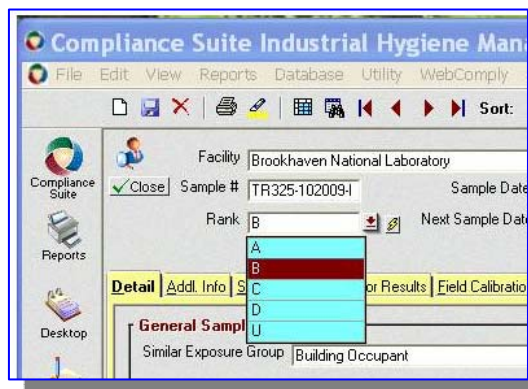


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1.0 Purpose & Scope

This document describes the SHSD Industrial Hygiene Group (IHG) site level exposure monitoring plan and risk ranking strategy. It provides a uniform mechanism for:

- Listing hazardous operations that need exposure monitoring,
- Ranking the hazards so that the highest risks are addressed first,
- Establishing a schedule of when monitoring will occur with the available personnel resources, and
- Converting estimated risk for un-measured operations into the proper periodic monitoring schedule once data is obtained on an operation.

The goal of the procedure is to provide a mechanism for targeting high risk operations and tasks and allocating the available IH expertise resources to conduct personnel exposure monitoring.

2.0 Responsibilities

- 2.1 **Program Administration:** This procedure is administered through the SHSD Industrial Hygiene Group.

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2.2 Members of the SHSD [Safety & Health Representative Group](#) who perform [exposure monitoring](#) are required to follow this procedure.

3.0 Definitions

Compliance Suite: a [SHSD](#) used to track completed monitoring & [schedule next monitoring](#).

Similar Exposure Group (SEG): A group of individuals with a pattern of exposure that is nearly identical. These workers perform the same tasks in relationship to the inclusion in the SEG. These workers are grouped together for the purpose of inclusion in an exposure control program. Monitoring on one individual within an SEG is representative of the exposure expected for any member of the group.

4.0 Prerequisites None. See qualification in Section 7.

5.0 Precautions none

6.0 Procedure

6.1 Exemptions from Exposure Monitor Planning:

- Some IH hazards that are more reactionary based on an event or unusual condition, especially Indoor Air Quality investigations and confined space pre-entry testing, are not prioritized using this procedure.
- Some field measuring work, especially exhaust ventilation testing, is done based on requests from line organizations that is dependent on operations and are not scheduled via this procedure.
- Other time spent by SHSD Field Deployed Personnel, such as Hazard Recognition during Tier 1 Inspections, other consulting, and program management is not tracked in the *ComplianceSuite*® database.

6.2 [Measured/Estimated Personnel Exposure Risk](#) entry into the *ComplianceSuite*® database:

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- If data exists from previous monitoring of the operation or a very similar operation, that data is to be used as the basis for the risk ranking and entered in to the database.
- For operations not previously monitored, estimate the potential personnel exposure breathing zone (or whole body exposure for noise and NIR).
- Once unevaluated operations have been monitored, that data is to be used as the revise the risk ranking in the database or replace an estimate.

6.3 **Rank the risk** of the operation from A to D or U using the following ranking system:
Table 6.3

Rank	Estimated or Known Exposure (without regards to PPE used)	Frequency of Monitoring
A	Worker exposure exceeds OEL on 8hr TWA	All workers in Similar Exposure Group (SEG) during each job until PPE requirements characterized, then all workers quarterly
B	Area exposure level exceeds OEL, but worker exposure is < TWA-8 based on duration in area	25% of workers in SEG, Quarterly
C	Area/worker exposure is >10% of OEL to OEL level	10% of workers once per year
D	Area/worker exposure is Non-detected to <10% of OEL	1 representative sample per year for 3 years, then one sample per 3 year cycle
U	Unknown: Too little is known of the operation to estimate potential exposure	Sample on next operation(s) until characterized as A-D

- 6.4 Whenever feasible, address monitoring of the highest risk operations first (i.e. ranking of A and U).
- 6.5 SHSD management will periodically address the status of the exposure monitoring plan and develop new special emphasis projects or corrective actions. The plans will be identified in the BNL Annual ***BNL Industrial Hygiene Exposure Monitoring Plan***. See Attachment 9.1 for an example of the monitoring plan. The SHSD SOP web page will maintain the current official copy of the Monitoring Plan.
- 6.6 If a process or operation is changed in a manner that alters potential employee exposure, modify the risk ranking based on the new set of conditions.

