, you may use the “Help” link to see a “screen shot” of step-by-step process to attach IH survey records to the BHA report after it has been created as a record.

NOTE 2: *IH surveys referenced within the record BHA are considered “historical” records once the BHA has been sent to IDMS. Additional IH surveys linked to the BHA will be incorporated into the next revision of the BHA record.*

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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*.

**Records Capture Table**

<b>Name of Document</b>	<b>Submittal Responsibility</b>	<b>Retention Responsibility</b>
IHBHA including: <ul style="list-style-type: none"> <li>• Report Text</li> <li>• FEV Table</li> <li>• Technical documentation where appropriate</li> </ul>	HMIS S&H professional performing the IHBHA	HMIS S&H manager(s) / IDMS

**6.0 SOURCES****6.1 Source Requirements**

This procedure implements the requirements specified in 10 CFR 851, *Worker Safety and Health Program*, sections 851.21, 851.23, & 10 CFR 851.24 Appendix-A, Section 6 Industrial Hygiene.

**7.0 REFERENCES****7.1 Source Requirements**

10 CFR 851, *Worker Safety and Health Program*

**7.2 Working References**

A Strategy for Assessing and Managing Occupational Exposures, AIHA Press, 1998

HMIS-PRO-SP-409, *Industrial Hygiene Monitoring, Reporting and Records Management*

HMIS-PRO-SP-079, *Job Hazard Analysis*

HMIS-PRO-RM-10588, *Records Management Processes*

HMIS-PRO-SP-11058, *Occupational Medical Qualification and Monitoring using EJTA*

**8.0 FORMS**

None

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**APPENDIX A GLOSSARY**

<b>Term</b>	<b>Definition</b>
<b>Similar exposure group (SEG)</b>	A group of employees whose exposures to chemical substances or physical hazards have been determined to be similar enough that monitoring the exposures of randomly selected workers in the group provides data useful for predicting the exposures or exposure profiles of the remaining workers. A SEG is also defined as a group of individuals who perform the same jobs or tasks and who have similar exposures to an individual hazardous agent.
<b>Operation</b>	A task or group of tasks performed by an SEG that may result in personal exposures as defined in Section 2.0 <i>Scope</i> of this document.
<b>Work Area</b>	A building, tent, lay down yard, or other structure where work is performed that may result in personal exposures as defined in Section 2.0 <i>Scope</i> , of this document.
<b>Priority Level</b>	A Qualitative Exposure Assessment rating between 1-16, with Low being 1-4, Medium being 5-10, and High being 11-16. The number is derived from multiplying the Exposure Rating by the Health Effect Rating. This numerical rating system is used to provide a level of importance to the hazard. The industrial hygienist may lower or raise the priority level depending on hazard controls, monitoring or sampling information, amount of material used in process, etc. The industrial hygienist will document the priority level of the hazard on the IHBHA along with a statement on monitoring needs.

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**APPENDIX B**

Example -- Industrial Hygiene Hazards Baseline Assessment Field Evaluation Table

	LOCATION or WORK STATION	HAZARD DESCRIPTION	ACTIVITY or WORK PROCESSES	HAZARD EVALUATION	SAMPLE RESULTS	Exposure Rating	Health Effect Rating	Qualitative Exposure Assessment	Frequency of Contact	HAZARD CONTROLS IN PLACE			Priority Rating
						0-4 Table 1	0-4 Table 2	0-16 Rating	Table 3	Admin	Engineering	PPE	
1	2715EC	Toluene & Other VOC Exposures	Application of lacquer products	Monitoring has been conducted for use in the 2715EC paint booth with mixed results	IHSF 06256 06257 07158	2	3	6	3	Stay upwind from paint stream when spraying	2715EC Paint Booth	Respirators Chemical Resistant Gloves	Low
	Evaluation Needs		If Lacquer based products are used for >3 hours in one shift contact IH for monitoring										
2	Sitewide	Asbestos Exposure	Removing and replacing asbestos floor tiles or mastics	Exposure resulting from work with tiles, mastics, or leveling compounds.	IHSF 06646 11-60079	2	4	8	1	Communicated in AJHA			Medium
	Evaluation Needs		If removal of asbestos containing mastics or floor tiles occurs monitoring requirements will be determined during AJHA/planning										
3	Outdoor Work Locations	Operator & Bystander Noise Exposure	Walk Behind Vibratory Roller	Spot readings indicate hearing protection is required	11-60218	2	3	6	3 Seasonal	None	None	Hearing Protection	Medium
	Assessment Needs		Conduct noise dosimetry to further characterize potential exposures										
4	All Work Areas	Noise exposure	Vacuuming	Equipment is purchased with low noise levels <85dB	HIH2 02-1346B MIHD 11-60074 11-60082 11-60088	1	2	2	4	None	purchased low noise equipment	Ear plugs available for voluntary use	Low
	Assessment Needs		None										
5	All Work Areas	Mild Skin Irritation	Miscellaneous cleaning	No hazardous components listed or No components with exposure limits	None	1	1	1	4	NA	NA	Gloves	Low
	Assessment Needs		None										

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.

Procedure:	SP-PRO-SP-17916.docx
Priority:	Enhancement to existing document or new document
Procedure Action Number:	HMIS-PS-40249
Procedure Number:	SP-PRO-SP-17916
Procedure Title:	Industrial Hygiene Baseline Hazard Assessment
Owning Organization:	Safety, Health & Radiological Protection
Functional Manager (FM):	Nielsen, Christopher E
Subject Matter Expert (SME):	Coppersmith, Pamela J
Justification:	General update
Justification Comment:	Minor corrections to referenced document and additional information for clarification
Target Completion Date:	07/14/2024
Original Revision Number:	0
Original Change Number:	3
Procedure Type:	Administrative Procedures
Use Type:	Administrative
Subject Area:	Safety Programs
Level:	Level 3 - Facility Specific
Functional Service Area:	
Department:	Safety Programs
Vital Record:	No
Controlled Use (OUO):	No
Rad Work:	No
Integrated Safety Management System (ISMS) Implementing Procedures:	Yes
Environmental Management System (EMS)	No
Worker Safety and Health Program (851)	Yes
Endorsed By Others:	No
Resource Conservation and Recovery Act of 1976	No
Officially Designated Security Authority (ODSA) Approval Required	No
Need By Date:	07/07/2024
Procedure Writer Assistance Requested:	Yes
Procedure Writer:	Marshall, Richard A
Periodic Review Due Date:	04/07/2027

**Minor Change**

Minor Change	Assign Reviewers	Perform Review	Disposition Comments	USQ Review	Obtain Approvals	Publish Document	Elect Review
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Enter Metadata	Completed by: Coppersmith, Pamela J
	<b>Coppersmith, Pamela J completed: 05/15/2024 08:11 AM</b>
Verify Assigned Procedure Writer	Completed by: Marshall, Richard A
	<b>Marshall, Richard A completed: 05/16/2024 04:10 AM</b>

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Start Document Updates	Completed by: Coppersmith, Pamela J
<b>Coppersmith, Pamela J completed: 05/16/2024 09:34 AM</b>	
Assign Internal Reviewers	Completed by: Coppersmith, Pamela J
<b>Coppersmith, Pamela J completed: 05/16/2024 10:15 AM</b>	
	Reviews Due: 05/31
	SAFETY PROGRAMS Nielsen, Christopher E
	SAFETY & HEALTH FIELD SUPPORT Simundson, Jeffrey P
	SAFETY PROGRAMS Mcdowell, Robert C
Perform Internal Review	Completed by: System
<b>Simundson, Jeffrey P completed: 05/20/2024 07:25 AM</b>	
<b>Mcdowell, Robert C completed: 05/29/2024 01:45 PM</b>	
<b>Sweeney, Lynn C completed: 05/23/2024 03:23 PM</b>	
<b>Matte, James W completed: 05/29/2024 02:21 PM</b>	
	SAFETY & HEALTH FIELD SUPPORT Simundson, Jeffrey P
	SAFETY PROGRAMS Mcdowell, Robert C
	SAFETY PROGRAMS Nielsen, Christopher E
	Secondary Reviewer (Assigned by: Simundson, Jeffrey P ) Hokanson, David
	Secondary Reviewer (Assigned by: Simundson, Jeffrey P ) Gaul, Adam
	Secondary Reviewer (Assigned by: Simundson, Jeffrey P ) Erickson, James
	Secondary Reviewer (Assigned by: Simundson, Jeffrey P ) Sweeney, Lynn C
	Secondary Reviewer (Assigned by: Simundson, Jeffrey P ) Smedley, Robert
	Secondary Reviewer (Assigned by: Simundson, Jeffrey P ) Matte, James W
	Secondary Reviewer (Assigned by: Simundson, Jeffrey P ) Gaul, Adam
Resolve Internal Review Comments	Completed by: Coppersmith, Pamela J
<b>Coppersmith, Pamela J completed: 06/03/2024 06:51 AM</b>	
Upload Document and JHA Screening	Completed by: Coppersmith, Pamela J
<b>Coppersmith, Pamela J completed: 06/03/2024 06:52 AM</b>	
<b>JHA Screening Type: Administrative</b>	

Minor Change	Assign Reviewers	Perform Review	Disposition Comments	USQ Review	Obtain Approvals	Publish Document	Elect Re
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Assign Reviewers	Completed by: Coppersmith, Pamela J
<b>Coppersmith, Pamela J completed: 06/03/2024 06:5</b>	
	Reviews Due:
	HMIS Procedures Richards, Dav
	Safety Rep 6 Brown, Billy L
	Safety & Health Field Support Simundson, Je
	SAFETY PROGRAMS Nielsen, Chris
	SAFETY & HEALTH FIELD SUPPORT Matte, James

0/2024 03:00 PM

on, Jeffrey P **Response:** No Comments

I, Robert C **Response:** No Comments

Christopher E **Response:** No Response

n, Eric J **Response:** No Response

am E **Response:** No Response

. Garin R **Response:** No Response

; Lynn C **Response:** No Comments

, Joshua S **Response:** No Response

imes W **Response:** Comments Provided Inside

am E **Response:** No Response

Electronic  
Records

6 AM

06/17/2024 03:00  
PM

id E

Jeffrey P (Required)

Christopher E (Required)

W

Minor Change	Assign Reviewers	Perform Review	Disposition Comments	USQ Review	Obtain Approvals	Publish Document	Electronic Records
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Perform Review Completed by: System

- Matte, James W completed: 06/03/2024 08:23 AM**
- Brown, Billy L completed: 06/03/2024 09:09 AM**
- Simundson, Jeffrey P completed: 06/03/2024 02:33 PM**
- Nielsen, Christopher E completed: 06/10/2024 06:06 AM**
- Agen, Chad E completed: 06/03/2024 02:29 PM**
- Matte, James W completed: 06/03/2024 02:56 PM**
- Sweeney, Lynn C completed: 06/04/2024 09:03 AM**
- Smedley, Joshua S completed: 06/13/2024 10:16 AM**

HMIS Procedures	Richards, David E	<b>Response:</b> No Response
Safety & Health Field Support	Simundson, Jeffrey P (Required)	<b>Response:</b> No Comments
SAFETY & HEALTH FIELD SUPPORT	Matte, James W	<b>Response:</b> No Comments
SAFETY PROGRAMS	Nielsen, Christopher E (Required)	<b>Response:</b> No Comments
Safety Rep 6	Brown, Billy L	<b>Response:</b> Reassign
Safety Rep 6	Agen, Chad E	<b>Response:</b> No Comments
Secondary Reviewer (Assigned by: Simundson, Jeffrey P )	Hokanson, Eric J	<b>Response:</b> No Response
Secondary Reviewer (Assigned by: Simundson, Jeffrey P )	Hall, William L	<b>Response:</b> No Response
Secondary Reviewer (Assigned by: Simundson, Jeffrey P )	Matte, James W	<b>Response:</b> No Comments
Secondary Reviewer (Assigned by: Simundson, Jeffrey P )	Gaul, Adam E	<b>Response:</b> No Response
Secondary Reviewer (Assigned by: Simundson, Jeffrey P )	Sweeney, Lynn C	<b>Response:</b> No Comments
Secondary Reviewer (Assigned by: Simundson, Jeffrey P )	Smedley, Joshua S	<b>Response:</b> No Comments
Secondary Reviewer (Assigned by: Simundson, Jeffrey P )	Erickson, Garin R	<b>Response:</b> No Response

06/03/2024 09:09 AM Safety Rep 6 Brown, Billy L reassigned to Agen, Chad E Please reassign due to Org change

Minor Change	Assign Reviewers	Perform Review	Disposition Comments	USQ Review	Obtain Approvals	Publish Document	Electronic Records
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Disposition Comments	Completed by: Marshall, Richard A
	<b>Marshall, Richard A completed: 06/25/2024 12:03 PM</b>
Disposition Review	Completed by: Marshall, Richard A
	<b>Marshall, Richard A completed: 06/25/2024 12:03 PM</b>
	<b>Disposition Review Not Necessary - no comments received</b>
Disposition Complete	Completed by: Marshall, Richard A
	<b>Marshall, Richard A completed: 06/25/2024 12:05 PM</b>
	06/25/2024 12:05 PM

Minor Change	Assign Reviewers	Perform Review	Disposition Comments	USQ Review	Obtain Approvals	Publish Document	Electronic Records
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Confirm Procedure Action Type	Completed by: Marshall, Richard A
	<b>Marshall, Richard A completed: 06/25/2024 12:06 PM</b>
	06/25/2024 12:06 PM
USQ Review	Completed by: Marshall, Richard A

**Marshall, Richard A completed: 06/25/2024 12:08 PM**  
**Not Required**

06/25/2024 12:08 PM No USQ Issues Found:

Minor Change Assign Reviewers Perform Review Disposition Comments USQ Review Obtain Approvals Publish Document Electronic Records

Initiate Approvals	Completed by: Marshall, Richard A <b>Marshall, Richard A completed: 06/25/2024 12:08 PM</b> Subject Matter Expert Coppersmith, Pamela J Functional Manager Nielsen, Christopher E
Approve Document	Completed by: Coppersmith, Pamela J <b>Coppersmith, Pamela J completed: 06/25/2024 12:23 PM</b> 06/25/2024 12:23 PM Rejected for the following reason:needs edits and review
Resolve Rejection	Completed by: Coppersmith, Pamela J <b>Coppersmith, Pamela J completed: 06/25/2024 12:26 PM</b> 06/25/2024 12:26 PM additional changes needed
Update Document	Completed by: Coppersmith, Pamela J <b>Coppersmith, Pamela J completed: 07/01/2024 08:21 AM</b>
Review Changes	Completed by: Marshall, Richard A <b>Marshall, Richard A completed: 07/02/2024 07:31 AM</b> 07/02/2024 07:31 AM Procedure sent back to review DOE had additional changes. SME added those changes and now wants everyone to take another look to make sure you are OK with how the procedure looks.

Minor Change Assign Reviewers Perform Review Disposition Comments USQ Review Obtain Approvals Publish Document Electronic Records

Perform Review	Completed by: Nielsen, Christopher E																								
	<b>Brown, Billy L completed: 07/02/2024 07:50 AM</b> <b>Simundson, Jeffrey P completed: 07/02/2024 08:07 AM</b> <b>Matte, James W completed: 07/09/2024 12:32 PM</b> <b>Richards, David E completed by Abdella, Rita M [Delegate]: 07/09/2024 02:57 PM</b> <b>Nielsen, Christopher E completed: 07/10/2024 07:42 AM</b> <b>Agen, Chad E completed: 07/03/2024 07:31 AM</b> <b>Erickson, Garin R completed: 07/09/2024 05:36 PM</b> <b>Matte, James W completed: 07/09/2024 12:32 PM</b> <b>Smedley, Joshua S completed: 07/08/2024 12:58 PM</b> <b>Sweeney, Lynn C completed: 07/02/2024 01:44 PM</b>																								
	<table border="0"> <tr> <td>HMIS Procedures</td> <td>Richards, David E</td> <td><b>Response:</b> Comments Provided Inside</td> </tr> <tr> <td>Safety &amp; Health Field Support</td> <td>Simundson, Jeffrey P (Required)</td> <td><b>Response:</b> Comments Provided Inside</td> </tr> <tr> <td>SAFETY &amp; HEALTH FIELD SUPPORT</td> <td>Matte, James W</td> <td><b>Response:</b> No Comments</td> </tr> <tr> <td>SAFETY PROGRAMS</td> <td>Nielsen, Christopher E (Required)</td> <td><b>Response:</b> No Comments</td> </tr> <tr> <td>Safety Rep 6</td> <td>Brown, Billy L</td> <td><b>Response:</b> Reassign</td> </tr> <tr> <td>Safety Rep 6</td> <td>Agen, Chad E</td> <td><b>Response:</b> No Comments</td> </tr> <tr> <td>Secondary Reviewer (Assigned by: Simundson, Jeffrey P )</td> <td>Erickson, Garin R</td> <td><b>Response:</b> No Comments</td> </tr> <tr> <td>Secondary Reviewer (Assigned by: Simundson, Jeffrey P )</td> <td>Gaul, Adam E</td> <td><b>Response:</b> No Response</td> </tr> </table>	HMIS Procedures	Richards, David E	<b>Response:</b> Comments Provided Inside	Safety & Health Field Support	Simundson, Jeffrey P (Required)	<b>Response:</b> Comments Provided Inside	SAFETY & HEALTH FIELD SUPPORT	Matte, James W	<b>Response:</b> No Comments	SAFETY PROGRAMS	Nielsen, Christopher E (Required)	<b>Response:</b> No Comments	Safety Rep 6	Brown, Billy L	<b>Response:</b> Reassign	Safety Rep 6	Agen, Chad E	<b>Response:</b> No Comments	Secondary Reviewer (Assigned by: Simundson, Jeffrey P )	Erickson, Garin R	<b>Response:</b> No Comments	Secondary Reviewer (Assigned by: Simundson, Jeffrey P )	Gaul, Adam E	<b>Response:</b> No Response
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Secondary Reviewer (Assigned by: Simundson, Jeffrey P )	Gaul, Adam E	<b>Response:</b> No Response																							

Secondary Reviewer (Assigned by: Simundson, Jeffrey P )	Hokanson, Eric J	<b>Response:</b> No Response
Secondary Reviewer (Assigned by: Simundson, Jeffrey P )	Matte, James W	<b>Response:</b> No Comments
Secondary Reviewer (Assigned by: Simundson, Jeffrey P )	Smedley, Joshua S	<b>Response:</b> Comments Provided Inside
Secondary Reviewer (Assigned by: Simundson, Jeffrey P )	Sweeney, Lynn C	<b>Response:</b> No Comments
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Minor Change	Assign Reviewers	Perform Review	Disposition Comments	USQ Review	Obtain Approvals	Publish Document	Electronic Records
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Disposition Comments	Completed by: Coppersmith, Pamela J
	<b>Coppersmith, Pamela J completed: 07/10/2024 08:26 AM</b>
	<b>Desired Disposition Length:</b> 07/12/2024 03:00 PM
	07/10/2024 08:26 AM All comments were accepted.
Disposition Review	Completed by: Marshall, Richard A
	<b>Marshall, Richard A completed: 07/11/2024 03:34 AM</b>
	<b>Disposition Review Due Date:</b> 07/13/2024 12:00 PM
Complete Disposition Review	Completed by: System
Disposition Complete	Completed by: Coppersmith, Pamela J
	<b>Coppersmith, Pamela J completed: 07/15/2024 05:45 AM</b>
	07/15/2024 05:45 AM No Comment Received

Minor Change	Assign Reviewers	Perform Review	Disposition Comments	USQ Review	Obtain Approvals	Publish Document	Electronic Records
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Confirm Procedure Action Type	Completed by: Marshall, Richard A
	<b>Marshall, Richard A completed: 07/15/2024 08:42 AM</b>
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USQ Review	Completed by: Marshall, Richard A
	<b>Marshall, Richard A completed: 07/15/2024 08:43 AM</b>
	<b>Not Required</b>
	07/15/2024 08:43 AM No USQ Issues Found:

Minor Change	Assign Reviewers	Perform Review	Disposition Comments	USQ Review	Obtain Approvals	Publish Document	Electronic Records
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Initiate Approvals	Completed by: Marshall, Richard A
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	Subject Matter Expert Coppersmith, Pamela J
	Functional Manager Nielsen, Christopher E
Approve Document	Completed by: Coppersmith, Pamela J
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	Subject Matter Expert
Approve Document	Completed by: Nielsen, Christopher E
	<b>Nielsen, Christopher E completed: 07/15/2024 08:57 AM</b>
	Functional Manager

Minor Change	Assign Reviewers	Perform Review	Disposition Comments	USQ Review	Obtain Approvals	Publish Document	Electronic Records
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Final Clean-Up	Completed by: Marshall, Richard A
	<b>Marshall, Richard A completed: 07/15/2024 09:29 AM</b>
Publish Document	Completed by: Marshall, Richard A

**Marshall, Richard A completed: 07/16/2024 03:56 AM**

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Industrial Hygiene Baseline Hazard Assessments

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1.0 PURPOSE

This procedure provides instructions to Industrial Hygienists (IH) or other Safety and Health (S&H) professionals conducting Industrial Hygiene Baseline Hazards Assessments (IHBHAs) for Hanford Mission Essential Services Contract (HMESC) operations or work areas.

