

<b>BROOKHAVEN NATIONAL LABORATORY</b> Safety & Health Services Division	NUMBER <b>IH60900</b>
	REVISION <b>Final Rev1</b>
<b>INDUSTRIAL HYGIENE GROUP</b> Standard Operating Procedure	DATE <b>06/01/07</b>
	PAGE <b>1 OF 10</b>
SUBJECT: <b>Industrial Hygiene Tier 1 Inspection Criteria</b>	

## Contents

- 1.0 Purpose & Scope**
- 2.0 Responsibilities**
- 3.0 Definitions**
- 4.0 Prerequisites**
- 5.0 Precautions**
- 6.0 Procedure**
- 7.0 Implementation & Training**
- 8.0 References**
- 9.0 Attachments**
- 10.0 Documentation**



### **1.0 Purpose & Scope**

This document describes the SHSD Industrial Hygiene Group (IHG) procedure for participation in Tier 1 Walk-through inspections.

The goal of the procedure is to provide a standardized protocol for items to be monitored for in the inspection review process to achieve uniformity from acceptable criteria. The inspection criteria are meant to be a guide and not a comprehensive checklist. Additional non-conformance issues will be reported as they are identified.

### **2.0 Responsibilities**

- 2.1 Program Administration:** This procedure is administered through the SHSD Industrial Hygiene Group.
- 2.2** Members of the SHSD Industrial Hygiene Group that provide BNL with project review services are required to follow this procedure.

### **3.0 Definitions**

<b>BROOKHAVEN NATIONAL LABORATORY</b> Safety & Health Services Division	NUMBER <b>IH60900</b>
	REVISION <b>Final Rev1</b>
<b>INDUSTRIAL HYGIENE GROUP</b> Standard Operating Procedure	DATE <b>06/01/07</b>
	PAGE <b>2 OF 10</b>
SUBJECT: <b>Industrial Hygiene Tier 1 Inspection Criteria</b>	

***Industrial Hygiene Professional:*** A person designated by the Safety and Health Services Division Manager to conduct industrial hygiene inspection of facilities and that has met the qualification requirements set by the BNL Unified IH Qualification criteria set in IH50300.

**4.0 Prerequisites** See qualification in Section 7.

## **5.0 Precautions**

- 5.1 **Hazard assessment:** The actual task of participating in an inspection typically does not cause significant employee health risks. But by its very nature, this SOP may be performed in areas with chemical or radiation contamination, and these hazards must be assessed on a case-by-case basis. No one is to participate in a Tier 1 inspection until a knowledgeable individual has assessed the hazards of the area.
- 5.2 **Personal Protective Equipment: Personal Protective Equipment:** Personal protective equipment required for inspections include:
- Safety Glasses with side shields,
  - Closed toed shoes (Safety Toe Shoes when required in areas to be entered),
  - Other items as determined by specific area requirements (eg. hearing protective devices, hard hats, chemical protective clothing, gloves, no loose garments, etc.)
- 5.3 **Environmental Impact and Waste Disposal:** This sampling does not have adverse impact on the environment or create waste for disposal.
- 5.4 **Job Risk Assessment:** Consult the *Job Risk Assessment* [SHSD-JRA-06](#) for the risk analysis of this operation based on the hazards and controls of this SOP.

## **6.0 Procedure**

- 6.1 Equipment: Office supplies (including: paper and writing utensils).
- 6.2 Participate in the walk through inspection and include a review of items listed in the *Standardized Criteria* in Attachment 9.1.

<b>BROOKHAVEN NATIONAL LABORATORY</b> Safety & Health Services Division	NUMBER <b>IH60900</b>
	REVISION <b>Final Rev1</b>
<b>INDUSTRIAL HYGIENE GROUP</b> Standard Operating Procedure	DATE <b>06/01/07</b>
	PAGE <b>3 OF 10</b>
SUBJECT: <b>Industrial Hygiene Tier 1 Inspection Criteria</b>	

- 6.3 Verbally inform the Tier 1 Inspection Coordinator of any deficiencies. If needed, prepare a written report (email or memorandum) citing complex deficiencies in the areas.
- 6.4 Record Retention: The *IH Professional* maintains any documentation generated by SHSD in the following manner:
- The *original* memorandum or email on the review is maintained by IHG [Document & Record Custodian](#) in a manner approved by BNL record retention policy and in compliance with OSHA and DOE regulations.
  - The *IH Professional* may keep unofficial copies of the files for personal reference. These are to be marked "COPY".