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7.0 Implementation and Training

Qualification Criteria: Only individuals who have knowledge of this procedure and extensive experience in IH hazard assessments or certification in industrial hygiene will be qualified to plan the assessments described in this procedure. All work under this SOP shall be performed by persons who have demonstrated the competence as evidenced by the performance measures set forth in *Attachment 9.2 JPM Qualification*. This qualification is to be completed on a three year cycle.

8.0 References

8.1 AIHA Strategy for Occupational Exposure Assessment

9.0 Attachments

- 9.1 Sample of the *BNL Site Level Exposure Monitoring Plan & Monitoring Strategy*
- 9.2 *Screen Shot of ComplianceSuite Risk Rating*
- 9.3 *Job Performance Measure- HP-IHP-60100: BNL IH Exposure Monitoring Plan and Monitoring Strategy form*

10.0 Documentation

Document Development and Revision Control Tracking		
PREPARED BY: <i>(signature and date on file)</i> R. Selvey Date: 01/31/06	REVIEWED BY: <i>(signature and date on file)</i> J. W. Peters Date: 02/01/06	APPROVED BY: <i>(signature and date on file)</i> R. Selvey; IH Group Leader Date: 02/01/06
ESH Coordinator/ Date: <i>none</i>	Work Coordinator/ Date: <i>none</i>	SHSD Manager / Date <i>none</i>
QA Representative / Date: <i>none</i>	Training Coordinator / Date: <i>none</i>	Filing Code: IH52
Facility Support Rep. / Date: <i>none</i>	Environ. Compliance Rep. / Date: <i>none</i>	Effective Date: 02/01/06
ISM Review - Hazard Categorization <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low/Skill of the craft	Validation: <input type="checkbox"/> Formal Walkthrough <input type="checkbox"/> Desk Top Review <input type="checkbox"/> SME Review Name / Date:	IMPLEMENTATION: Training Completed: tracked in BTMS Procedure posted on Web: 10/28/09 Hard Copy files updated: 10/28/09 Document Control: 10/28/09

The only official copy is on-line at the SHSD IH Group website.
Before using a printed copy, verify that it is current by checking the document issue date on the website.

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Revision Log	
Purpose: <input type="checkbox"/> Temporary Change <input type="checkbox"/> Change in Scope <input checked="" type="checkbox"/> Periodic review <input type="checkbox"/> Clarify/enhance procedural controls	
Changed resulting from: <input type="checkbox"/> Environmental impacts <input type="checkbox"/> Federal, State and/or Local requirements <input type="checkbox"/> Corrective/preventive actions to non-conformances <input type="checkbox"/> none of the above	
Section/page and Description of change: Minor Changes in Sections 2 and 3. Removed references to the IH Scheduler database in Section 6. Simplified wording in Section 7. Removed former Attachment 9.2	
SME Reviewer/Date: R. Selvey 10/28/09	

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Attachment 9.1

Sample of the Site Level Exposure Monitoring Plan and Monitoring Strategy

Worker Safety and Health Annual Industrial Hygiene Monitoring Plan FY 2006

Prioritization of Monitoring Strategies for Specific Stressors

IH stressors at BNL include: asbestos, beryllium, cadmium, carcinogens, chemicals, heat/cold stress, lead, noise, non-ionizing radiation, reproductive hazards, silica, and welding. Additional stressors might include areas such as ergonomics. However, these areas are not part of a monitoring strategy.

Priority stressors have been established and will be the focus of IH monitoring throughout FY2006. The top three priorities for BNL lab-wide this year are:

1. Noise
2. Cutting, Welding, Brazing
3. Chemicals

The priority stressors for each department will vary as established in our IH Needs Calculator. Each department has a different set of IH stressors due to the type of activities they conduct. For any department that does not have one or more of the three BNL priority stressors noted above, the Safety and Health Representative will determine the next highest need based on a hazard ranking scheme as described below.