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IHBHAs are intended to:

1. Systematically identify and evaluate recognized potential worker health risks and other hazards with adverse exposure potential as deemed necessary by the project IH.
2. Allow for objective prioritization for future evaluation, monitoring, or sampling activities in effort to make efficient use of Hanford Mission Integration Solutions (HMIS) resources.
3. Serve as a basis for analysis to determine the source and nature of the IH hazards and to establish appropriate hazard control measures documented using one or a combination of hazard analysis documentation categories. Chemical groupings are used to establish the basis for the chemical use attachment (CUA).
4. Assist in communicating information from the IH to line management and affected employees regarding recognized chemical, physical, and biological exposure hazards and controls during the work planning process.

5. Identify and characterize similar exposure groups (SEGs) in a work area.

5.

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NOTE: The supporting information (e.g., calculations, field observation, or similar sampling data) used to justify the determination for or against sampling as recorded in the IHBHA may also serve as documentation of the exposure evaluation.

The implementation of this procedure provides information to enhance the planning and Job Hazard Analysis (JHA) processes (see HMIS-PRO-SP-079, Job Hazard Analysis) and the Employee Job Task Analysis (EJTA) process (see HMIS-PRO-SP-11058, Occupational Medical Qualification and Monitoring using EJTA) by:

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1. Providing an overview of the IH hazards for an operation or work area.
2. Defining and characterizing those IH hazards.
3. Providing a consolidated list of the IH assessment needs.

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This document partially implements the ISMS Core Function #2, Identify and Analyze Hazards.

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Industrial Hygiene Baseline Hazard Assessments

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2.0 SCOPE

This procedure applies to HMESCMSC operations or work areas where worker exposures to chemical, physical, or biological hazards warrant identification, evaluation, or control. This includes, but is not limited to, evaluation of compliance with OELs at levels of occupational significance and comparison of other occupational exposures to best practice guidelines issued by standards bodies or professional organizations.

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This procedure is not intended to address:

- Radiological Control Manual; See HMESC-OTHER-RC-5173
- Biological Hazards (Including Bloodborne Pathogens); See HMIS-PRO-SP-45039
- Ergonomics; See HMIS-PRO-SP-62772RD-SP-8471
- Heat Stress Control; See HMIS-PRO-SP-121
- Bulk or wipe samples taken for identification or investigational purposes only;only.
- Indoor air quality (IAQ) investigations where there is no direct correlation to an OEL or other quantifiable risk criteria.

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In addition, operations and work areas specifically included in a HMESC subcontractor hazard analysis per HMIS-PRO-SP-079, APPENDIX C Job Safety Analysis (JSA) where sampling requirements, IH hazard analysis, or control measures are communicated are not required to perform or document IHBHAs.

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Although this procedure establishes the basis for planning and prioritizing quantitative and qualitative exposure assessment activities, Initial Hazard Analysis Screening Criteria as found in HMIS-PRO-SP-079, APPENDIX B shall be utilized for implementation of hazard controls including IH monitoring activities when used for hazard control.

This procedure is effective on publication.

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3.0 IMPLEMENTATION

~~This procedure is effective on publication.~~

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Pre-existing IHBHAs will be updated with any new procedural requirements during their next scheduled revision and when the CSHA and CUA documents are updated that effect

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the IHBHA. The Tracking Schedule for IHBHA reviews is located on the Safety and Health Field Support SharePoint Industrial Hygiene share drive site and is available to all Industrial Hygienists.

IHs shall utilize recognized exposure assessment and testing methodologies and accredited and certified laboratories. These specific methodologies are referenced in the sample plan and analytical laboratory requests found in Site Wide Industrial Hygiene Database (SWIHD) as described in HMIS-PRO-SP-409, *Industrial Hygiene Monitoring, Reporting and Records Management*.

**4.0 PROCESS**

**4.1 Initial Assessment**

The steps listed below are typical components of an initial IHBHA. However, because each operation or work area is different, these steps can be rearranged as necessary.

Actionee	Step	Action
HMIS S&H professional	1.	<p><u>PERFORM</u> Perform a review of available documentation. This may include:</p> <ul style="list-style-type: none"> <li>• Past IHBHA's</li> <li>• Hazard Analysis</li> <li>• Past monitoring data</li> <li>• Hazard Communication (HAZCOM) plans</li> <li>• Material Safety Data Sheets (MSDS)</li> <li>• Chemical and Carcinogen Inventories</li> <li>• Other documentation if available</li> </ul> <p>2. Perform interviews of project management, supervision, or lead workers.</p> <p>This step can provide an opportunity to ask questions relating to the information that was encountered during the document reviews and may provide additional information that will provide insight into the work processes that will be encountered.</p> <p>3. Perform a walkthrough inspection of the work area or the operations performed by the SEG being assessed. Identify the hazards which present a potential for occupational exposure to chemical, physical, or biological hazards.</p> <p>Not all operations with a potential chemical, physical, or biological hazard can or will be identified during one walkthrough. Some operations may be performed on an infrequent basis and will only be identified through employee interviews or multiple walkthroughs.</p>

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Actionee	Step	Action
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**NOTE:** Prior to entering a work area you may be required to review and sign the applicable hazard analysis or be accompanied by an escort.

- 4. Perform employee interviews.

**4.21.1.4.2 Hazard Evaluation, Exposure Assessment Prioritization, and Documentation**

Actionee	Step	Action
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HMIS S&H professional	1.	Document the IHBHA report, including the use of Field Evaluation (FEV) Table (see Appendix C), per the following guidelines <sup>1</sup> :
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- a) A completed IHBHA will consist of the following items:
  - A report or text regarding the work being performed including information about:
    - The tasks or area being evaluated,
    - Hazard Description including:
      - Summary of the work where the hazard is encountered
      - Current controls used
      - Summary of past monitoring results
      - Information related to additional assessment needs
- b) A Completed FEV Table
- c) Include SWIHD references of the IH Survey Numbers for the past 2 years.

**NOTE:** The IHBHA is intended to assist in systematically characterizing the potential for occupational exposure and serving as the basis for recommending hazard control measures. However, pertinent information found in the IHBHA should be flowed-down into the job hazard analysis documents for the managers, supervisors, and craft employees who may not be interested in the full technical basis for the conclusions that were reached in the IHBHA.

*Be aware of the needs of intended audience when completing these documents. For ease in communicating the conclusions of the IHBHA*

<sup>1</sup> This exposure assessment strategy is based in part on the American Industrial Hygiene Association's (AIHA) publication titled "A Strategy for Assessing and Managing Occupational Exposures".

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Actionee	Step	Action
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assessment, it may be more appropriate to retain some technical documentation as a separate attachment from the main IHBHA.

- List each hazard that is within the scope of this procedure, namely chemical groups (by type or category), physical, or biological hazards on the FEV table (see Appendix C). Suggested information ~~may include~~ include:

Location	Source Hazard
Description	Hazard Control
Work Process or Activity	Exposure Rating
SEG's where applicable	Qualitative Exposure Rating
Health Effect Rating	Priority Rating
Past Sample Data (Survey Numbers)	

- Evaluate each hazard using the ratings listed in Table 1-3 and Industrial Hygiene hazard evaluation techniques and record the rating in the FEV table.
- Assign a Qualitative Exposure Assessment Rating by multiplying the numbers obtained from Table 1 and Table 2 and record the rating in the FEV table.

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Actionee	Step	Action
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5. Assign a Priority Rating based off the Exposure Assessment Rating using the following guidelines:

- 11-16 High Priority
- 5-10 Medium Priority
- 1-4 Low Priority

- DOE, OSHA, or company specific monitoring requirements elevate the Priority Rating to High Priority.
- Hazards without prior exposure monitoring data where respiratory protection is used for personal protective purposes should be assigned a High Priority status.
- For exposure scenarios with uncertainty due to lack of information or other factors the Priority Rating should be elevated one category.
- For scenarios where monitoring results indicate employee exposures are within guidance limits the Priority Rating may be reduced according to the IHs professional judgment.

**Table 1**

Category	Exposure Rating
0	No contact with agent.
1	<10% Exposure Limit
2	10% Exposure Limit to Action Level
3	Action Level to Exposure Limit
4	> Exposure Limit

**NOTE:** The Exposure Rating should be determined excluding the use of PPE.

**Table 2**

Category	Health Effect Rating
0	No known or suspected adverse health effects
1	< Moderate, reversible injury /illness
2	Moderate, reversible injury /illness
3	Severe reversible injury/ illness
4	life threatening, or irreversible injury/illness

**NOTES:**

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1. < Moderate injury/illness – short-term skin discoloration, headache, mild irritation, nausea.
2. Moderate, reversible injury/illness – moderate irritation, 1st degree burn.
3. Severe reversible injury/illness –Severe irritation, severe burns, sensitization.
4. Life threatening or irreversible injury/illness –Carcinogens, fatality, blindness, permanent hearing loss, organ or tissue damage.

**Table 3**

Category	Frequency of Contact Rating
0	No Contact
1	Yearly to Quarterly
2	Quarterly to Monthly
3	Monthly to Weekly Contact
4	Weekly to Daily Contact

**4.3.2 4.3 Issuing IHBHA's**

Actionee	Step	Action
HMIS S&H professional	1.	Each IHBHA document shall be updated as industrial hygiene hazards change for the exposure group. Additionally, when the craft specific hazard analysis (CSHA) and CUA documents are updated, the IHBHA shall also be updated if necessary. When the FEV Table identifies a MEDIUM or HIGH priority rating where the controls in place at the time of the assessment do not provide adequate protection to the worker to minimize occupational illness or injury, the documented hazard analysis shall be updated with additional controls for exposure mitigation. When possible, reference specific hazard analysis document(s) within the summary information.

New work processes in industrial areas do not require immediate revision of the IHBHA, provided that an adequate hazard analysis is performed and documented. However, that analysis and documentation must be included in the next scheduled revision of the IHBHA.

**NOTE:** This requirement refers to establishing a date to review the accuracy of the IHBHA report/text, FEV table, and the associated controls or recommendations with the intent that new information based off of the completion of the past recommendations is added to the IHBHA.

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Actionee	Step	Action
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*It is not intended to imply that all past monitoring must be renewed or redone. However, the need for renewed monitoring should be assessed at that time.*

2. ~~Inform project management, line management, and employees of results of the IHBHA as part of the periodic CSHA hazard analysis review and acknowledgement. At a minimum this should include the following content:~~

- ~~• IHBHA Report/Text Summary.~~
- ~~• FEV Table~~
- ~~• Include references of the IH Survey Numbers for the past 2 years~~

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HMIS S&H professional

2.3. The method of retaining IHBHA documents is to utilize SWIHD as described in HMIS-PRO-SP-409, *Industrial Hygiene Monitoring, Reporting and Records Management*.

Publish the IHBHA ~~utilizing using~~ the SWIHD interface ~~byutilizing the following~~:

- ~~• Under the "Baseline" tab within SWIHD, obtain a unique number to identify the BHA.~~
- ~~• In the Comments Section, state the reason for the IHBHA revision (i.e., CSHA, process change, etc.).~~
- ~~• While in the Baseline tab, you may use the "Help" link to see a "screen shot" of step-by-step process in uploading and creating the BHA report.~~

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**NOTE 1: Official Use Only (OUO)** documents should NOT be uploaded as an attachment to the BHA report in SWIHD. However, IH survey reports containing OUO information may be linked to the BHA in SWIHD and are properly protected.

- When you complete the BHA report, it will be automatically converted to a record and placed into IDMS.
- While in the "Post BL" tab, you may use the "Help" link to see a "screen shot" of step-by-step process to attach IH survey records to the BHA report after it has been created as a record.

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Actionee	Step	Action
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**NOTE 2:** IH surveys referenced within the record BHA are considered "historical" records once the BHA has been sent to IDMS. Additional IH surveys linked to the BHA will be incorporated into the next revision of the BHA record.

**5.0 RECORD IDENTIFICATION**

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

**Records Capture Table**

Name of Document	Submittal Responsibility	Retention Responsibility
IHBHA including: Report Text FEV Table Technical documentation where appropriate	HMIS S&H professional performing the IHBHA	HMIS S&H manager(s)

**6.0 SOURCES**

**6.1 Source Requirements**

This procedure implements the requirements specified in 10 CFR 851, *Worker Safety and Health Program*, sections 851.21, ~~851.23~~, & 10 CFR 851.24 Appendix-A, Section 6 ~~Industrial Hygiene~~.

**7.0 REFERENCES**

**7.1 Source Requirements**

10 CFR 851, *Worker Safety and Health Program*

**7.2 Working References**

- A Strategy for Assessing and Managing Occupational Exposures, AIHA Press, 1998
- HMIS-PRO-SP-409, *Industrial Hygiene Monitoring, Reporting and Records Management*
- HMIS-PRO-SP-079, *Job Hazard Analysis*

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HMIS-PRO-RM-10588, *Records Management Processes*

HMIS-PRO-SP-11058, *Occupational Medical Qualification and Monitoring using EJTA*

**8.0 FORMS**

None

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**APPENDIX A GLOSSARY**

Term	Definition
<b>Similar exposure group (SEG)</b>	A group of employees whose exposures to chemical substances or physical hazards have been determined to be similar enough that monitoring the exposures of randomly selected workers in the group provides data useful for predicting the exposures or exposure profiles of the remaining workers. A SEG is also defined as a group of individuals who perform the same jobs or tasks and who have similar exposures to an individual hazardous agent.
<b>Operation</b>	A task or group of tasks performed by an SEG that may result in personal exposures as defined <del>in Section 2.0 Scope,</del> <u>in Section 2.0 Scope</u> of this document.
<b>Work Area</b>	A building, tent, lay down yard, or other structure where work is performed that may result in personal exposures as defined in Section 2.0 <i>Scope</i> , of this document.
<b>Priority Level</b>	<u>A Qualitative Exposure Assessment rating between 1-16, with Low being 1-4, Medium being 5-10, and High being 11-16. The number is derived from multiplying the Exposure Rating by the Health Effect Rating. This numerical rating system is used to provide a level of importance to the hazard. The industrial hygienist may lower or raise the priority level depending on hazard controls, monitoring or sampling information, amount of material used in process, etc. The industrial hygienist will document the priority level of the hazard on the IHBHA along with a statement on monitoring needs.</u>

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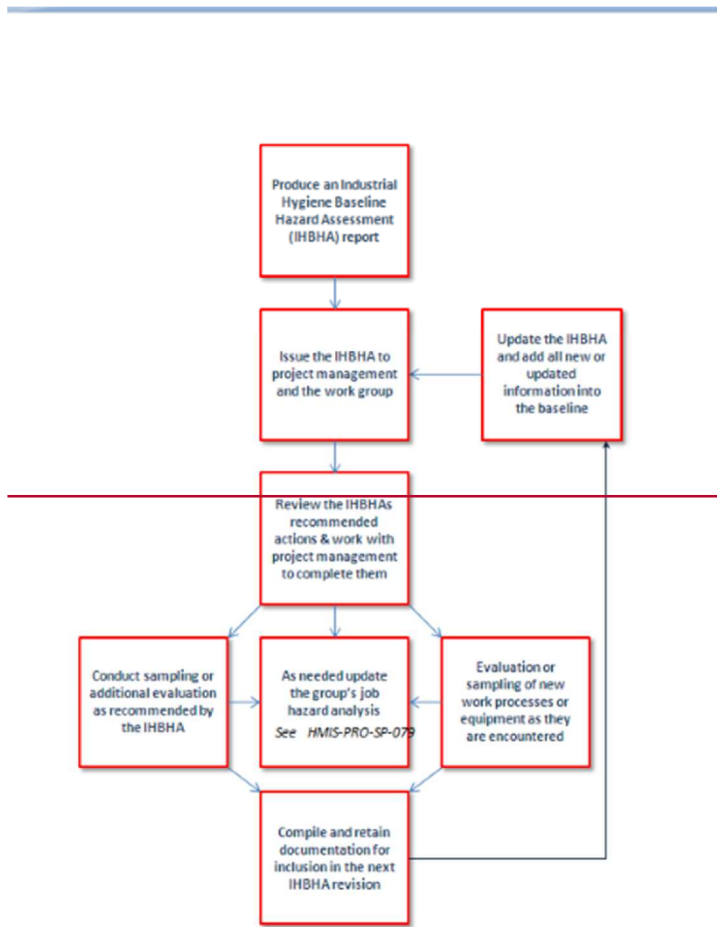
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APPENDIX B IHBHA Process Flow-Chart



*This flow chart is an overview of the IHBHA process for informational purposes. It does not correspond to specific requirements in this document and is not intended to communicate new requirements.*

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**APPENDIX BC**

Example -- Industrial Hygiene Hazards Baseline Assessment Field Evaluation Table

	LOCATION or WORK STATION	HAZARD DESCRIPTION	ACTIVITY or WORK PROCESSES	HAZARD EVALUATION	SAMPLE RESULTS	Exposure Rating	Health Effect Rating	Qualitative Exposure Assessment Rating	Frequency of Contact	HAZARD CONTROLS IN PLACE			Priority Rating
						0-4	0-4	0-16	Table 3	Admin	Engineering	PPE	
1	2715EC	Toluene & Other VOC Exposures	Application of lacquer products	Monitoring has been conducted for use in the 2715EC paint booth with mixed results	IHSF 06256 06257 07158	2	3	6	3	Stay upwind from paint stream when spraying	2715EC Paint Booth	Respirators Chemical Resistant Gloves	Low
	Evaluation Needs		If Lacquer based products are used for >3 hours in one shift contact IH for monitoring										
2	Sitewide	Asbestos Exposure	Removing and replacing asbestos floor tiles or mastics	Exposure resulting from work with tiles, mastics, or leveling compounds.	IHSF 06646 11-60079	2	4	8	1	Communicated in AJHA			Medium
	Evaluation Needs		If removal of asbestos containing mastics or floor tiles occurs monitoring requirements will be determined during AJHA/planning										
3	Outdoor Work Locations	Operator & Bystander Noise Exposure	Walk Behind Vibratory Roller	Spot readings indicate hearing protection is required	11-60218	2	3	6	3 Seasonal	None	None	Hearing Protection	Medium
	Assessment Needs		Conduct noise dosimetry to further characterize potential exposures										
4	All Work Areas	Noise exposure	Vacuuming	Equipment is purchased with low noise levels <85dB	HIH2 02-1346B MIHD 11-60074 11-60082 11-60088	1	2	2	4	None	purchased low noise equipment	Ear plugs available for voluntary use	Low
	Assessment Needs		None										
5	All Work Areas	Mild Skin Irritation	Miscellaneous cleaning	No hazardous components listed or No components with exposure limits	None	1	1	1	4	NA	NA	Gloves	Low
	Assessment Needs		None										

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    6.1 Source Requirements ..... 10

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Industrial Hygiene Baseline Hazard Assessments

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1.0 PURPOSE

This procedure provides instructions to Industrial Hygienists (IH) or other Safety and Health (S&H) professionals conducting Industrial Hygiene Baseline Hazards Assessments (IHBHAs) for Hanford Mission Essential Services Contract (HMESC) operations or work areas.