## **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 participate on Tier 1 inspections as the Safety and Health representative. Personnel are to meet the performance measures set forth in **Attachment 9.2 JPM Qualification record**. This qualification is to be completed on a three year cycle.

## **8.0 References**

- 8.1 Self-Inspection Checklists; OSHA Office of Training and Education; May 1997
- 8.2 Minuteman; Safety Inspection Checklist:
- 8.3 Cornell Laboratory Safety; Self-Inspection Safety Checklist
- 8.4 Harvard University; Lab Inspection Checklist, 2003.
- 8.5 Laboratory Safety Checklist; University of Wisconsin- Parkside

## **9.0 Attachments**

- 9.1 Industrial Hygiene Tier 1 Inspection Criteria
- 9.2 Job Performance Measure form - HP-IHP-60900

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.

<b>BROOKHAVEN NATIONAL LABORATORY</b> Safety & Health Services Division  <b>INDUSTRIAL HYGIENE GROUP</b> Standard Operating Procedure	NUMBER <b>IH60900</b>
	REVISION <b>Final Rev1</b>
SUBJECT:  <b>Industrial Hygiene Tier 1          Inspection Criteria</b>	DATE <b>06/01/07</b>
	PAGE <b>4 OF 10</b>

## 10.0 Documentation

Document Development and Revision Control Tracking		
PREPARED BY: <i>(signature and date on file)</i> R. Selvey Date: 04/16/06	REVIEWED BY: <i>(signature and date on file)</i> J. W. Peters Date: 05/09/06	APPROVED BY: <i>(signature and date on file)</i> R. Selvey; IH Manager Date: 05/10/06
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:  <b>IH52</b>
Facility Support Rep. / Date:  <i>none</i>	Environ. Compliance Rep. / Date:  <i>None</i>	Effective Date:  <b>05/10/06</b>
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: 06/01/07 Hard Copy files updated: 06/01/07 Document Control: 06/01/07

Revision Log		
Purpose: <input type="checkbox"/> Temporary Change <input type="checkbox"/> Change in Scope <input 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: Rev1- Major revision to Section 5- added Steps 5.1, 5.3, and 5.4. Revised shoes requirements in 5.2.		
R. Selvey 06/01/07 <i>(signature on file)</i> SME Reviewer/Date:	Reviewer/Date:	Reviewer/Date:

<b>BROOKHAVEN NATIONAL LABORATORY</b> Safety & Health Services Division  <b>INDUSTRIAL HYGIENE GROUP</b> Standard Operating Procedure	NUMBER <b>IH60900</b>
	REVISION <b>Final Rev1</b>
SUBJECT:  <b>Industrial Hygiene Tier 1                  Inspection Criteria</b>	DATE <b>06/01/07</b>
	PAGE <b>1 OF 10</b>

## Attachment 9.1

### IH Walk-Through Inspection Criteria

<b>Safety for all areas</b>	
1.	Wiring- no use of multiple extension cords in series (daisy chaining) or loose electrical wiring posing a trip or catch hazard.
2.	Wiring- no overloaded outlet(s).
3.	Storage- no boxes or equipment stored with potential to fall and cause injury.
4.	Storage- no blocked fire suppression (within 3' of sprinkler).
5.	Storage- none within 3' of breaker panel.
6.	Occupied areas are provided with adequate restroom and lunchroom facilities for the occupancy of the building. Toilets and washing facilities clean and sanitary.
7.	Level of light adequate for safe and comfortable performance of work .
8.	Emergency lighting adequate and regularly tested.
9.	Heat or cold stress working conditions not a problem for employees.
10.	For hot and/or humid work, a cool break area and a readily available supply of drinking water are provided.
11.	Surfaces are evaluated for slip resistance, wetness and clutter. Good housekeeping is performed.
12.	Aisles are established and are kept clear (minimum 36").
13.	No tripping hazards present
14.	Entrance mats are available for wet weather.
15.	Outside walkways and stairs are in good repair.
16.	Ramps have non-slip surfaces.
17.	Stair treading is in good condition.
18.	Stairways are kept clear and are not used for storage.
19.	Handrails are present on both sides of the stairway and in good condition.
20.	Guardrails are installed (where needed). Standard rail guide meets set up requirements.
21.	No storage is allowed within 18 inches of sprinkler heads (24 inches of ceiling where no sprinkler system exists).
22.	Appropriate ladders are provided for high storage area access. Ladders have appropriate labeling, are in good condition, and are stored safely. When in use they extend three feet above the top surface area and are secured. Cages are present when fixed ladders exceed 20 feet.
23.	Oscillating fans have guards that prevent fingers from contacting fan blades.
24.	All asbestos containing materials properly labeled.
25.	Storage platforms are labeled with the maximum loading capacity.
26.	All high noise areas are identified and posted. Hearing protective devices are available.
<b>General IAQ for all areas</b>	
27.	No mold growth on surface or musty odor.
28.	No water damage to ceiling or walls. No high moisture conditions are present on ceilings, walls or floors.
29.	Automobile exhaust prevented from buildup indoors (diesel exhaust may be carcinogenic).