Exposure Characterization, Hazard Ranking and Sampling Frequency

The IH Calculator was developed to assess the effort required for regulatory compliance. Its purpose was to identify the resource needs necessary to provide an effective baseline monitoring program. Using the number of monitoring events and average estimates of time for each event, the resource need is generated for each department.

The Compliance Suite IH module is currently the single electronic source for IH monitoring data. All IH monitoring samples are documented in the database with specific information pertaining to the samples.

The ComplianceSuite® is an activity scheduler, which identifies the areas of concern for IH monitoring during the coming year. It is currently being populated with the proposed baseline monitoring as identified in the IH Calculator. This tool will be used to rank the monitoring events and establish the frequency for future sampling events based on the rank profile.

The only official copy is on-line at the SHSD IH Group website.
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Attachment 9.2 Screen Shot of ComplianceSuite Risk Rating

The screenshot displays the 'Compliance Suite Industrial Hygiene Management Software - [Sample]' interface. The main window shows a sample record for 'Brookhaven National Laboratory' with sample number 'TR325-102009-I' and date '10/20/2009'. The 'Rank' is set to 'B', which is highlighted in red in a dropdown menu. The 'General Sample' section shows 'Similar Exposure Group' as 'Building Occupant'. The 'Sampler' section lists 'Person Performing Sampling' as 'Zanoni, Firoza' and 'Employee ID' as '22856'. The 'Location' section includes 'General Location' as 'Building 0325' and 'Stressor Source' as 'Office Equipment'. The 'Department Sampled' is 'ALD Facilities and Ope'. The interface includes a menu bar (File, Edit, View, Reports, Database, Utility, WebComply, Window, Help) and a toolbar with various icons. A sidebar on the left contains icons for Compliance Suite, Reports, Desktop, Survey, Sample, Similar Exposure Group, and More... The 'Rank' dropdown menu is open, showing options A, B (selected), C, D, and J.

**IH Site Level Exposure Monitoring Plan and Sampling Strategy
Job Performance Measure (JPM) Completion Certificate**

Candidate's Name	Life Number:
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SHSD Procedure Knowledge

Practical Skill Evaluation: Demonstration of Evaluation Methodology

Criteria	Qualifying Performance Standard	Unsat.	Recov.	Satisf.
1. Hazard Identification	Has the appropriate knowledge of the full scope of Industrial Hygiene to identify IH hazards for entry into the BNL <i>ComplianceSuite</i> ® database.			
2. Hazard Analysis	Demonstrates knowledge of the various conditions that impact exposure and possesses the essential skills for performing a meaningful hazard analysis of the work operation and area.			
3. Exposure Standards	Demonstrates knowledge of each applicable occupational exposure limit, action level, TLV, PEL, STEL, etc. needed as part of the risk ranking			
4. Exposure Assessment Strategy	Demonstrates sufficient knowledge of the principles to accurately estimate worker exposure and assign the correct risk ranking in the BNL <i>ComplianceSuite</i> ® database.			
5. Estimating Resource	Demonstrates experience in conducting exposure assessment so that accurate estimates of time resources are entered in to the BNL <i>ComplianceSuite</i> ® database.			
6. Completing & Maintaining Data	Shows where the database necessary for planning assessment is located and how to correctly and completely fill the data entry form or table. Demonstrates knowledge of how to enter data into the BNL <i>ComplianceSuite</i> ® database.			
7. Revising data	Demonstrates the knowledge of the correct method to update the database when exposure monitoring data is analyzed and its impact on the next monitoring date. Understands the necessity to maintain the database in an "evergreen" manner.			
8. Special Emphasis	Demonstrates knowledge of the <i>Site Level Exposure monitoring Plan</i> and the need to target hazards that BNL has highlighted and the need to incorporate them into the temporal schedule so that they are addressed during the year of emphasis.			

I accept the responsibility for performing this task as demonstrated within this JPM and the corresponding SOP.

Candidate Signature:	Date:
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I certify the candidate has satisfactorily performed each of the above listed steps and is capable of performing the task unsupervised.

Evaluator Signature:	Date:
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