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IHBHAs are intended to:

- 1. Systematically identify and evaluate recognized potential worker health risks and other hazards with adverse exposure potential as deemed necessary by the project IH.
2. Allow for objective prioritization for future evaluation, monitoring, or sampling activities in effort to make efficient use of Hanford Mission Integration Solutions (HMIS) resources.
3. Serve as a basis for analysis to determine the source and nature of the IH hazards and to establish appropriate hazard control measures documented using one or a combination of hazard analysis documentation categories. Chemical groupings are used to establish the basis for the chemical use attachment (CUA).
4. Assist in communicating information from the IH to line management and affected employees regarding recognized chemical, physical, and biological exposure hazards and controls during the work planning process.

5. Identify and characterize similar exposure groups (SEGs) in a work area.

5.

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NOTE: The supporting information (e.g., calculations, field observation, or similar sampling data) used to justify the determination for or against sampling as recorded in the IHBHA may also serve as documentation of the exposure evaluation.

The implementation of this procedure provides information to enhance the planning and Job Hazard Analysis (JHA) processes (see HMIS-PRO-SP-079, Job Hazard Analysis) and the Employee Job Task Analysis (EJTA) process (see HMIS-PRO-SP-11058, Occupational Medical Qualification and Monitoring using EJTA) by:

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- 1. Providing an overview of the IH hazards for an operation or work area.
2. Defining and characterizing those IH hazards.
3. Providing a consolidated list of the IH assessment needs.

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This document partially implements the ISMS Core Function #2, Identify and Analyze Hazards.

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2.0 SCOPE

This procedure applies to HMESCMSC operations or work areas where worker exposures to chemical, physical, or biological hazards warrant identification, evaluation, or control. This includes, but is not limited to, evaluation of compliance with OELs at levels of occupational significance and comparison of other occupational exposures to best practice guidelines issued by standards bodies or professional organizations.

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This procedure is not intended to address:

- Radiological Control Manual; See HMESC-OTHER-RC-5173
- Biological Hazards (Including Bloodborne Pathogens); See HMIS-PRO-SP-45039
- Ergonomics; See HMIS-PRO-SP-62772RD-SP-8471
- Heat Stress Control; See HMIS-PRO-SP-121
- Bulk or wipe samples taken for identification or investigational purposes only;only.
- Indoor air quality (IAQ) investigations where there is no direct correlation to an OEL or other quantifiable risk criteria.

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In addition, operations and work areas specifically included in a HMESC subcontractor hazard analysis per HMIS-PRO-SP-079, APPENDIX C Job Safety Analysis (JSA) where sampling requirements, IH hazard analysis, or control measures are communicated are not required to perform or document IHBHAs.

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Although this procedure establishes the basis for planning and prioritizing quantitative and qualitative exposure assessment activities, Initial Hazard Analysis Screening Criteria as found in HMIS-PRO-SP-079, APPENDIX B shall be utilized for implementation of hazard controls including IH monitoring activities when used for hazard control.

This procedure is effective on publication.

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3.0 IMPLEMENTATION

~~This procedure is effective on publication.~~

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Pre-existing IHBHAs will be updated with any new procedural requirements during their next scheduled revision and when the CSHA and CUA documents are updated that effect

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the IHBHA. The Tracking Schedule for IHBHA reviews is located on the Safety and Health Field Support SharePoint Industrial Hygiene share drive site and is available to all Industrial Hygienists.

IHs shall utilize recognized exposure assessment and testing methodologies and accredited and certified laboratories. These specific methodologies are referenced in the sample plan and analytical laboratory requests found in Site Wide Industrial Hygiene Database (SWIHD) as described in HMIS-PRO-SP-409, *Industrial Hygiene Monitoring, Reporting and Records Management*.

**4.0 PROCESS**

**4.1 Initial Assessment**

The steps listed below are typical components of an initial IHBHA. However, because each operation or work area is different, these steps can be rearranged as necessary.

Actionee	Step	Action
HMIS S&H professional	1.	<p><u>PERFORM</u> Perform a review of available documentation. This may include:</p> <ul style="list-style-type: none"> <li>• Past IHBHA's</li> <li>• Hazard Analysis</li> <li>• Past monitoring data</li> <li>• Hazard Communication (HAZCOM) plans</li> <li>• Material Safety Data Sheets (MSDS)</li> <li>• Chemical and Carcinogen Inventories</li> <li>• Other documentation if available</li> </ul> <p>2. Perform interviews of project management, supervision, or lead workers.</p> <p>This step can provide an opportunity to ask questions relating to the information that was encountered during the document reviews and may provide additional information that will provide insight into the work processes that will be encountered.</p> <p>3. Perform a walkthrough inspection of the work area or the operations performed by the SEG being assessed. Identify the hazards which present a potential for occupational exposure to chemical, physical, or biological hazards.</p> <p>Not all operations with a potential chemical, physical, or biological hazard can or will be identified during one walkthrough. Some operations may be performed on an infrequent basis and will only be identified through employee interviews or multiple walkthroughs.</p>

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Actionee	Step	Action
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**NOTE:** Prior to entering a work area you may be required to review and sign the applicable hazard analysis or be accompanied by an escort.

- 4. Perform employee interviews.

**4.21.1.4.2 Hazard Evaluation, Exposure Assessment Prioritization, and Documentation**

Actionee	Step	Action
----------	------	--------

HMIS S&H professional	1.	Document the IHBHA report, including the use of Field Evaluation (FEV) Table (see Appendix C), per the following guidelines <sup>1</sup> :
-----------------------	----	--

- a) A completed IHBHA will consist of the following items:
  - A report or text regarding the work being performed including information about:
    - The tasks or area being evaluated,
    - Hazard Description including:
      - Summary of the work where the hazard is encountered
      - Current controls used
      - Summary of past monitoring results
      - Information related to additional assessment needs
  - b) A Completed FEV Table
  - c) Include SWIHD references of the IH Survey Numbers for the past 2 years.

**NOTE:** The IHBHA is intended to assist in systematically characterizing the potential for occupational exposure and serving as the basis for recommending hazard control measures. However, pertinent information found in the IHBHA should be flowed-down into the job hazard analysis documents for the managers, supervisors, and craft employees who may not be interested in the full technical basis for the conclusions that were reached in the IHBHA.

*Be aware of the needs of intended audience when completing these documents. For ease in communicating the conclusions of the IHBHA*

<sup>1</sup> This exposure assessment strategy is based in part on the American Industrial Hygiene Association's (AIHA) publication titled "A Strategy for Assessing and Managing Occupational Exposures".

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Actionee	Step	Action
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*assessment, it may be more appropriate to retain some technical documentation as a separate attachment from the main IHBHA.*

- List each hazard that is within the scope of this procedure, namely chemical groups (by type or category), physical, or biological hazards on the FEV table (see Appendix C). Suggested information ~~may include~~ include:

Location	Source Hazard
Description	Hazard Control
Work Process or Activity	Exposure Rating
SEG's where applicable	Qualitative Exposure Rating
Health Effect Rating	Priority Rating
Past Sample Data (Survey Numbers)	

- Evaluate each hazard using the ratings listed in Table 1-3 and Industrial Hygiene hazard evaluation techniques and record the rating in the FEV table.
- Assign a Qualitative Exposure Assessment Rating by multiplying the numbers obtained from Table 1 and Table 2 and record the rating in the FEV table.

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Actionee	Step	Action
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5. Assign a Priority Rating based off the Exposure Assessment Rating using the following guidelines:

- 11-16 High Priority
- 5-10 Medium Priority
- 1-4 Low Priority

- DOE, OSHA, or company specific monitoring requirements elevate the Priority Rating to High Priority.
- Hazards without prior exposure monitoring data where respiratory protection is used for personal protective purposes should be assigned a High Priority status.
- For exposure scenarios with uncertainty due to lack of information or other factors the Priority Rating should be elevated one category.
- For scenarios where monitoring results indicate employee exposures are within guidance limits the Priority Rating may be reduced according to the IHs professional judgment.

**Table 1**

Category	Exposure Rating
0	No contact with agent.
1	<10% Exposure Limit
2	10% Exposure Limit to Action Level
3	Action Level to Exposure Limit
4	> Exposure Limit

**NOTE:** The Exposure Rating should be determined excluding the use of PPE.

**Table 2**

Category	Health Effect Rating
0	No known or suspected adverse health effects
1	< Moderate, reversible injury /illness
2	Moderate, reversible injury /illness
3	Severe reversible injury/ illness
4	life threatening, or irreversible injury/illness

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1. < Moderate injury/illness – short-term skin discoloration, headache, mild irritation, nausea.
2. Moderate, reversible injury/illness – moderate irritation, 1st degree burn.
3. Severe reversible injury/illness –Severe irritation, severe burns, sensitization.
4. Life threatening or irreversible injury/illness –Carcinogens, fatality, blindness, permanent hearing loss, organ or tissue damage.

**Table 3**

Category	Frequency of Contact Rating
0	No Contact
1	Yearly to Quarterly
2	Quarterly to Monthly
3	Monthly to Weekly Contact
4	Weekly to Daily Contact

**4.3.2 4.3 Issuing IHBHA's**

Actionee	Step	Action
HMIS S&H professional	1.	Each IHBHA document shall be updated as industrial hygiene hazards change for the exposure group. Additionally, when the craft specific hazard analysis (CSHA) and CUA documents are updated, the IHBHA shall also be updated if necessary. When the FEV Table identifies a MEDIUM or HIGH priority rating where the controls in place at the time of the assessment do not provide adequate protection to the worker to minimize occupational illness or injury, the documented hazard analysis shall be updated with additional controls for exposure mitigation. When possible, reference specific hazard analysis document(s) within the summary information.

New work processes in industrial areas do not require immediate revision of the IHBHA, provided that an adequate hazard analysis is performed and documented. However, that analysis and documentation must be included in the next scheduled revision of the IHBHA.

**NOTE:** This requirement refers to establishing a date to review the accuracy of the IHBHA report/text, FEV table, and the associated controls or recommendations with the intent that new information based off of the completion of the past recommendations is added to the IHBHA.

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Actionee	Step	Action
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*It is not intended to imply that all past monitoring must be renewed or redone. However, the need for renewed monitoring should be assessed at that time.*

2. ~~Inform project management, line management, and employees of results of the IHBHA as part of the periodic CSHA hazard analysis review and acknowledgement. At a minimum this should include the following content:~~

- ~~• IHBHA Report/Text Summary.~~
- ~~• FEV Table~~
- ~~• Include references of the IH Survey Numbers for the past 2 years~~

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HMIS S&H professional

2.3. The method of retaining IHBHA documents is to utilize SWIHD as described in HMIS-PRO-SP-409, *Industrial Hygiene Monitoring, Reporting and Records Management*.

Publish the IHBHA ~~utilizing using~~ the SWIHD interface ~~byutilizing the following~~:

- ~~• Under the "Baseline" tab within SWIHD, obtain a unique number to identify the BHA.~~
- ~~• In the Comments Section, state the reason for the IHBHA revision (i.e., CSHA, process change, etc.).~~
- ~~• While in the Baseline tab, you may use the "Help" link to see a "screen shot" of step-by-step process in uploading and creating the BHA report.~~

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**NOTE 1: Official Use Only (OUO)** documents should NOT be uploaded as an attachment to the BHA report in SWIHD. However, IH survey reports containing OUO information may be linked to the BHA in SWIHD and are properly protected.

- When you complete the BHA report, it will be automatically converted to a record and placed into IDMS.
- While in the "Post BL" tab, you may use the "Help" link to see a "screen shot" of step-by-step process to attach IH survey records to the BHA report after it has been created as a record.

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Actionee	Step	Action
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**NOTE 2:** IH surveys referenced within the record BHA are considered "historical" records once the BHA has been sent to IDMS. Additional IH surveys linked to the BHA will be incorporated into the next revision of the BHA record.

**5.0 RECORD IDENTIFICATION**

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

**Records Capture Table**

Name of Document	Submittal Responsibility	Retention Responsibility
IHBHA including: Report Text FEV Table Technical documentation where appropriate	HMIS S&H professional performing the IHBHA	HMIS S&H manager(s)

**6.0 SOURCES**

**1-41.3 6.1 Source Requirements**

This procedure implements the requirements specified in 10 CFR 851, *Worker Safety and Health Program*, sections 851.21, ~~851.23~~, & 10 CFR 851.24 Appendix-A, Section 6 ~~Industrial Hygiene~~.

**7.0 REFERENCES**

**1-51.4 7.1 Source Requirements**

10 CFR 851, *Worker Safety and Health Program*

**1-61.5 7.2 Working References**

- A Strategy for Assessing and Managing Occupational Exposures*, AIHA Press, 1998
- HMIS-PRO-SP-409, *Industrial Hygiene Monitoring, Reporting and Records Management*
- HMIS-PRO-SP-079, *Job Hazard Analysis*

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None

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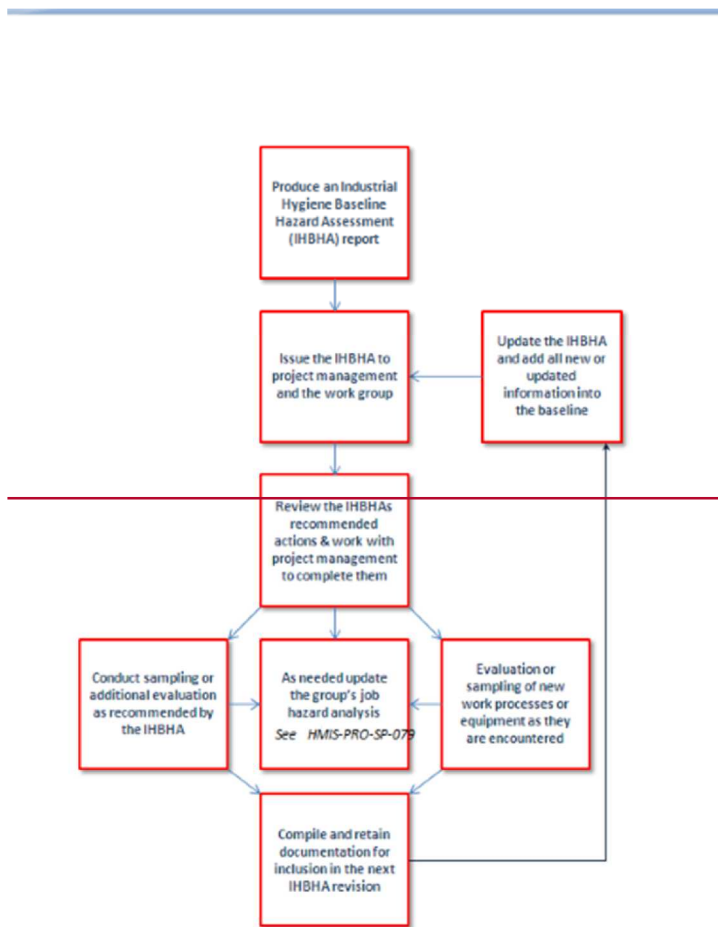
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APPENDIX B IHBHA Process Flow-Chart



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**APPENDIX BC**

Example -- Industrial Hygiene Hazards Baseline Assessment Field Evaluation Table

	LOCATION or WORK STATION	HAZARD DESCRIPTION	ACTIVITY or WORK PROCESSES	HAZARD EVALUATION	SAMPLE RESULTS	Exposure Rating	Health Effect Rating	Qualitative Exposure Assessment Rating	Frequency of Contact	HAZARD CONTROLS IN PLACE			Priority Rating
						Table 1	Table 2	0-16	Table 3	Admin	Engineering	PPE	
1	2715EC	Toluene & Other VOC Exposures	Application of lacquer products	Monitoring has been conducted for use in the 2715EC paint booth with mixed results	IHSF 06256 06257 07158	2	3	6	3	Stay upwind from paint stream when spraying	2715EC Paint Booth	Respirators Chemical Resistant Gloves	Low
	Evaluation Needs		If Lacquer based products are used for >3 hours in one shift contact IH for monitoring										
2	Sitewide	Asbestos Exposure	Removing and replacing asbestos floor tiles or mastics	Exposure resulting from work with tiles, mastics, or leveling compounds.	IHSF 06646 11-60079	2	4	8	1	Communicated in AJHA			Medium
	Evaluation Needs		If removal of asbestos containing mastics or floor tiles occurs monitoring requirements will be determined during AJHA/planning										
3	Outdoor Work Locations	Operator & Bystander Noise Exposure	Walk Behind Vibratory Roller	Spot readings indicate hearing protection is required	11-60218	2	3	6	3 Seasonal	None	None	Hearing Protection	Medium
	Assessment Needs		Conduct noise dosimetry to further characterize potential exposures										
4	All Work Areas	Noise exposure	Vacuuming	Equipment is purchased with low noise levels <85dB	HIH2 02-1346B MIHD 11-60074 11-60082 11-60088	1	2	2	4	None	purchased low noise equipment	Ear plugs available for voluntary use	Low
	Assessment Needs		None										
5	All Work Areas	Mild Skin Irritation	Miscellaneous cleaning	No hazardous components listed or No components with exposure limits	None	1	1	1	4	NA	NA	Gloves	Low
	Assessment Needs		None										

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1.0 PURPOSE

This procedure provides instructions to Industrial Hygienists (IH) or other Safety and Health (S&H) professionals conducting Industrial Hygiene Baseline Hazards Assessments (IHBHAs) for Hanford Mission Essential Services Contract (HMESC) operations or work areas.

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IHBHAs are intended to:

1. Systematically identify and evaluate recognized potential worker health risks and other hazards with adverse exposure potential as deemed necessary by the project IH.
2. Allow for objective prioritization for future evaluation, monitoring, or sampling activities in effort to make efficient use of Hanford Mission Integration Solutions (HMIS) resources.
3. Serve as a basis for analysis to determine the source and nature of the IH hazards and to establish appropriate hazard control measures documented using one or a combination of hazard analysis documentation categories. Chemical groupings are used to establish the basis for the chemical use attachment (CUA).
4. Assist in communicating information from the IH to line management and affected employees regarding recognized chemical, physical, and biological exposure hazards and controls during the work planning process.

5. Identify and characterize similar exposure groups (SEGs) in a work area.

5.

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NOTE: The supporting information (e.g., calculations, field observation, or similar sampling data) used to justify the determination for or against sampling as recorded in the IHBHA may also serve as documentation of the exposure evaluation.

The implementation of this procedure provides information to enhance the planning and Job Hazard Analysis (JHA) processes (see HMIS-PRO-SP-079, Job Hazard Analysis) and the Employee Job Task Analysis (EJTA) process (see HMIS-PRO-SP-11058, Occupational Medical Qualification and Monitoring using EJTA) by:

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1. Providing an overview of the IH hazards for an operation or work area.
2. Defining and characterizing those IH hazards.
3. Providing a consolidated list of the IH assessment needs.

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This document partially implements the ISMS Core Function #2, Identify and Analyze Hazards.

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2.0 SCOPE

This procedure applies to HMESCMSC operations or work areas where worker exposures to chemical, physical, or biological hazards warrant identification, evaluation, or control. This includes, but is not limited to, evaluation of compliance with OELs at levels of occupational significance and comparison of other occupational exposures to best practice guidelines issued by standards bodies or professional organizations.

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This procedure is not intended to address:

- Radiological Control Manual; See HMESC-OTHER-RC-5173
- Biological Hazards (Including Bloodborne Pathogens); See HMIS-PRO-SP-45039
- Ergonomics; See HMIS-PRO-SP-62772RD-SP-8471
- Heat Stress Control; See HMIS-PRO-SP-121
- Bulk or wipe samples taken for identification or investigational purposes only;only.
- Indoor air quality (IAQ) investigations where there is no direct correlation to an OEL or other quantifiable risk criteria.

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In addition, operations and work areas specifically included in a HMESC subcontractor hazard analysis per HMIS-PRO-SP-079, APPENDIX C Job Safety Analysis (JSA) where sampling requirements, IH hazard analysis, or control measures are communicated are not required to perform or document IHBHAs.

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Although this procedure establishes the basis for planning and prioritizing quantitative and qualitative exposure assessment activities, Initial Hazard Analysis Screening Criteria as found in HMIS-PRO-SP-079, APPENDIX B shall be utilized for implementation of hazard controls including IH monitoring activities when used for hazard control.

This procedure is effective on publication.

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3.0 IMPLEMENTATION

~~This procedure is effective on publication.~~

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Pre-existing IHBHAs will be updated with any new procedural requirements during their next scheduled revision and when the CSHA and CUA documents are updated that effect

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the IHBHA. The Tracking Schedule for IHBHA reviews is located on the Safety and Health Field Support SharePoint Industrial Hygiene share drive site and is available to all Industrial Hygienists.

IHs shall utilize recognized exposure assessment and testing methodologies and accredited and certified laboratories. These specific methodologies are referenced in the sample plan and analytical laboratory requests found in Site Wide Industrial Hygiene Database (SWIHD) as described in HMIS-PRO-SP-409, *Industrial Hygiene Monitoring, Reporting and Records Management*.

**4.0 PROCESS**

**4.1 Initial Assessment**

The steps listed below are typical components of an initial IHBHA. However, because each operation or work area is different, these steps can be rearranged as necessary.

Actionee	Step	Action
HMIS S&H professional	1.	<p><u>PERFORM</u> Perform a review of available documentation. This may include:</p> <ul style="list-style-type: none"> <li>• Past IHBHA's</li> <li>• Hazard Analysis</li> <li>• Past monitoring data</li> <li>• Hazard Communication (HAZCOM) plans</li> <li>• Material Safety Data Sheets (MSDS)</li> <li>• Chemical and Carcinogen Inventories</li> <li>• Other documentation if available</li> </ul> <p>2. Perform interviews of project management, supervision, or lead workers.</p> <p>This step can provide an opportunity to ask questions relating to the information that was encountered during the document reviews and may provide additional information that will provide insight into the work processes that will be encountered.</p> <p>3. Perform a walkthrough inspection of the work area or the operations performed by the SEG being assessed. Identify the hazards which present a potential for occupational exposure to chemical, physical, or biological hazards.</p> <p>Not all operations with a potential chemical, physical, or biological hazard can or will be identified during one walkthrough. Some operations may be performed on an infrequent basis and will only be identified through employee interviews or multiple walkthroughs.</p>

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Actionee	Step	Action
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**NOTE:** Prior to entering a work area you may be required to review and sign the applicable hazard analysis or be accompanied by an escort.

- 4. Perform employee interviews.

**4.21.1.4.2 Hazard Evaluation, Exposure Assessment Prioritization, and Documentation**

Actionee	Step	Action
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HMIS S&H professional	1.	Document the IHBHA report, including the use of Field Evaluation (FEV) Table (see Appendix C), per the following guidelines <sup>1</sup> :
-----------------------	----	--

- a) A completed IHBHA will consist of the following items:
  - A report or text regarding the work being performed including information about:
    - The tasks or area being evaluated,
    - Hazard Description including:
      - Summary of the work where the hazard is encountered
      - Current controls used
      - Summary of past monitoring results
      - Information related to additional assessment needs
  - b) A Completed FEV Table
  - c) Include SWIHD references of the IH Survey Numbers for the past 2 years.

**NOTE:** The IHBHA is intended to assist in systematically characterizing the potential for occupational exposure and serving as the basis for recommending hazard control measures. However, pertinent information found in the IHBHA should be flowed-down into the job hazard analysis documents for the managers, supervisors, and craft employees who may not be interested in the full technical basis for the conclusions that were reached in the IHBHA.

*Be aware of the needs of intended audience when completing these documents. For ease in communicating the conclusions of the IHBHA*

<sup>1</sup> This exposure assessment strategy is based in part on the American Industrial Hygiene Association's (AIHA) publication titled "A Strategy for Assessing and Managing Occupational Exposures".

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Actionee	Step	Action
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assessment, it may be more appropriate to retain some technical documentation as a separate attachment from the main IHBHA.

- 2. List each hazard that is within the scope of this procedure, namely chemical groups (by type or category), physical, or biological hazards on the FEV table (see Appendix C). Suggested information ~~may include~~ include:

Location	Source Hazard
Description	Hazard Control
Work Process or Activity	Exposure Rating
SEG's where applicable	Qualitative Exposure Rating
Health Effect Rating	Priority Rating
Past Sample Data (Survey Numbers)	

- 3. Evaluate each hazard using the ratings listed in Table 1-3 and Industrial Hygiene hazard evaluation techniques and record the rating in the FEV table.
- 4. Assign a Qualitative Exposure Assessment Rating by multiplying the numbers obtained from Table 1 and Table 2 and record the rating in the FEV table.

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Actionee	Step	Action
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5. Assign a Priority Rating based off the Exposure Assessment Rating using the following guidelines:

- 11-16 High Priority
- 5-10 Medium Priority
- 1-4 Low Priority

- DOE, OSHA, or company specific monitoring requirements elevate the Priority Rating to High Priority.
- Hazards without prior exposure monitoring data where respiratory protection is used for personal protective purposes should be assigned a High Priority status.
- For exposure scenarios with uncertainty due to lack of information or other factors the Priority Rating should be elevated one category.
- For scenarios where monitoring results indicate employee exposures are within guidance limits the Priority Rating may be reduced according to the IHs professional judgment.

**Table 1**

Category	Exposure Rating
0	No contact with agent.
1	<10% Exposure Limit
2	10% Exposure Limit to Action Level
3	Action Level to Exposure Limit
4	> Exposure Limit

**NOTE:** The Exposure Rating should be determined excluding the use of PPE.

**Table 2**

Category	Health Effect Rating
0	No known or suspected adverse health effects
1	< Moderate, reversible injury /illness
2	Moderate, reversible injury /illness
3	Severe reversible injury/ illness
4	life threatening, or irreversible injury/illness

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1. < Moderate injury/illness – short-term skin discoloration, headache, mild irritation, nausea.
2. Moderate, reversible injury/illness – moderate irritation, 1st degree burn.
3. Severe reversible injury/illness –Severe irritation, severe burns, sensitization.
4. Life threatening or irreversible injury/illness –Carcinogens, fatality, blindness, permanent hearing loss, organ or tissue damage.

**Table 3**

Category	Frequency of Contact Rating
0	No Contact
1	Yearly to Quarterly
2	Quarterly to Monthly
3	Monthly to Weekly Contact
4	Weekly to Daily Contact

**4.3.2 4.3 Issuing IHBHA's**

Actionee	Step	Action
HMIS S&H professional	1.	Each IHBHA document shall be updated as industrial hygiene hazards change for the exposure group. Additionally, when the craft specific hazard analysis (CSHA) and CUA documents are updated, the IHBHA shall also be updated if necessary. When the FEV Table identifies a MEDIUM or HIGH priority rating where the controls in place at the time of the assessment do not provide adequate protection to the worker to minimize occupational illness or injury, the documented hazard analysis shall be updated with additional controls for exposure mitigation. When possible, reference specific hazard analysis document(s) within the summary information.

New work processes in industrial areas do not require immediate revision of the IHBHA, provided that an adequate hazard analysis is performed and documented. However, that analysis and documentation must be included in the next scheduled revision of the IHBHA.

**NOTE:** This requirement refers to establishing a date to review the accuracy of the IHBHA report/text, FEV table, and the associated controls or recommendations with the intent that new information based off of the completion of the past recommendations is added to the IHBHA.

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Actionee	Step	Action
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*It is not intended to imply that all past monitoring must be renewed or redone. However, the need for renewed monitoring should be assessed at that time.*

~~2. Inform project management, line management, and employees of results of the IHBHA as part of the periodic CSHA hazard analysis review and acknowledgement. At a minimum this should include the following content:~~

- ~~• IHBHA Report/Text Summary.~~
- ~~• FEV Table~~
- ~~• Include references of the IH Survey Numbers for the past 2 years~~

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HMIS S&H professional

2.3. The method of retaining IHBHA documents is to utilize SWIHD as described in HMIS-PRO-SP-409, *Industrial Hygiene Monitoring, Reporting and Records Management*.

Publish the IHBHA ~~utilizing using~~ the SWIHD interface ~~byutilizing the following~~:

- ~~• Under the "Baseline" tab within SWIHD, obtain a unique number to identify the BHA.~~
- ~~• In the Comments Section, state the reason for the IHBHA revision (i.e., CSHA, process change, etc.).~~
- ~~• While in the Baseline tab, you may use the "Help" link to see a "screen shot" of step-by-step process in uploading and creating the BHA report.~~

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**NOTE 1: Official Use Only (OUO)** documents should NOT be uploaded as an attachment to the BHA report in SWIHD. However, IH survey reports containing OUO information may be linked to the BHA in SWIHD and are properly protected.

- When you complete the BHA report, it will be automatically converted to a record and placed into IDMS.
- While in the "Post BL" tab, you may use the "Help" link to see a "screen shot" of step-by-step process to attach IH survey records to the BHA report after it has been created as a record.

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Actionee	Step	Action
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**NOTE 2:** IH surveys referenced within the record BHA are considered "historical" records once the BHA has been sent to IDMS. Additional IH surveys linked to the BHA will be incorporated into the next revision of the BHA record.

**5.0 RECORD IDENTIFICATION**

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

**Records Capture Table**

Name of Document	Submittal Responsibility	Retention Responsibility
IHBHA including: Report Text FEV Table Technical documentation where appropriate	HMIS S&H professional performing the IHBHA	HMIS S&H manager(s)

**6.0 SOURCES**

**1-41.3 6.1 Source Requirements**

This procedure implements the requirements specified in 10 CFR 851, *Worker Safety and Health Program*, sections 851.21, ~~851.23~~, & 10 CFR 851.24 Appendix-A, Section 6 ~~Industrial Hygiene~~.

**7.0 REFERENCES**

**1-51.4 7.1 Source Requirements**

10 CFR 851, *Worker Safety and Health Program*

**1-61.5 7.2 Working References**

- A Strategy for Assessing and Managing Occupational Exposures*, AIHA Press, 1998
- HMIS-PRO-SP-409, *Industrial Hygiene Monitoring, Reporting and Records Management*
- HMIS-PRO-SP-079, *Job Hazard Analysis*

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HMIS-PRO-RM-10588, *Records Management Processes*

HMIS-PRO-SP-11058, *Occupational Medical Qualification and Monitoring using EJTA*

**8.0 FORMS**

None

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**APPENDIX A GLOSSARY**

Term	Definition
<b>Similar exposure group (SEG)</b>	A group of employees whose exposures to chemical substances or physical hazards have been determined to be similar enough that monitoring the exposures of randomly selected workers in the group provides data useful for predicting the exposures or exposure profiles of the remaining workers. A SEG is also defined as a group of individuals who perform the same jobs or tasks and who have similar exposures to an individual hazardous agent.
<b>Operation</b>	A task or group of tasks performed by an SEG that may result in personal exposures as defined <del>in Section 2.0 Scope,</del> <u>in Section 2.0 Scope</u> of this document.
<b>Work Area</b>	A building, tent, lay down yard, or other structure where work is performed that may result in personal exposures as defined in Section 2.0 <u>Scope</u> , of this document.
<b>Priority Level</b>	<u>A Qualitative Exposure Assessment rating between 1-16, with Low being 1-4, Medium being 5-10, and High being 11-16. The number is derived from multiplying the Exposure Rating by the Health Effect Rating. This numerical rating system is used to provide a level of importance to the hazard. The industrial hygienist may lower or raise the priority level depending on hazard controls, monitoring or sampling information, amount of material used in process, etc. The industrial hygienist will document the priority level of the hazard on the IHBHA along with a statement on monitoring needs.</u>

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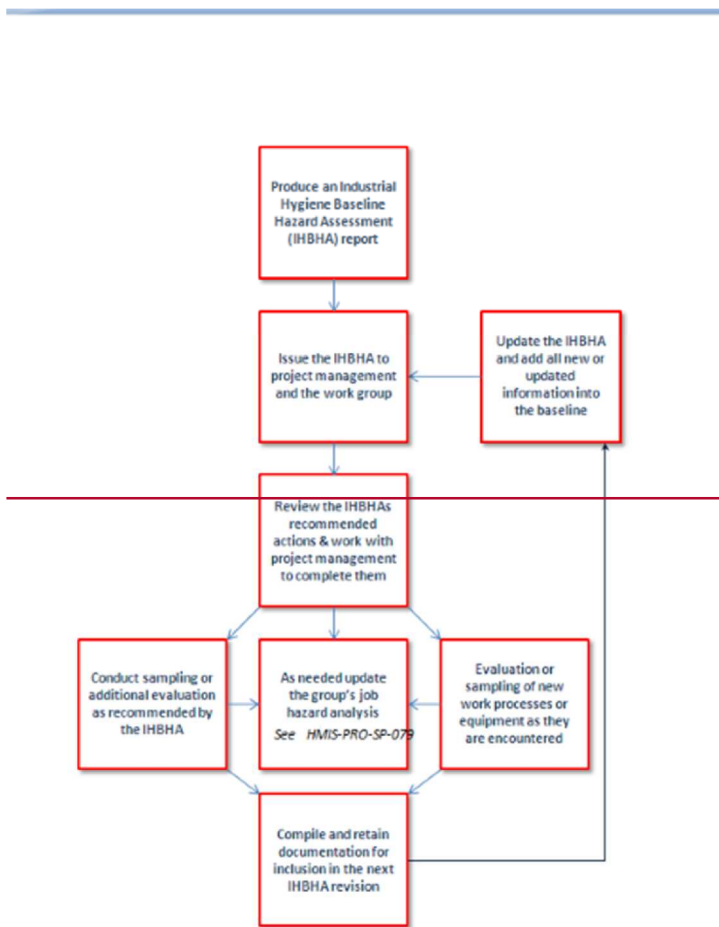
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APPENDIX B IHBHA Process Flow-Chart



*This flow chart is an overview of the IHBHA process for informational purposes. It does not correspond to specific requirements in this document and is not intended to communicate new requirements.*

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**APPENDIX BC**

Example -- Industrial Hygiene Hazards Baseline Assessment Field Evaluation Table

	LOCATION or WORK STATION	HAZARD DESCRIPTION	ACTIVITY or WORK PROCESSES	HAZARD EVALUATION	SAMPLE RESULTS	Exposure Rating	Health Effect Rating	Qualitative Exposure Assessment Rating	Frequency of Contact	HAZARD CONTROLS IN PLACE			Priority Rating
						Table 1	Table 2	0-16	Table 3	Admin	Engineering	PPE	
1	2715EC	Toluene & Other VOC Exposures	Application of lacquer products	Monitoring has been conducted for use in the 2715EC paint booth with mixed results	IHSF 06256 06257 07158	2	3	6	3	Stay upwind from paint stream when spraying	2715EC Paint Booth	Respirators Chemical Resistant Gloves	Low
Evaluation Needs			If Lacquer based products are used for >3 hours in one shift contact IH for monitoring										
2	Sitewide	Asbestos Exposure	Removing and replacing asbestos floor tiles or mastics	Exposure resulting from work with tiles, mastics, or leveling compounds.	IHSF 06646 11-60079	2	4	8	1	Communicated in AJHA			Medium
Evaluation Needs			If removal of asbestos containing mastics or floor tiles occurs monitoring requirements will be determined during AJHA/planning										
3	Outdoor Work Locations	Operator & Bystander Noise Exposure	Walk Behind Vibratory Roller	Spot readings indicate hearing protection is required	11-60218	2	3	6	3 Seasonal	None	None	Hearing Protection	Medium
Assessment Needs			Conduct noise dosimetry to further characterize potential exposures										
4	All Work Areas	Noise exposure	Vacuuming	Equipment is purchased with low noise levels <85dB	HIH2 02-1346B MIHD 11-60074 11-60082 11-60088	1	2	2	4	None	purchased low noise equipment	Ear plugs available for voluntary use	Low
Assessment Needs			None										
5	All Work Areas	Mild Skin Irritation	Miscellaneous cleaning	No hazardous components listed or No components with exposure limits	None	1	1	1	4	NA	NA	Gloves	Low
Assessment Needs			None										

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Industrial Hygiene Baseline Hazard Assessments

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1.0 PURPOSE

This procedure provides instructions to Industrial Hygienists (IH) or other Safety and Health (S&H) professionals conducting Industrial Hygiene Baseline Hazards Assessments (IHBHAs) for Hanford Mission Essential Services Contract (HMESC) operations or work areas.

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IHBHAs are intended to:

1. Systematically identify and evaluate recognized potential worker health risks and other hazards with adverse exposure potential as deemed necessary by the project IH.
2. Allow for objective prioritization for future evaluation, monitoring, or sampling activities in effort to make efficient use of Hanford Mission Integration Solutions (HMIS) resources.
3. Serve as a basis for analysis to determine the source and nature of the IH hazards and to establish appropriate hazard control measures documented using one or a combination of hazard analysis documentation categories. Chemical groupings are used to establish the basis for the chemical use attachment (CUA).
4. Assist in communicating information from the IH to line management and affected employees regarding recognized chemical, physical, and biological exposure hazards and controls during the work planning process.

5. Identify and characterize similar exposure groups (SEGs) in a work area.

5.

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NOTE: The supporting information (e.g., calculations, field observation, or similar sampling data) used to justify the determination for or against sampling as recorded in the IHBHA may also serve as documentation of the exposure evaluation.

The implementation of this procedure provides information to enhance the planning and job hazard analysis (JHA) processes (see HMIS-PRO-SP-079, Job Hazard Analysis) and the Employee Job Task Analysis (EJTA) process (see HMIS-PRO-SP-11058, Occupational Medical Qualification and Monitoring using EJTA) by:

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1. Providing an overview of the IH hazards for an operation or work area.
2. Defining and characterizing those IH hazards.
3. Providing a consolidated list of the IH assessment needs.

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This document partially implements the ISMS Core Function #2, Identify and Analyze Hazards.

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Industrial Hygiene Baseline Hazard Assessments

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2.0 SCOPE

This procedure applies to HMESCMSC operations or work areas where worker exposures to chemical, physical, or biological hazards warrant identification, evaluation, or control. This includes, but is not limited to, evaluation of compliance with OELs at levels of occupational significance and comparison of other occupational exposures to best practice guidelines issued by standards bodies or professional organizations.

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This procedure is not intended to address:

- Radiological Control Manual; See HMESC-OTHER-RC-5173
- Biological Hazards (Including Bloodborne Pathogens); See HMIS-PRO-SP-45039
- Ergonomics; See HMIS-PRO-SP-62772RD-SP-8471
- Heat Stress Control; See HMIS-PRO-SP-121
- Bulk or wipe samples taken for identification or investigational purposes only;only.
- Indoor air quality (IAQ) investigations where there is no direct correlation to an OEL or other quantifiable risk criteria.

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In addition, operations and work areas specifically included in a HMESC subcontractor hazard analysis per HMIS-PRO-SP-079, APPENDIX C Job Safety Analysis (JSA) where sampling requirements, IH hazard analysis, or control measures are communicated are not required to perform or document IHBHAs.

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Although this procedure establishes the basis for planning and prioritizing quantitative and qualitative exposure assessment activities, Initial Hazard Analysis Screening Criteria as found in HMIS-PRO-SP-079, APPENDIX B shall be utilized for implementation of hazard controls including IH monitoring activities when used for hazard control.

This procedure is effective on publication.

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3.0 IMPLEMENTATION

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Pre-existing IHBHAs will be updated with any new procedural requirements during their next scheduled revision and when the CSHA and CUA documents are updated that effect

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**Industrial Hygiene Baseline Hazard Assessments**

the IHBHA. The Tracking Schedule for IHBHA reviews is located on the Safety and Health Field Support SharePoint Industrial Hygiene share drive site and is available to all Industrial Hygienists.

IHs shall utilize recognized exposure assessment and testing methodologies and accredited and certified laboratories. These specific methodologies are referenced in the sample plan and analytical laboratory requests found in Site Wide Industrial Hygiene Database (SWIHD) as described in HMIS-PRO-SP-409, *Industrial Hygiene Monitoring, Reporting and Records Management*.

**4.0 PROCESS**

**4.1 Initial Assessment**

The steps listed below are typical components of an initial IHBHA. However, because each operation or work area is different, these steps can be rearranged as necessary.

Actionee	Step	Action
HMIS S&H professional	1.	<p><u>PERFORM</u> Perform a review of available documentation. This may include:</p> <ul style="list-style-type: none"> <li>• Past IHBHA's</li> <li>• Hazard Analysis</li> <li>• Past monitoring data</li> <li>• Hazard Communication (HAZCOM) plans</li> <li>• Material Safety Data Sheets (MSDS)</li> <li>• Chemical and Carcinogen Inventories</li> <li>• Other documentation if available</li> </ul> <p>2. Perform interviews of project management, supervision, or lead workers.</p> <p>This step can provide an opportunity to ask questions relating to the information that was encountered during the document reviews and may provide additional information that will provide insight into the work processes that will be encountered.</p> <p>3. Perform a walkthrough inspection of the work area or the operations performed by the SEG being assessed. Identify the hazards which present a potential for occupational exposure to chemical, physical, or biological hazards.</p> <p>Not all operations with a potential chemical, physical, or biological hazard can or will be identified during one walkthrough. Some operations may be performed on an infrequent basis and will only be identified through employee interviews or multiple walkthroughs.</p>

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Actionee	Step	Action
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**NOTE:** Prior to entering a work area you may be required to review and sign the applicable hazard analysis or be accompanied by an escort.

- 4. Perform employee interviews.

**4.21.1.4.2 Hazard Evaluation, Exposure Assessment Prioritization, and Documentation**

Actionee	Step	Action
----------	------	--------

HMIS S&H professional	1.	Document the IHBHA report, including the use of Field Evaluation (FEV) Table (see Appendix C), per the following guidelines <sup>1</sup> :
-----------------------	----	--

- a) A completed IHBHA will consist of the following items:
  - A report or text regarding the work being performed including information about:
    - The tasks or area being evaluated,
    - Hazard Description including:
      - Summary of the work where the hazard is encountered
      - Current controls used
      - Summary of past monitoring results
      - Information related to additional assessment needs
  - b) A Completed FEV Table
  - c) Include SWIHD references of the IH Survey Numbers for the past 2 years.

**NOTE:** The IHBHA is intended to assist in systematically characterizing the potential for occupational exposure and serving as the basis for recommending hazard control measures. However, pertinent information found in the IHBHA should be flowed-down into the job hazard analysis documents for the managers, supervisors, and craft employees who may not be interested in the full technical basis for the conclusions that were reached in the IHBHA.

*Be aware of the needs of intended audience when completing these documents. For ease in communicating the conclusions of the IHBHA*

<sup>1</sup> This exposure assessment strategy is based in part on the American Industrial Hygiene Association's (AIHA) publication titled "A Strategy for Assessing and Managing Occupational Exposures".

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Actionee	Step	Action
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assessment, it may be more appropriate to retain some technical documentation as a separate attachment from the main IHBHA.

- 2. List each hazard that is within the scope of this procedure, namely chemical groups (by type or category), physical, or biological hazards on the FEV table (see Appendix C). Suggested information ~~may include~~ include:

Location	Source Hazard
Description	Hazard Control
Work Process or Activity	Exposure Rating
SEG's where applicable	Qualitative Exposure Rating
Health Effect Rating	Priority Rating
Past Sample Data (Survey Numbers)	

- 3. Evaluate each hazard using the ratings listed in Table 1-3 and Industrial Hygiene hazard evaluation techniques and record the rating in the FEV table.
- 4. Assign a Qualitative Exposure Assessment Rating by multiplying the numbers obtained from Table 1 and Table 2 and record the rating in the FEV table.

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Actionee	Step	Action
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5. Assign a Priority Rating based off the Exposure Assessment Rating using the following guidelines:

- 11-16 High Priority
- 5-10 Medium Priority
- 1-4 Low Priority

- DOE, OSHA, or company specific monitoring requirements elevate the Priority Rating to High Priority.
- Hazards without prior exposure monitoring data where respiratory protection is used for personal protective purposes should be assigned a High Priority status.
- For exposure scenarios with uncertainty due to lack of information or other factors the Priority Rating should be elevated one category.
- For scenarios where monitoring results indicate employee exposures are within guidance limits the Priority Rating may be reduced according to the IHs professional judgment.

**Table 1**

Category	Exposure Rating
0	No contact with agent.
1	<10% Exposure Limit
2	10% Exposure Limit to Action Level
3	Action Level to Exposure Limit
4	> Exposure Limit

**NOTE:** The Exposure Rating should be determined excluding the use of PPE.

**Table 2**

Category	Health Effect Rating
0	No known or suspected adverse health effects
1	< Moderate, reversible injury /illness
2	Moderate, reversible injury /illness
3	Severe reversible injury/ illness
4	life threatening, or irreversible injury/illness

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1. < Moderate injury/illness – short-term skin discoloration, headache, mild irritation, nausea.
2. Moderate, reversible injury/illness – moderate irritation, 1st degree burn.
3. Severe reversible injury/illness –Severe irritation, severe burns, sensitization.
4. Life threatening or irreversible injury/illness –Carcinogens, fatality, blindness, permanent hearing loss, organ or tissue damage.

**Table 3**

Category	Frequency of Contact Rating
0	No Contact
1	Yearly to Quarterly
2	Quarterly to Monthly
3	Monthly to Weekly Contact
4	Weekly to Daily Contact

**4.3.2 4.3 Issuing IHBHA's**

Actionee	Step	Action
HMIS S&H professional	1.	Each IHBHA document shall be updated as industrial hygiene hazards change for the exposure group. Additionally, when the craft specific hazard analysis (CSHA) and CUA documents are updated, the IHBHA shall also be updated if necessary. When the FEV Table identifies a MEDIUM or HIGH priority rating where the controls in place at the time of the assessment do not provide adequate protection to the worker to minimize occupational illness or injury, the documented hazard analysis shall be updated with additional controls for exposure mitigation. When possible, reference specific hazard analysis document(s) within the summary information.

New work processes in industrial areas do not require immediate revision of the IHBHA, provided that an adequate hazard analysis is performed and documented. However, that analysis and documentation must be included in the next scheduled revision of the IHBHA.

**NOTE:** This requirement refers to establishing a date to review the accuracy of the IHBHA report/text, FEV table, and the associated controls or recommendations with the intent that new information based off of the completion of the past recommendations is added to the IHBHA.

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Actionee	Step	Action
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*It is not intended to imply that all past monitoring must be renewed or redone. However, the need for renewed monitoring should be assessed at that time.*

2. ~~Inform project management, line management, and employees of results of the IHBHA as part of the periodic CSHA hazard analysis review and acknowledgement. At a minimum this should include the following content:~~

- ~~• IHBHA Report/Text Summary.~~
- ~~• FEV Table~~
- ~~• Include references of the IH Survey Numbers for the past 2 years~~

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HMIS S&H professional

2.3. The method of retaining IHBHA documents is to utilize SWIHD as described in HMIS-PRO-SP-409, *Industrial Hygiene Monitoring, Reporting and Records Management*.

Publish the IHBHA ~~utilizing using~~ the SWIHD interface ~~byutilizing the following~~:

- ~~• Under the "Baseline" tab within SWIHD, obtain a unique number to identify the BHA.~~
- ~~• In the Comments Section, state the reason for the IHBHA revision (i.e., CSHA, process change, etc.).~~
- ~~• While in the Baseline tab, you may use the "Help" link to see a "screen shot" of step-by-step process in uploading and creating the BHA report.~~

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**NOTE 1: Official Use Only (OUO)** documents should NOT be uploaded as an attachment to the BHA report in SWIHD. However, IH survey reports containing OUO information may be linked to the BHA in SWIHD and are properly protected.

- When you complete the BHA report, it will be automatically converted to a record and placed into IDMS.
- While in the "Post BL" tab, you may use the "Help" link to see a "screen shot" of step-by-step process to attach IH survey records to the BHA report after it has been created as a record.

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Actionee	Step	Action
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**NOTE 2:** IH surveys referenced within the record BHA are considered "historical" records once the BHA has been sent to IDMS. Additional IH surveys linked to the BHA will be incorporated into the next revision of the BHA record.

**5.0 RECORD IDENTIFICATION**

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

**Records Capture Table**

Name of Document	Submittal Responsibility	Retention Responsibility
IHBHA including: Report Text FEV Table Technical documentation where appropriate	HMIS S&H professional performing the IHBHA	HMIS S&H manager(s)

**6.0 SOURCES**

**1-41.3 6.1 Source Requirements**

This procedure implements the requirements specified in 10 CFR 851, *Worker Safety and Health Program*, sections 851.21, ~~851.23-8~~, & 10 CFR 851.24 Appendix-A, Section 6 ~~Industrial Hygiene-~~

**7.0 REFERENCES**

**1-51.4 7.1 Source Requirements**

10 CFR 851, *Worker Safety and Health Program*

**1-61.5 7.2 Working References**

- A Strategy for Assessing and Managing Occupational Exposures*, AIHA Press, 1998
- HMIS-PRO-SP-409, *Industrial Hygiene Monitoring, Reporting and Records Management*
- HMIS-PRO-SP-079, *Job Hazard Analysis*

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HMIS-PRO-RM-10588, *Records Management Processes*

HMIS-PRO-SP-11058, *Occupational Medical Qualification and Monitoring using EJTA*

**8.0 FORMS**

None

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**APPENDIX A GLOSSARY**

Term	Definition
<b>Similar exposure group (SEG)</b>	A group of employees whose exposures to chemical substances or physical hazards have been determined to be similar enough that monitoring the exposures of randomly selected workers in the group provides data useful for predicting the exposures or exposure profiles of the remaining workers. A SEG is also defined as a group of individuals who perform the same jobs or tasks and who have similar exposures to an individual hazardous agent.
<b>Operation</b>	A task or group of tasks performed by an SEG that may result in personal exposures as defined <del>in Section 2.0 Scope,</del> <u>in Section 2.0 Scope</u> of this document.
<b>Work Area</b>	A building, tent, lay down yard, or other structure where work is performed that may result in personal exposures as defined in Section 2.0 <i>Scope</i> , of this document.
<b>Priority Level</b>	<u>A Qualitative Exposure Assessment rating between 1-16, with Low being 1-4, Medium being 5-10, and High being 11-16. The number is derived from multiplying the Exposure Rating by the Health Effect Rating. This numerical rating system is used to provide a level of importance to the hazard. The industrial hygienist may lower or raise the priority level depending on hazard controls, monitoring or sampling information, amount of material used in process, etc. The industrial hygienist will document the priority level of the hazard on the IHBHA along with a statement on monitoring needs.</u>

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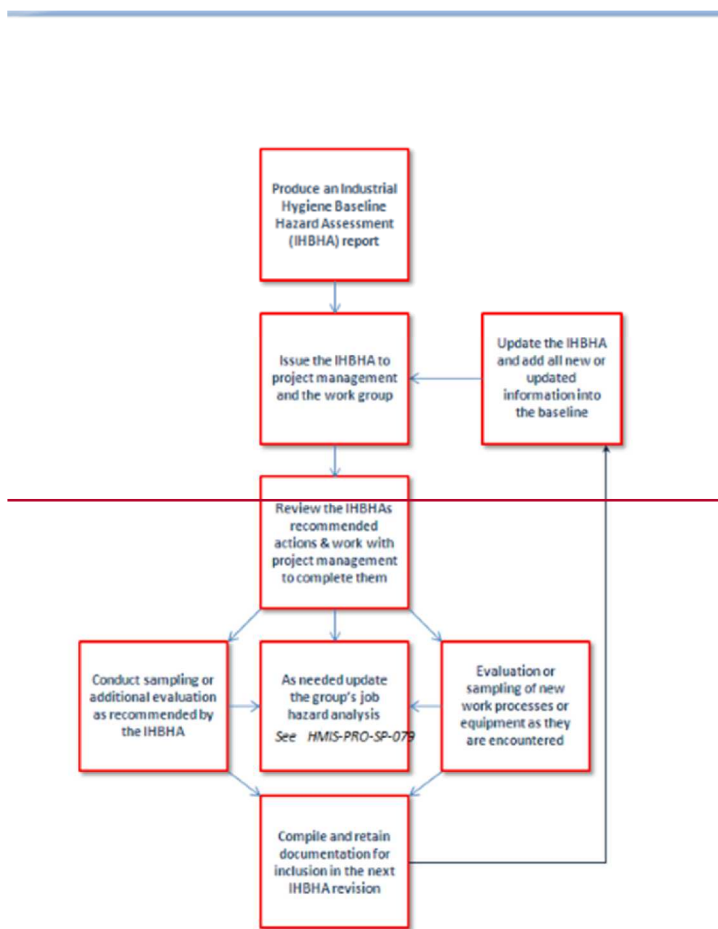
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APPENDIX B IHBHA Process Flow-Chart



~~This flow chart is an overview of the IHBHA process for informational purposes. It does not correspond to specific requirements in this document and is not intended to communicate new requirements.~~

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**APPENDIX BC**

Example -- Industrial Hygiene Hazards Baseline Assessment Field Evaluation Table

	LOCATION or WORK STATION	HAZARD DESCRIPTION	ACTIVITY or WORK PROCESSES	HAZARD EVALUATION	SAMPLE RESULTS	Exposure Rating	Health Effect Rating	Qualitative Exposure Assessment Rating	Frequency of Contact	HAZARD CONTROLS IN PLACE			Priority Rating
						Table 1	Table 2	0-16	Table 3	Admin	Engineering	PPE	
1	2715EC	Toluene & Other VOC Exposures	Application of lacquer products	Monitoring has been conducted for use in the 2715EC paint booth with mixed results	IHSF 06256 06257 07158	2	3	6	3	Stay upwind from paint stream when spraying	2715EC Paint Booth	Respirators Chemical Resistant Gloves	Low
	Evaluation Needs		If Lacquer based products are used for >3 hours in one shift contact IH for monitoring										
2	Sitewide	Asbestos Exposure	Removing and replacing asbestos floor tiles or mastics	Exposure resulting from work with tiles, mastics, or leveling compounds.	IHSF 06646 11-60079	2	4	8	1	Communicated in AJHA			Medium
	Evaluation Needs		If removal of asbestos containing mastics or floor tiles occurs monitoring requirements will be determined during AJHA/planning										
3	Outdoor Work Locations	Operator & Bystander Noise Exposure	Walk Behind Vibratory Roller	Spot readings indicate hearing protection is required	11-60218	2	3	6	3 Seasonal	None	None	Hearing Protection	Medium
	Assessment Needs		Conduct noise dosimetry to further characterize potential exposures										
4	All Work Areas	Noise exposure	Vacuuming	Equipment is purchased with low noise levels <85dB	HIH2 02-1346B MIHD 11-60074 11-60082 11-60088	1	2	2	4	None	purchased low noise equipment	Ear plugs available for voluntary use	Low
	Assessment Needs		None										
5	All Work Areas	Mild Skin Irritation	Miscellaneous cleaning	No hazardous components listed or No components with exposure limits	None	1	1	1	4	NA	NA	Gloves	Low
	Assessment Needs		None										

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Industrial Hygiene Baseline Hazard Assessments

### 1.0 PURPOSE

This procedure provides instructions to Industrial Hygienists (IH) or other Safety and Health (S&H) professionals conducting Industrial Hygiene Baseline Hazards Assessments (IHBHAs) for Hanford Mission Essential Services Contract (HMESC) operations or work areas.

IHBHAs are intended to:

1. Systematically identify and evaluate recognized potential worker health risks and other hazards with adverse exposure potential as deemed necessary by the project IH.
2. Allow for objective prioritization for future evaluation, monitoring, or sampling activities in effort to make efficient use of Hanford Mission Integration Solutions (HMIS) resources.
3. Serve as a basis for analysis to determine the source and nature of the IH hazards and to establish appropriate hazard control measures documented using one or a combination of hazard analysis documentation categories. Chemical groupings are used to establish the basis for the chemical use attachment (CUA).
4. Assist in communicating information from the IH to line management and affected employees regarding recognized chemical, physical, and biological exposure hazards and controls during the work planning process.
5. Identify and characterize similar exposure groups (SEGs) in a work area.

**NOTE:** *The supporting information (e.g. calculations, field observation, or similar sampling data) used to justify the determination for or against sampling as recorded in the IHBHA may also serve as documentation of the exposure evaluation.*

The implementation of this procedure provides information to enhance the ~~planning and~~ job hazard analysis (JHA) processes (see [HMIS-PRO-SP-079, Job Hazard Analysis](#)) and the Employee Job Task Analysis (EJTA) process (see [HMIS-PRO-SP-11058, Occupational Medical Qualification and Monitoring using EJTA](#)) by:

1. Providing an overview of the IH hazards for an operation or work area.
2. Defining and characterizing those IH hazards.
3. Providing a consolidated list of the IH assessment needs.

This document partially implements the ISMS Core Function #2, Identify and Analyze Hazards.

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**Industrial Hygiene Baseline Hazard Assessments**

## 2.0 SCOPE

This procedure applies to ~~HMESC~~ operations or work areas where worker exposures to chemical, physical, or biological hazards warrant identification, evaluation, or control. This includes, but is not limited to, evaluation of compliance with OELs at levels of occupational significance and comparison of other occupational exposures to best practice guidelines issued by standards bodies or professional organizations.

This procedure is not intended to address:

- Radiological Control Manual; See *HMESC-OTHER-RC-5173*
- Biological Hazards (Including Bloodborne Pathogens); See *HMIS-PRO-SP-45039*
- Ergonomics; See *HMIS-~~PRO-SP-62772~~RD-SP-8474*
- Heat Stress Control; See *HMIS-PRO-SP-121*
- Bulk or wipe samples taken for identification or investigational purposes only;
- Indoor air quality (IAQ) investigations where there is no direct correlation to an OEL or other quantifiable risk criteria.

In addition, operations and work areas specifically included in a HMESC subcontractor hazard analysis per HMIS-PRO-SP-079, APPENDIX C Job Safety Analysis (JSA) where sampling requirements, IH hazard analysis, or control measures are communicated are not required to perform or document IHBHAs.

Although this procedure establishes the basis for planning and prioritizing quantitative and qualitative exposure assessment activities, Initial Hazard Analysis Screening Criteria as found in HMIS-PRO-SP-079, APPENDIX B shall be utilized for implementation of hazard controls including IH monitoring activities when used for hazard control.

## 3.0 IMPLEMENTATION

This procedure is effective on publication.

Pre-existing IHBHAs will be updated with any new procedural requirements during their next scheduled revision and when the CSHA and CUA documents are updated that impact Industrial Hygiene. The Tracking Schedule is located on the Industrial Hygiene share drive.

IHs shall utilize recognized exposure assessment and testing methodologies and accredited and certified laboratories. These specific methodologies are referenced in the sample plan and analytical laboratory requests found in Site Wide Industrial Hygiene Database (SWIHD) as described in HMIS-PRO-SP-409, *Industrial Hygiene Monitoring, Reporting and Records Management*.

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Industrial Hygiene Baseline Hazard Assessments

## 4.0 PROCESS

### 4.1 Initial Assessment

The steps listed below are typical components of an initial IHBHA. However, because each operation or work area is different, these steps can be rearranged as necessary.

Actionee	Step	Action
HMIS S&H professional	1.	<p>Perform a review of available documentation. This may include:</p> <ul style="list-style-type: none"> <li>• Past IHBHA's</li> <li>• Hazard Analysis</li> <li>• Past monitoring data</li> <li>• Hazard Communication (HAZCOM) plans</li> <li>• Material Safety Data Sheets (MSDS)</li> <li>• Chemical and Carcinogen Inventories</li> <li>• Other documentation if available</li> </ul>
	2.	<p>Perform interviews of project management, supervision, or lead workers.</p> <p>This step can provide an opportunity to ask questions relating to the information that was encountered during the document reviews and may provide additional information that will provide insight into the work processes that will be encountered.</p>
	3.	<p>Perform a walkthrough inspection of the work area or the operations performed by the SEG being assessed. Identify the hazards which present a potential for occupational exposure to chemical, physical, or biological hazards.</p> <p>Not all operations with a potential chemical, physical, or biological hazard can or will be identified during one walkthrough. Some operations may be performed on an infrequent basis and will only be identified through employee interviews or multiple walkthroughs.</p> <p><b>NOTE:</b> <i>Prior to entering a work area you may be required to review and sign the applicable hazard analysis or be accompanied by an escort.</i></p>
	4.	<p>Perform employee interviews.</p>

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**4.2 Hazard Evaluation, Exposure Assessment Prioritization, and Documentation**

Actionee	Step	Action
HMIS S&H professional	1.	<p>Document the IHBHA report, including the use of Field Evaluation (FEV) Table (see Appendix C), per the following guidelines<sup>1</sup>:</p> <ul style="list-style-type: none"> <li>a) A completed IHBHA will consist of the following items:                             <ul style="list-style-type: none"> <li>• A report or text regarding the work being performed including information about:                                     <ul style="list-style-type: none"> <li>○ The tasks or area being evaluated,</li> <li>○ Hazard Description including:   <ul style="list-style-type: none"> <li>➢ Summary of the work where the hazard is encountered</li> <li>➢ Current controls used</li> <li>➢ Summary of past monitoring results</li> <li>➢ Information related to additional assessment needs</li> </ul> </li> </ul> </li> </ul> </li> <li>b) A Completed FEV Table</li> <li>c) Include SWIHD references of the IH Survey Numbers for the past 2 years.</li> </ul>

**NOTE:** *The IHBHA is intended to assist in systematically characterizing the potential for occupational exposure and serving as the basis for recommending hazard control measures. However, pertinent information found in the IHBHA should be flowed-down into the job hazard analysis documents for the managers, supervisors, and craft employees who may not be interested in the full technical basis for the conclusions that were reached in the IHBHA.*

*Be aware of the needs of intended audience when completing these documents. For ease in communicating the conclusions of the IHBHA assessment, it may be more appropriate to retain some technical documentation as a separate attachment from the main IHBHA.*

---

<sup>1</sup> This exposure assessment strategy is based in part on the American Industrial Hygiene Association's (AIHA) publication titled "A Strategy for Assessing and Managing Occupational Exposures".

Actionee	Step	Action												
	2.	<p>List each hazard that is within the scope of this procedure, namely chemical groups (by type or category), physical, or biological hazards on the FEV table (see Appendix C). Suggested information to <del>include</del> <u>include</u>:</p> <table style="margin-left: 40px;"> <tr> <td style="padding-left: 20px;">Location</td> <td>Source Hazard</td> </tr> <tr> <td style="padding-left: 20px;">Description</td> <td>Hazard Control</td> </tr> <tr> <td style="padding-left: 20px;">Work Process or Activity</td> <td>Exposure Rating</td> </tr> <tr> <td style="padding-left: 20px;">SEG's where applicable</td> <td>Qualitative Exposure Rating</td> </tr> <tr> <td style="padding-left: 20px;">Health Effect Rating</td> <td>Priority Rating</td> </tr> <tr> <td style="padding-left: 20px;">Past Sample Data (Survey Numbers)</td> <td></td> </tr> </table>	Location	Source Hazard	Description	Hazard Control	Work Process or Activity	Exposure Rating	SEG's where applicable	Qualitative Exposure Rating	Health Effect Rating	Priority Rating	Past Sample Data (Survey Numbers)	
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Description	Hazard Control													
Work Process or Activity	Exposure Rating													
SEG's where applicable	Qualitative Exposure Rating													
Health Effect Rating	Priority Rating													
Past Sample Data (Survey Numbers)														
	3.	Evaluate each hazard using the ratings listed in Table 1-3 and Industrial Hygiene hazard evaluation techniques and record the rating in the FEV table.												
	4.	Assign a Qualitative Exposure Assessment Rating by multiplying the numbers obtained from Table 1 and Table 2 and record the rating in the FEV table.												

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<i>Actionee</i>	<i>Step</i>	<i>Action</i>
-----------------	-------------	---------------

- |  |    |   |
|--|----|---|
|  | 5. | Assign a Priority Rating based off the Exposure Assessment Rating using the following guidelines: <ul style="list-style-type: none"> <li>11-16 High Priority</li> <li>5-10 Medium Priority</li> <li>1-4 Low Priority</li> </ul> <ul style="list-style-type: none"> <li>• DOE, OSHA, or company specific monitoring requirements elevate the Priority Rating to High Priority.</li> <li>• Hazards without prior exposure monitoring data where respiratory protection is used for personal protective purposes should be assigned a High Priority status.</li> <li>• For exposure scenarios with uncertainty due to lack of information or other factors the Priority Rating should be elevated one category.</li> <li>• For scenarios where monitoring results indicate employee exposures are within guidance limits the Priority Rating may be reduced according to the IHs professional judgment.</li> </ul> |
|--|----|---|

**Table 1**

Category	Exposure Rating
0	No contact with agent.
1	<10% Exposure Limit
2	10% Exposure Limit to Action Level
3	Action Level to Exposure Limit
4	> Exposure Limit

**NOTE:** The Exposure Rating should be determined excluding the use of PPE.

**Table 2**

Category	Health Effect Rating
0	No known or suspected adverse health effects
1	< Moderate, reversible injury /illness
2	Moderate, reversible injury /illness
3	Severe reversible injury/ illness
4	life threatening, or irreversible injury/illness

**NOTES:**

1. < Moderate injury/illness – short-term skin discoloration, headache, mild irritation, nausea.
2. Moderate, reversible injury/illness – moderate irritation, 1st degree burn.
3. Severe reversible injury/illness –Severe irritation, severe burns, sensitization.
4. Life threatening or irreversible injury/illness –Carcinogens, fatality, blindness, permanent hearing loss, organ or tissue damage.

**Table 3**

Category	Frequency of Contact Rating
0	No Contact
1	Yearly to Quarterly
2	Quarterly to Monthly
3	Monthly to Weekly Contact
4	Weekly to Daily Contact

**4.3 Issuing IHBHA's**

Actionee	Step	Action
HMIS S&H professional	1.	Each IHBHA document shall be updated as industrial hygiene hazards change for the exposure group. Additionally, when the craft specific hazard analysis (CSHA) and CUA documents are updated, the IHBHA shall also be updated if necessary. When the FEV Table identifies a MEDIUM or HIGH priority rating where the controls in place at the time of the assessment do not provide adequate protection to the worker to minimize occupational illness or injury, the documented hazard analysis shall be updated with additional controls for exposure mitigation. When possible, reference specific hazard analysis document(s) within the summary information.

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Actionee	Step	Action
		<p>New work processes in industrial areas do not require immediate revision of the IHBHA, provided that an adequate hazard analysis is performed and documented. However, that analysis and documentation must be included in the next scheduled revision of the IHBHA.</p> <p><b>NOTE:</b> <i>This requirement refers to establishing a date to review the accuracy of the IHBHA report/text, FEV table, and the associated controls or recommendations with the intent that new information based off of the completion of the past recommendations is added to the IHBHA.</i></p> <p><i>It is not intended to imply that all past monitoring must be renewed or redone. However, the need for renewed monitoring should be assessed at that time.</i></p>
	2.	<p>Inform project management, line management, and employees of results of the IHBHA as part of the periodic CSHA hazard analysis review and acknowledgement. At a minimum this should include the following content:</p> <ul style="list-style-type: none"> <li>• IHBHA Report/Text Summary.</li> <li>• FEV Table</li> <li>• Include references of the IH Survey Numbers for the past 2 years</li> </ul>
HMIS S&H professional	3.	<p>The method of retaining IHBHA documents is to utilize SWIHD as described in HMIS-PRO-SP-409, <i>Industrial Hygiene Monitoring, Reporting and Records Management</i>.</p> <p>Publish the IHBHA utilizing the SWIHD interface utilizing the following:</p> <ul style="list-style-type: none"> <li>• Under the “Baseline” tab within SWIHD, obtain a unique number to identify the BHA.</li> <li>• <u>In the Comments Section, enter the date of the latest CSHA revision and if the IHBHA requires changes.</u></li> <li>• While in the Baseline tab, you may use the “Help” link to see a “screen shot” of step-by-step process in uploading and creating the BHA report.</li> </ul> <p><b>NOTE 1:</b> <u>Official Use Only (OUO)</u> documents should NOT be uploaded as an attachment to the BHA report in SWIHD. However, IH survey reports containing</p>

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Actionee	Step	Action
		<p><i>OUO information may be linked to the BHA in SWIHD and are properly protected.</i></p> <ul style="list-style-type: none"> <li><i>When you complete the BHA report, it will be automatically converted to a record and placed into IDMS.</i></li> <li><i>While in the "Post BL" tab, you may use the "Help" link to see a "screen shot" of step-by-step process to attach IH survey records to the BHA report after it has been created as a record.</i></li> </ul> <p><b>NOTE 2:</b> <i>IH surveys referenced within the record BHA are considered "historical" records once the BHA has been sent to IDMS. Additional IH surveys linked to the BHA will be incorporated into the next revision of the BHA record.</i></p>

**5.0 RECORD IDENTIFICATION**

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

**Records Capture Table**

Name of Document	Submittal Responsibility	Retention Responsibility
IHBHA including: Report Text FEV Table Technical documentation where appropriate	HMIS S&H professional performing the IHBHA	HMIS S&H manager(s)

**6.0 SOURCES**

**6.1 Source Requirements**

This procedure implements the requirements specified in 10 CFR 851, *Worker Safety and Health Program*, sections 851.21, ~~851.23~~, & 10 CFR 851.24 Appendix-A, Section 6 ~~Industrial Hygiene.~~

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**Industrial Hygiene Baseline Hazard Assessments**

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## 7.0 REFERENCES

### 7.1 Source Requirements

10 CFR 851, *Worker Safety and Health Program*

### 7.2 Working References

*A Strategy for Assessing and Managing Occupational Exposures*, AIHA Press, 1998

HMIS-PRO-SP-409, *Industrial Hygiene Monitoring, Reporting and Records Management*

HMIS-PRO-SP-079, *Job Hazard Analysis*

HMIS-PRO-RM-10588, *Records Management Processes*

HMIS-PRO-SP-11058, *Occupational Medical Qualification and Monitoring using EJTA*

## 8.0 FORMS

None

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### APPENDIX A Glossary

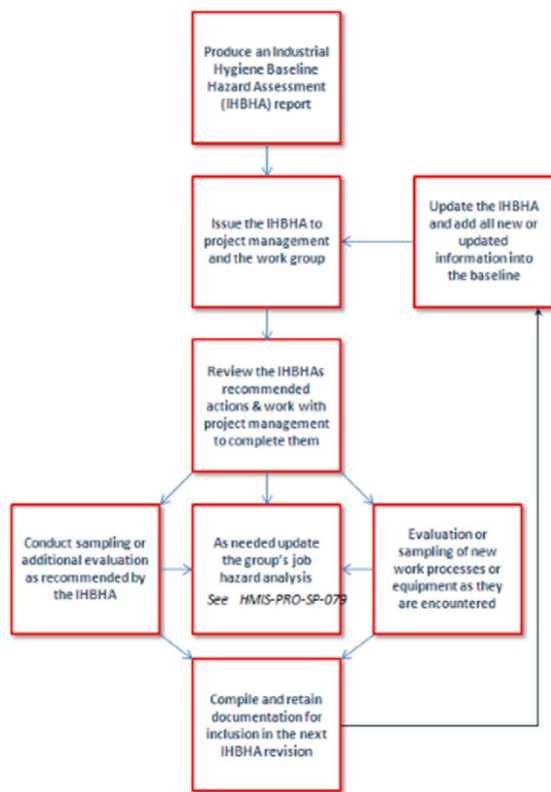
Term	Definition
<b>Similar exposure group (SEG)</b>	A group of employees whose exposures to chemical substances or physical hazards have been determined to be similar enough that monitoring the exposures of randomly selected workers in the group provides data useful for predicting the exposures or exposure profiles of the remaining workers. A SEG is also defined as a group of individuals who perform the same jobs or tasks and who have similar exposures to an individual hazardous agent.
<b>Operation</b>	A task or group of tasks performed by an SEG that may result in personal exposures as defined in Section 2.0 <i>Scope</i> , of this document.
<b>Work Area</b>	A building, tent, lay down yard, or other structure where work is performed that may result in personal exposures as defined in Section 2.0 <i>Scope</i> , of this document.
<b>Priority Level</b>	<u>A Qualitative Exposure Assessment rating between 1-16, with Low being 1-4, Medium being 5-10, and High being 11-16. The number is derived from multiplying the Exposure Rating by the Health Effect Rating. This numerical rating system is used to provide a level of importance to the hazard. The industrial hygienist may lower or raise the priority level depending on hazard controls, monitoring or sampling information, amount of material used in process, etc. The industrial hygienist will document the priority level of the hazard on the IHBHA along with a statement on monitoring needs.</u>

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Industrial Hygiene Baseline Hazard Assessments

**APPENDIX B IHBHA Process Flow Chart**



*This flow chart is an overview of the IHBHA process for informational purposes. It does not correspond to specific requirements in this document and is not intended to communicate new requirements.*

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Industrial Hygiene Baseline Hazard Assessments

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APPENDIX C

Example -- Industrial Hygiene Hazards Baseline Assessment Field Evaluation Table

	LOCATION or WORK STATION	HAZARD DESCRIPTION	ACTIVITY or WORK PROCESSES	HAZARD EVALUATION	SAMPLE RESULTS	Exposure	Health	Qualitative	Frequency of Contact	HAZARD CONTROLS IN PLACE			Priority Rating
						Rating 0-4	Effect Rating 0-4	Exposure Assessment Rating 0-16		Table 1	Table 2	Table 3	
1	2715EC	Toluene & Other VOC Exposures	Application of lacquer products	Monitoring has been conducted for use in the 2715EC paint booth with mixed results	IHSF 06256 06257 07158	2	3	6	3	Stay upwind from paint stream when spraying	2715EC Paint Booth	Respirators Chemical Resistant Gloves	Low
	Evaluation Needs		If Lacquer based products are used for >3 hours in one shift contact IH for monitoring										
2	Sitewide	Asbestos Exposure	Removing and replacing asbestos floor tiles or mastics	Exposure resulting from work with tiles, mastics, or leveling compounds.	IHSF 06646 11-60079	2	4	8	1	Communicated in AJHA			Medium
	Evaluation Needs		If removal of asbestos containing mastics or floor tiles occurs monitoring requirements will be determined during AJHA/planning										
3	Outdoor Work Locations	Operator & Bystander Noise Exposure	Walk Behind Vibratory Roller	Spot readings indicate hearing protection is required	11-60218	2	3	6	3 Seasonal	None	None	Hearing Protection	Medium
	Assessment Needs		Conduct noise dosimetry to further characterize potential exposures										
4	All Work Areas	Noise exposure	Vacuuming	Equipment is purchased with low noise levels <85dB	HIH2 02-1346B MIHD 11-60074 11-60082 11-60088	1	2	2	4	None	purchased low noise equipment	Ear plugs available for voluntary use	Low
	Assessment Needs		None										
5	All Work Areas	Mild Skin Irritation	Miscellaneous cleaning	No hazardous components listed or No components with exposure limits	None	1	1	1	4	NA	NA	Gloves	Low
	Assessment Needs		None										

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Industrial Hygiene Baseline Hazard Assessments

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Industrial Hygiene Baseline Hazard Assessments

1.0 PURPOSE

This procedure provides instructions to Industrial Hygienists (IH) or other Safety and Health (S&H) professionals conducting Industrial Hygiene Baseline Hazards Assessments (IHBHAs) for Hanford Mission Essential Services Contract (HMESC) operations or work areas.

IHBHAs are intended to:

- 1. Systematically identify and evaluate recognized potential worker health risks and other hazards with adverse exposure potential as deemed necessary by the project IH.
2. Allow for objective prioritization for future evaluation, monitoring, or sampling activities in effort to make efficient use of Hanford Mission Integration Solutions (HMIS) resources.
3. Serve as a basis for analysis to determine the source and nature of the IH hazards and to establish appropriate hazard control measures documented using one or a combination of hazard analysis documentation categories. Chemical groupings are used to establish the basis for the chemical use attachment (CUA).
4. Assist in communicating information from the IH to line management and affected employees regarding recognized chemical, physical, and biological exposure hazards and controls during the work planning process.
5. Identify and characterize similar exposure groups (SEGs) in a work area.

NOTE: The supporting information (e.g. calculations, field observation, or similar sampling data) used to justify the determination for or against sampling as recorded in the IHBHA may also serve as documentation of the exposure evaluation.

The implementation of this procedure provides information to enhance the planning and job hazard analysis (JHA) processes (see HMIS-PRO-SP-079, Job Hazard Analysis) and the Employee Job Task Analysis (EJTA) process (see HMIS-PRO-SP-11058, Occupational Medical Qualification and Monitoring using EJTA) by:

- 1. Providing an overview of the IH hazards for an operation or work area.
2. Defining and characterizing those IH hazards.
3. Providing a consolidated list of the IH assessment needs.

This document partially implements the ISMS Core Function #2, Identify and Analyze Hazards.

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**Industrial Hygiene Baseline Hazard Assessments**

## 2.0 SCOPE

This procedure applies to ~~HMESC~~ operations or work areas where worker exposures to chemical, physical, or biological hazards warrant identification, evaluation, or control. This includes, but is not limited to, evaluation of compliance with OELs at levels of occupational significance and comparison of other occupational exposures to best practice guidelines issued by standards bodies or professional organizations.

This procedure is not intended to address:

- Radiological Control Manual; *See HMESC-OTHER-RC-5173*
- Biological Hazards (Including Bloodborne Pathogens); *See HMIS-PRO-SP-45039*
- Ergonomics; *See HMIS-~~PRO-SP-62772~~RD-SP-8474*
- Heat Stress Control; *See HMIS-PRO-SP-121*
- Bulk or wipe samples taken for identification or investigational purposes only;
- Indoor air quality (IAQ) investigations where there is no direct correlation to an OEL or other quantifiable risk criteria.

In addition, operations and work areas specifically included in a HMESC subcontractor hazard analysis per HMIS-PRO-SP-079, APPENDIX C Job Safety Analysis (JSA) where sampling requirements, IH hazard analysis, or control measures are communicated are not required to perform or document IHBHAs.

Although this procedure establishes the basis for planning and prioritizing quantitative and qualitative exposure assessment activities, Initial Hazard Analysis Screening Criteria as found in HMIS-PRO-SP-079, APPENDIX B shall be utilized for implementation of hazard controls including IH monitoring activities when used for hazard control.

## 3.0 IMPLEMENTATION

This procedure is effective on publication.

Pre-existing IHBHAs will be updated with any new procedural requirements during their next scheduled revision and when the CSHA and CUA documents are updated that impact Industrial Hygiene. The Tracking Schedule is located on the Industrial Hygiene share drive.

IHs shall utilize recognized exposure assessment and testing methodologies and accredited and certified laboratories. These specific methodologies are referenced in the sample plan and analytical laboratory requests found in Site Wide Industrial Hygiene Database (SWIHD) as described in HMIS-PRO-SP-409, *Industrial Hygiene Monitoring, Reporting and Records Management*.

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## 4.0 PROCESS

### 4.1 Initial Assessment

The steps listed below are typical components of an initial IHBHA. However, because each operation or work area is different, these steps can be rearranged as necessary.

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
HMIS S&H professional	<ol style="list-style-type: none"> <li>1. Perform a review of available documentation. This may include:                             <ul style="list-style-type: none"> <li>• Past IHBHA's</li> <li>• Hazard Analysis</li> <li>• Past monitoring data</li> <li>• Hazard Communication (HAZCOM) plans</li> <li>• Material Safety Data Sheets (MSDS)</li> <li>• Chemical and Carcinogen Inventories</li> <li>• Other documentation if available</li> </ul> </li> <li>2. Perform interviews of project management, supervision, or lead workers.                             <p style="margin-left: 20px;">This step can provide an opportunity to ask questions relating to the information that was encountered during the document reviews and may provide additional information that will provide insight into the work processes that will be encountered.</p> </li> <li>3. Perform a walkthrough inspection of the work area or the operations performed by the SEG being assessed. Identify the hazards which present a potential for occupational exposure to chemical, physical, or biological hazards.                             <p style="margin-left: 20px;">Not all operations with a potential chemical, physical, or biological hazard can or will be identified during one walkthrough. Some operations may be performed on an infrequent basis and will only be identified through employee interviews or multiple walkthroughs.</p> <p style="margin-left: 20px;"><b>NOTE:</b> <i>Prior to entering a work area you may be required to review and sign the applicable hazard analysis or be accompanied by an escort.</i></p> </li> <li>4. Perform employee interviews.</li> </ol>	

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**4.2 Hazard Evaluation, Exposure Assessment Prioritization, and Documentation**

Actionee	Step	Action
HMIS S&H professional	1.	<p>Document the IHBHA report, including the use of Field Evaluation (FEV) Table (see Appendix C), per the following guidelines<sup>1</sup>:</p> <ul style="list-style-type: none"> <li>a) A completed IHBHA will consist of the following items:                             <ul style="list-style-type: none"> <li>• A report or text regarding the work being performed including information about:                                     <ul style="list-style-type: none"> <li>○ The tasks or area being evaluated,</li> <li>○ Hazard Description including:   <ul style="list-style-type: none"> <li>➢ Summary of the work where the hazard is encountered</li> <li>➢ Current controls used</li> <li>➢ Summary of past monitoring results</li> <li>➢ Information related to additional assessment needs</li> </ul> </li> </ul> </li> </ul> </li> <li>b) A Completed FEV Table</li> <li>c) Include SWIHD references of the IH Survey Numbers for the past 2 years.</li> </ul>

**NOTE:** *The IHBHA is intended to assist in systematically characterizing the potential for occupational exposure and serving as the basis for recommending hazard control measures. However, pertinent information found in the IHBHA should be flowed-down into the job hazard analysis documents for the managers, supervisors, and craft employees who may not be interested in the full technical basis for the conclusions that were reached in the IHBHA.*

*Be aware of the needs of intended audience when completing these documents. For ease in communicating the conclusions of the IHBHA assessment, it may be more appropriate to retain some technical documentation as a separate attachment from the main IHBHA.*

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<sup>1</sup> This exposure assessment strategy is based in part on the American Industrial Hygiene Association's (AIHA) publication titled "A Strategy for Assessing and Managing Occupational Exposures".

Actionee	Step	Action
	2.	List each hazard that is within the scope of this procedure, namely chemical groups (by type or category), physical, or biological hazards on the FEV table (see Appendix C). Suggested information to <del>include</del> <u>include</u> :
		Location <span style="float: right;">Source Hazard</span>
		Description <span style="float: right;">Hazard Control</span>
		Work Process or Activity <span style="float: right;">Exposure Rating</span>
		SEG's where applicable <span style="float: right;">Qualitative Exposure Rating</span>
		Health Effect Rating <span style="float: right;">Priority Rating</span>
		Past Sample Data (Survey Numbers)
	3.	Evaluate each hazard using the ratings listed in Table 1-3 and Industrial Hygiene hazard evaluation techniques and record the rating in the FEV table.
	4.	Assign a Qualitative Exposure Assessment Rating by multiplying the numbers obtained from Table 1 and Table 2 and record the rating in the FEV table.

---

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**Industrial Hygiene Baseline Hazard Assessments**

Actionee	Step	Action
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5. Assign a Priority Rating based off the Exposure Assessment Rating using the following guidelines:

- 11-16 High Priority
- 5-10 Medium Priority
- 1-4 Low Priority

- DOE, OSHA, or company specific monitoring requirements elevate the Priority Rating to High Priority.
- Hazards without prior exposure monitoring data where respiratory protection is used for personal protective purposes should be assigned a High Priority status.
- For exposure scenarios with uncertainty due to lack of information or other factors the Priority Rating should be elevated one category.
- For scenarios where monitoring results indicate employee exposures are within guidance limits the Priority Rating may be reduced according to the IHs professional judgment.

**Table 1**

Category	Exposure Rating
0	No contact with agent.
1	<10% Exposure Limit
2	10% Exposure Limit to Action Level
3	Action Level to Exposure Limit
4	> Exposure Limit

**NOTE:** The Exposure Rating should be determined excluding the use of PPE.

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**Table 2**

Category	Health Effect Rating
0	No known or suspected adverse health effects
1	< Moderate, reversible injury /illness
2	Moderate, reversible injury /illness
3	Severe reversible injury/ illness
4	life threatening, or irreversible injury/illness

**NOTES:**

1. < Moderate injury/illness – short-term skin discoloration, headache, mild irritation, nausea.
2. Moderate, reversible injury/illness – moderate irritation, 1st degree burn.
3. Severe reversible injury/illness –Severe irritation, severe burns, sensitization.
4. Life threatening or irreversible injury/illness –Carcinogens, fatality, blindness, permanent hearing loss, organ or tissue damage.

**Table 3**

Category	Frequency of Contact Rating
0	No Contact
1	Yearly to Quarterly
2	Quarterly to Monthly
3	Monthly to Weekly Contact
4	Weekly to Daily Contact

**4.3 Issuing IHBHA's**

Actionee	Step	Action
HMIS S&H professional	1.	Each IHBHA document shall be updated as industrial hygiene hazards change for the exposure group. Additionally, when the craft specific hazard analysis (CSHA) and CUA documents are updated, the IHBHA shall also be updated if necessary. When the FEV Table identifies a MEDIUM or HIGH priority rating where the controls in place at the time of the assessment do not provide adequate protection to the worker to minimize occupational illness or injury, the documented hazard analysis shall be updated with additional controls for exposure mitigation. When possible, reference specific hazard analysis document(s) within the summary information.

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Actionee	Step	Action
		<p>New work processes in industrial areas do not require immediate revision of the IHBHA, provided that an adequate hazard analysis is performed and documented. However, that analysis and documentation must be included in the next scheduled revision of the IHBHA.</p> <p><b>NOTE:</b> <i>This requirement refers to establishing a date to review the accuracy of the IHBHA report/text, FEV table, and the associated controls or recommendations with the intent that new information based off of the completion of the past recommendations is added to the IHBHA.</i></p> <p><i>It is not intended to imply that all past monitoring must be renewed or redone. However, the need for renewed monitoring should be assessed at that time.</i></p>
	2.	<p>Inform project management, line management, and employees of results of the IHBHA as part of the periodic CSHA hazard analysis review and acknowledgement. At a minimum this should include the following content:</p> <ul style="list-style-type: none"> <li>• IHBHA Report/Text Summary.</li> <li>• FEV Table</li> <li>• Include references of the IH Survey Numbers for the past 2 years</li> </ul>
HMIS S&H professional	3.	<p>The method of retaining IHBHA documents is to utilize SWIHD as described in HMIS-PRO-SP-409, <i>Industrial Hygiene Monitoring, Reporting and Records Management</i>.</p> <p>Publish the IHBHA utilizing the SWIHD interface utilizing the following:</p> <ul style="list-style-type: none"> <li>• Under the “Baseline” tab within SWIHD, obtain a unique number to identify the BHA.</li> <li>• <u>In the Comments Section, enter the date of the latest CSHA revision and if the IHBHA requires changes.</u></li> <li>• While in the Baseline tab, you may use the “Help” link to see a “screen shot” of step-by-step process in uploading and creating the BHA report.</li> </ul> <p><b>NOTE 1:</b> <u>Official Use Only (OUO)</u> documents should NOT be uploaded as an attachment to the BHA report in SWIHD. However, IH survey reports containing</p>

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Actionee	Step	Action
		<p><i>OUO information may be linked to the BHA in SWIHD and are properly protected.</i></p> <ul style="list-style-type: none"> <li><i>When you complete the BHA report, it will be automatically converted to a record and placed into IDMS.</i></li> <li><i>While in the "Post BL" tab, you may use the "Help" link to see a "screen shot" of step-by-step process to attach IH survey records to the BHA report after it has been created as a record.</i></li> </ul> <p><b>NOTE 2:</b> <i>IH surveys referenced within the record BHA are considered "historical" records once the BHA has been sent to IDMS. Additional IH surveys linked to the BHA will be incorporated into the next revision of the BHA record.</i></p>

**5.0 RECORD IDENTIFICATION**

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

**Records Capture Table**

Name of Document	Submittal Responsibility	Retention Responsibility
IHBHA including: Report Text FEV Table Technical documentation where appropriate	HMIS S&H professional performing the IHBHA	HMIS S&H manager(s)

**6.0 SOURCES**

**6.1 Source Requirements**

This procedure implements the requirements specified in 10 CFR 851, *Worker Safety and Health Program*, sections 851.21, ~~851.23~~, & 10 CFR 851.24 Appendix-A, Section 6 ~~Industrial Hygiene.~~

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## 7.0 REFERENCES

### 7.1 Source Requirements

10 CFR 851, *Worker Safety and Health Program*

### 7.2 Working References

*A Strategy for Assessing and Managing Occupational Exposures*, AIHA Press, 1998

HMIS-PRO-SP-409, *Industrial Hygiene Monitoring, Reporting and Records Management*

HMIS-PRO-SP-079, *Job Hazard Analysis*

HMIS-PRO-RM-10588, *Records Management Processes*

HMIS-PRO-SP-11058, *Occupational Medical Qualification and Monitoring using EJTA*

## 8.0 FORMS

None

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## APPENDIX A Glossary

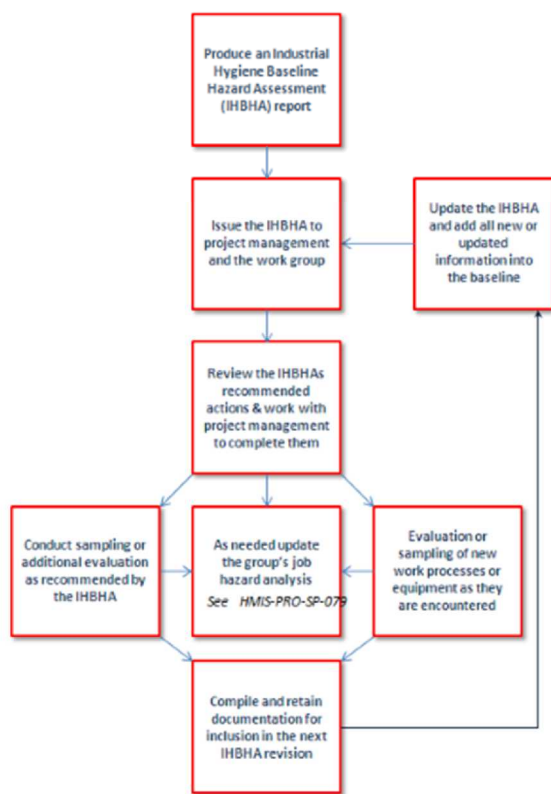
Term	Definition
<b>Similar exposure group (SEG)</b>	A group of employees whose exposures to chemical substances or physical hazards have been determined to be similar enough that monitoring the exposures of randomly selected workers in the group provides data useful for predicting the exposures or exposure profiles of the remaining workers. A SEG is also defined as a group of individuals who perform the same jobs or tasks and who have similar exposures to an individual hazardous agent.
<b>Operation</b>	A task or group of tasks performed by an SEG that may result in personal exposures as defined in Section 2.0 <i>Scope</i> , of this document.
<b>Work Area</b>	A building, tent, lay down yard, or other structure where work is performed that may result in personal exposures as defined in Section 2.0 <i>Scope</i> , of this document.
<b>Priority Level</b>	<u>A Qualitative Exposure Assessment rating between 1-16, with Low being 1-4, Medium being 5-10, and High being 11-16. The number is derived from multiplying the Exposure Rating by the Health Effect Rating. This numerical rating system is used to provide a level of importance to the hazard. The industrial hygienist may lower or raise the priority level depending on hazard controls, monitoring or sampling information, amount of material used in process, etc. The industrial hygienist will document the priority level of the hazard on the IHBHA along with a statement on monitoring needs.</u>

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**APPENDIX B IHBHA Process Flow Chart**



*This flow chart is an overview of the IHBHA process for informational purposes. It does not correspond to specific requirements in this document and is not intended to communicate new requirements.*

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APPENDIX C

Example -- Industrial Hygiene Hazards Baseline Assessment Field Evaluation Table

	LOCATION or WORK STATION	HAZARD DESCRIPTION	ACTIVITY or WORK PROCESSES	HAZARD EVALUATION	SAMPLE RESULTS	Exposure	Health	Qualitative	Frequency of Contact	HAZARD CONTROLS IN PLACE			Priority Rating
						Rating 0-4	Effect Rating 0-4	Exposure Assessment Rating 0-16		Admin	Engineering	PPE	
						Table 1	Table 2	Table 3	Table 3				
1	2715EC	Toluene & Other VOC Exposures	Application of lacquer products	Monitoring has been conducted for use in the 2715EC paint booth with mixed results	IHSF 06256 06257 07158	2	3	6	3	Stay upwind from paint stream when spraying	2715EC Paint Booth	Respirators Chemical Resistant Gloves	Low
Evaluation Needs			If Lacquer based products are used for >3 hours in one shift contact IH for monitoring										
2	Sitewide	Asbestos Exposure	Removing and replacing asbestos floor tiles or mastics	Exposure resulting from work with tiles, mastics, or leveling compounds.	IHSF 06646 11-60079	2	4	8	1	Communicated in AJHA			Medium
Evaluation Needs			If removal of asbestos containing mastics or floor tiles occurs monitoring requirements will be determined during AJHA/planning										
3	Outdoor Work Locations	Operator & Bystander Noise Exposure	Walk Behind Vibratory Roller	Spot readings indicate hearing protection is required	11-60218	2	3	6	3 Seasonal	None	None	Hearing Protection	Medium
Assessment Needs			Conduct noise dosimetry to further characterize potential exposures										
4	All Work Areas	Noise exposure	Vacuuming	Equipment is purchased with low noise levels <85dB	HIH2 02-1346B MIHD 11-60074 11-60082 11-60088	1	2	2	4	None	purchased low noise equipment	Ear plugs available for voluntary use	Low
Assessment Needs			None										
5	All Work Areas	Mild Skin Irritation	Miscellaneous cleaning	No hazardous components listed or No components with exposure limits	None	1	1	1	4	NA	NA	Gloves	Low
Assessment Needs			None										

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## 1.0 PURPOSE

This procedure provides instructions to Industrial Hygienists (IH) or other Safety and Health (S&H) professionals conducting Industrial Hygiene Baseline Hazards Assessments (IHBHAs) for Hanford Mission Essential Services Contract (HMESC) operations or work areas.

IHBHAs are intended to:

1. Systematically identify and evaluate recognized potential worker health risks and other hazards with adverse exposure potential as deemed necessary by the project IH.
2. Allow for objective prioritization for future evaluation, monitoring, or sampling activities in effort to make efficient use of Hanford Mission Integration Solutions (HMIS) resources.
3. Serve as a basis for analysis to determine the source and nature of the IH hazards and to establish appropriate hazard control measures documented using one or a combination of hazard analysis documentation categories. Chemical groupings are used to establish the basis for the chemical use attachment (CUA).
4. Assist in communicating information from the IH to line management and affected employees regarding recognized chemical, physical, and biological exposure hazards and controls during the work planning process.
5. Identify and characterize similar exposure groups (SEGs) in a work area.

**NOTE:** *The supporting information (e.g. calculations, field observation, or similar sampling data) used to justify the determination for or against sampling as recorded in the IHBHA may also serve as documentation of the exposure evaluation.*

The implementation of this procedure provides information to enhance the planning and job hazard analysis (JHA) processes (see [HMIS-PRO-SP-079](#), *Job Hazard Analysis*) and the Employee Job Task Analysis (EJTA) process (see [HMIS-PRO-SP-11058](#), *Occupational Medical Qualification and Monitoring using EJTA*) by:

1. Providing an overview of the IH hazards for an operation or work area.
2. Defining and characterizing those IH hazards.
3. Providing a consolidated list of the IH assessment needs.

This document partially implements the ISMS Core Function #2, Identify and Analyze Hazards.

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## 2.0 SCOPE

This procedure applies to MSC operations or work areas where worker exposures to chemical, physical, or biological hazards warrant identification, evaluation, or control. This includes, but is not limited to, evaluation of compliance with OELs at levels of occupational significance and comparison of other occupational exposures to best practice guidelines issued by standards bodies or professional organizations.

This procedure is not intended to address:

- Radiological Control Manual; *See HMESC-OTHER-RC-5173*
- Biological Hazards (Including Bloodborne Pathogens); *See HMIS-PRO-SP-45039*
- Ergonomics; *See HMIS-RD-SP-8471*
- Heat Stress Control; *See HMIS-PRO-SP-121*
- Bulk or wipe samples taken for identification or investigational purposes only;
- Indoor air quality (IAQ) investigations where there is no direct correlation to an OEL or other quantifiable risk criteria.

In addition, operations and work areas specifically included in a HMESC subcontractor hazard analysis per HMIS-PRO-SP-079, APPENDIX C Job Safety Analysis (JSA) where sampling requirements, IH hazard analysis, or control measures are communicated are not required to perform or document IHBHAs.

Although this procedure establishes the basis for planning and prioritizing quantitative and qualitative exposure assessment activities, Initial Hazard Analysis Screening Criteria as found in HMIS-PRO-SP-079, APPENDIX B shall be utilized for implementation of hazard controls including IH monitoring activities when used for hazard control.

## 3.0 IMPLEMENTATION

This procedure is effective on publication.

Pre-existing IHBHAs will be updated with any new procedural requirements during their next scheduled revision.

IHs shall utilize recognized exposure assessment and testing methodologies and accredited and certified laboratories. These specific methodologies are referenced in the sample plan and analytical laboratory requests found in Site Wide Industrial Hygiene Database (SWIHD) as described in HMIS-PRO-SP-409, *Industrial Hygiene Monitoring, Reporting and Records Management*.

## Industrial Hygiene Baseline Hazard Assessments

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## 4.0 PROCESS

### 4.1 Initial Assessment

The steps listed below are typical components of an initial IHBHA. However, because each operation or work area is different, these steps can be rearranged as necessary.

Actionee	Step	Action
HMIS S&H professional	1.	<p>Perform a review of available documentation. This may include:</p> <ul style="list-style-type: none"> <li>• Past IHBHA's</li> <li>• Hazard Analysis</li> <li>• Past monitoring data</li> <li>• Hazard Communication (HAZCOM) plans</li> <li>• Material Safety Data Sheets (MSDS)</li> <li>• Chemical and Carcinogen Inventories</li> <li>• Other documentation if available</li> </ul>
	2.	<p>Perform interviews of project management, supervision, or lead workers.</p> <p>This step can provide an opportunity to ask questions relating to the information that was encountered during the document reviews and may provide additional information that will provide insight into the work processes that will be encountered.</p>
	3.	<p>Perform a walkthrough inspection of the work area or the operations performed by the SEG being assessed. Identify the hazards which present a potential for occupational exposure to chemical, physical, or biological hazards.</p> <p>Not all operations with a potential chemical, physical, or biological hazard can or will be identified during one walkthrough. Some operations may be performed on an infrequent basis and will only be identified through employee interviews or multiple walkthroughs.</p> <p><b>NOTE:</b> <i>Prior to entering a work area you may be required to review and sign the applicable hazard analysis or be accompanied by an escort.</i></p>
	4.	<p>Perform employee interviews.</p>

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### 4.2 Hazard Evaluation, Exposure Assessment Prioritization, and Documentation

Actionee	Step	Action
HMIS S&H professional	1.	<p>Document the IHBHA report, including the use of Field Evaluation (FEV) Table (see Appendix C), per the following guidelines<sup>1</sup>:</p> <ul style="list-style-type: none"> <li>a) A completed IHBHA will consist of the following items: <ul style="list-style-type: none"> <li>• A report or text regarding the work being performed including information about: <ul style="list-style-type: none"> <li>○ The tasks or area being evaluated,</li> <li>○ Hazard Description including: <ul style="list-style-type: none"> <li>➤ Summary of the work where the hazard is encountered</li> <li>➤ Current controls used</li> <li>➤ Summary of past monitoring results</li> <li>➤ Information related to additional assessment needs</li> </ul> </li> </ul> </li> </ul> </li> <li>b) A Completed FEV Table</li> <li>c) Include SWIHD references of the IH Survey Numbers for the past 2 years.</li> </ul>

**NOTE:** *The IHBHA is intended to assist in systematically characterizing the potential for occupational exposure and serving as the basis for recommending hazard control measures. However, pertinent information found in the IHBHA should be flowed-down into the job hazard analysis documents for the managers, supervisors, and craft employees who may not be interested in the full technical basis for the conclusions that were reached in the IHBHA.*

*Be aware of the needs of intended audience when completing these documents. For ease in communicating the conclusions of the IHBHA assessment, it may be more appropriate to retain some technical documentation as a separate attachment from the main IHBHA.*

---

<sup>1</sup> This exposure assessment strategy is based in part on the American Industrial Hygiene Association's (AIHA) publication titled "A Strategy for Assessing and Managing Occupational Exposures".



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Actionee	Step	Action
	5.	<p>Assign a Priority Rating based off the Exposure Assessment Rating using the following guidelines:</p> <p>11-16 High Priority                      5-10 Medium Priority                      1-4 Low Priority</p> <ul style="list-style-type: none"> <li>• DOE, OSHA, or company specific monitoring requirements elevate the Priority Rating to High Priority.</li> <li>• Hazards without prior exposure monitoring data where respiratory protection is used for personal protective purposes should be assigned a High Priority status.</li> <li>• For exposure scenarios with uncertainty due to lack of information or other factors the Priority Rating should be elevated one category.</li> <li>• For scenarios where monitoring results indicate employee exposures are within guidance limits the Priority Rating may be reduced according to the IHs professional judgment.</li> </ul>

**Table 1**

Category	Exposure Rating
0	No contact with agent.
1	<10% Exposure Limit
2	10% Exposure Limit to Action Level
3	Action Level to Exposure Limit
4	> Exposure Limit

**NOTE:** *The Exposure Rating should be determined excluding the use of PPE.*

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**Table 2**

Category	Health Effect Rating
0	No known or suspected adverse health effects
1	< Moderate, reversible injury /illness
2	Moderate, reversible injury /illness
3	Severe reversible injury/ illness
4	life threatening, or irreversible injury/illness

**NOTES:**

1. < Moderate injury/illness – short-term skin discoloration, headache, mild irritation, nausea.
2. Moderate, reversible injury/illness – moderate irritation, 1st degree burn.
3. Severe reversible injury/illness –Severe irritation, severe burns, sensitization.
4. Life threatening or irreversible injury/illness –Carcinogens, fatality, blindness, permanent hearing loss, organ or tissue damage.

**Table 3**

Category	Frequency of Contact Rating
0	No Contact
1	Yearly to Quarterly
2	Quarterly to Monthly
3	Monthly to Weekly Contact
4	Weekly to Daily Contact

**4.3 Issuing IHBHA's**

Actionee	Step	Action
HMIS S&H professional	1.	Each IHBHA document shall be updated as industrial hygiene hazards change for the exposure group. Additionally, when the craft specific hazard analysis (CSHA) and CUA documents are updated, the IHBHA shall also be updated if necessary. When the FEV Table identifies a MEDIUM or HIGH priority rating where the controls in place at the time of the assessment do not provide adequate protection to the worker to minimize occupational illness or injury, the documented hazard analysis shall be updated with additional controls for exposure mitigation. When possible, reference specific hazard analysis document(s) within the summary information.

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**Industrial Hygiene Baseline Hazard Assessments**

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Actionee	Step	Action
		<p>New work processes in industrial areas do not require immediate revision of the IHBHA, provided that an adequate hazard analysis is performed and documented. However, that analysis and documentation must be included in the next scheduled revision of the IHBHA.</p> <p><b>NOTE:</b> <i>This requirement refers to establishing a date to review the accuracy of the IHBHA report/text, FEV table, and the associated controls or recommendations with the intent that new information based off of the completion of the past recommendations is added to the IHBHA.</i></p> <p><i>It is not intended to imply that all past monitoring must be renewed or redone. However, the need for renewed monitoring should be assessed at that time.</i></p> <p>2. Inform project management, line management, and employees of results of the IHBHA as part of the periodic CSHA hazard analysis review and acknowledgement. At a minimum this should include the following content:</p> <ul style="list-style-type: none"> <li>● IHBHA Report/Text Summary.</li> <li>● FEV Table</li> <li>● Include references of the IH Survey Numbers for the past 2 years</li> </ul>
<p>HMIS S&amp;H professional</p>	<p>3.</p>	<p>The method of retaining IHBHA documents is to utilize SWIHD as described in HMIS-PRO-SP-409, <i>Industrial Hygiene Monitoring, Reporting and Records Management</i>.</p> <p>Publish the IHBHA utilizing the SWIHD interface utilizing the following:</p> <ul style="list-style-type: none"> <li>● Under the “Baseline” tab within SWIHD, obtain a unique number to identify the BHA.</li> <li>● While in the Baseline tab, you may use the “Help” link to see a “screen shot” of step-by-step process in uploading and creating the BHA report.</li> </ul> <p><b>NOTE 1:</b> <i>OUO documents should NOT be uploaded as an attachment to the BHA report in SWIHD. However, IH survey reports containing OUO information may be linked to the BHA in SWIHD and are properly protected.</i></p> <ul style="list-style-type: none"> <li>● <i>When you complete the BHA report, it will be automatically converted to a record and placed into IDMS.</i></li> <li>● <i>While in the “Post BL” tab, you may use the “Help” link to see a “screen shot” of step-by-step process to attach IH survey records to the BHA report after it has been created as a record.</i></li> </ul>

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Actionee	Step	Action
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**NOTE 2:** *IH surveys referenced within the record BHA are considered “historical” records once the BHA has been sent to IDMS. Additional IH surveys linked to the BHA will be incorporated into the next revision of the BHA record.*

## 5.0 RECORD IDENTIFICATION

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**Records Capture Table**

Name of Document	Submittal Responsibility	Retention Responsibility
IHBHA including: Report Text FEV Table Technical documentation where appropriate	HMIS S&H professional performing the IHBHA	HMIS S&H manager(s)

## 6.0 SOURCES

### 6.1 Source Requirements

This procedure implements the requirements specified in 10 CFR 851, *Worker Safety and Health Program*, sections 851.21 & 10 CFR 851 Appendix-A, Section 6.

## 7.0 REFERENCES

### 7.1 Source Requirements

10 CFR 851, *Worker Safety and Health Program*

### 7.2 Working References

*A Strategy for Assessing and Managing Occupational Exposures*, AIHA Press, 1998

HMIS-PRO-SP-409, *Industrial Hygiene Monitoring, Reporting and Records Management*

HMIS-PRO-SP-079, *Job Hazard Analysis*

HMIS-PRO-RM-10588, *Records Management Processes*

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HMIS-PRO-SP-11058, *Occupational Medical Qualification and Monitoring using EJTA*

## 8.0 FORMS

None

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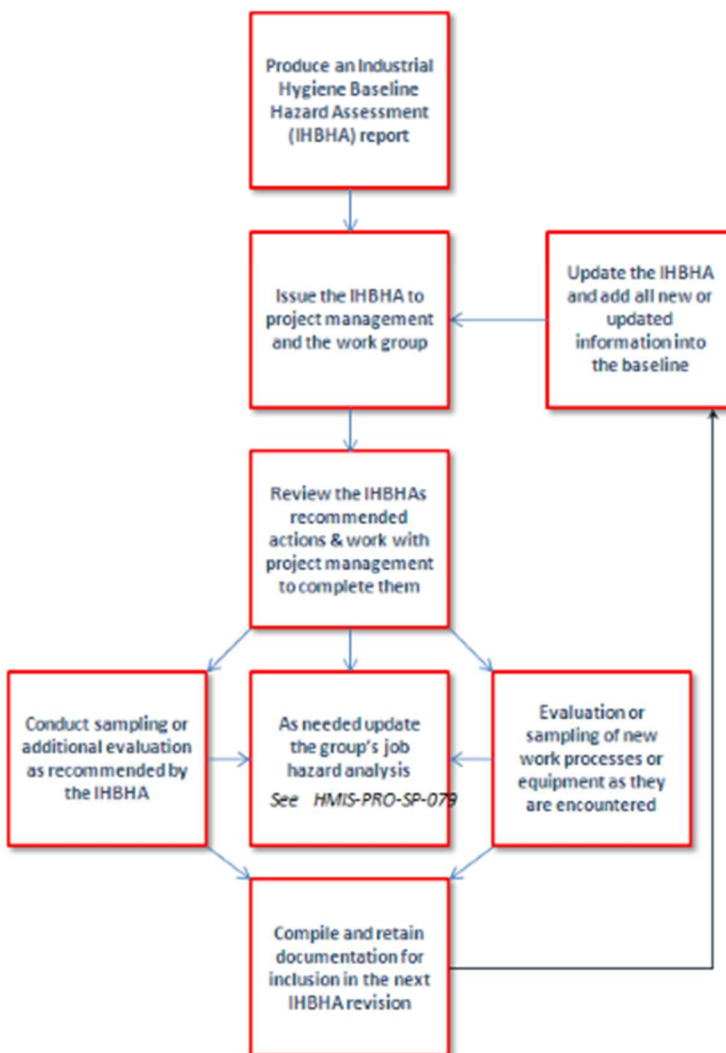
Effective Date: 04/13/2022

## APPENDIX A Glossary

Term	Definition
<b>Similar exposure group (SEG)</b>	A group of employees whose exposures to chemical substances or physical hazards have been determined to be similar enough that monitoring the exposures of randomly selected workers in the group provides data useful for predicting the exposures or exposure profiles of the remaining workers. A SEG is also defined as a group of individuals who perform the same jobs or tasks and who have similar exposures to an individual hazardous agent.
<b>Operation</b>	A task or group of tasks performed by an SEG that may result in personal exposures as defined in Section 2.0 <i>Scope</i> , of this document.
<b>Work Area</b>	A building, tent, lay down yard, or other structure where work is performed that may result in personal exposures as defined in Section 2.0 <i>Scope</i> , of this document.

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## APPENDIX B IHBHA Process Flow Chart



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APPENDIX C

Example -- Industrial Hygiene Hazards Baseline Assessment Field Evaluation Table

	LOCATION or WORK STATION	HAZARD DESCRIPTION	ACTIVITY or WORK PROCESSES	HAZARD EVALUATION	SAMPLE RESULTS	Exposure Rating	Health Effect Rating	Qualitative Exposure Assessment	Frequency of Contact	HAZARD CONTROLS IN PLACE			Priority Rating
						Table 1	Table 2	Rating 0-16	Table 3	Admin	Engineering	PPE	
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	Evaluation Needs		If Lacquer based products are used for >3 hours in one shift contact IH for monitoring										
2	Sitewide	Asbestos Exposure	Removing and replacing asbestos floor tiles or mastics	Exposure resulting from work with tiles, mastics, or levelling compounds.	IHSF 06646  11-60079	2	4	8	1	Communicated in AJHA			Medium
	Evaluation Needs		If removal of asbestos containing mastics or floor tiles occurs monitoring requirements will be determined during AJHA/planning										
3	Outdoor Work Locations	Operator & Bystander Noise Exposure	Walk Behind Vibratory Roller	Spot readings indicate hearing protection is required	11-60218	2	3	6	3 Seasonal	None	None	Hearing Protection	Medium
	Assessment Needs		Conduct noise dosimetry to further characterize potential exposures										
4	All Work Areas	Noise exposure	Vacuuming	Equipment is purchased with low noise levels <85dB	HIH2 02-1346B MIHD 11-60074 11-60082 11-60088	1	2	2	4	None	purchased low noise equipment	Ear plugs available for voluntary use	Low
	Assessment Needs		None										
5	All Work Areas	Mild Skin Irritation	Miscellaneous cleaning	No hazardous components listed or No components with exposure limits	None	1	1	1	4	NA	NA	Gloves	Low
	Assessment Needs		None										

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