<b>BROOKHAVEN NATIONAL LABORATORY</b> Safety & Health Services Division  <b>INDUSTRIAL HYGIENE GROUP</b> Standard Operating Procedure	NUMBER <b>IH60900</b>
	REVISION <b>Final Rev1</b>
SUBJECT:  <b>Industrial Hygiene Tier 1                  Inspection Criteria</b>	DATE <b>06/01/07</b>
	PAGE <b>2 OF 10</b>

	<b>Offices</b>
30.	Sanitation: food properly stored
31.	HVAC system is designed to provide adequate makeup air for the occupancy of the building.
32.	Lighting does not produce glare on work surfaces, VDT screen and keyboards.
33.	Chairs are in good condition and are adjustable (if appropriate).
34.	Paper cutter is equipped with guard, the blade spring is functional and the lock is in place when not in use.
35.	Step stools are available for use, where needed, in good condition and lock in place during use.
36.	Wall shelves were designed for intended load. Shelves are not overloaded.
37.	Bookcases are secured from tipping.
38.	File drawers are kept closed when not in use. Only one file drawer is opened at a time to prevent tipping.
39.	Heavy items stored on/in low shelves or cupboards.
40.	Commercial cleaning products are labeled, stored properly and separated from foodstuffs.
	<b>Ergonomics</b>
41.	Hoists, scissor tables, or other lifting devices available for lifting heavy items.
42.	Lifting devices have the maximum load capacity clearly marked on the device.
43.	Push and pull operations are reviewed for risk.
44.	Continuous hand manipulations (eg. turning, grasping, pinching, etc.) are reviewed.
45.	Activities not permitted involving vibration to the extent that vibration related conditions, e.g vibration white finger, might be a potential problem.
46.	Monitors are directly in front, the top of screen is at or slightly below eye level and is approximately 18 to 24 inches away.
47.	Monitors are positioned to avoid glare by adjusting window shades or lighting and/or using glare screens.
48.	Chair and keyboard heights are adjusted to keep hands, wrists and forearms parallel to the floor with arms positioned naturally. Computer workstation has wrist rest and mouse extension.
49.	Chair and footrest heights are adjusted to keep thighs parallel with the floor.
50.	Document holders are used to keep documents next to and at the same level as the monitor screen.
51.	Often used items are placed within easy reach.
52.	Telephone rests or headsets are provided as necessary to prevent awkward postures.
	<b>Shops</b>
53.	Food not stored or consumed in shop.
54.	Postings at entrance are appropriate for the hazards.
55.	PPE/respiratory protection is stored properly and in good condition.
56.	Noise producing machines labeled.
57.	Eye hazard from machines labeled.
58.	Toxic Exhaust ventilation systems with HEPA filter are surveillance tested
59.	Welding operation has exhaust ventilation provisions
60.	Welding operations have UV shielding
61.	Lead operations are conducted properly and within appropriate controls.
62.	Equipment is secured and guarded as necessary.

<b>BROOKHAVEN NATIONAL LABORATORY</b> Safety & Health Services Division  <b>INDUSTRIAL HYGIENE GROUP</b> Standard Operating Procedure	NUMBER <b>IH60900</b>
	REVISION <b>Final Rev1</b>
SUBJECT:  <b>Industrial Hygiene Tier 1                  Inspection Criteria</b>	DATE <b>06/01/07</b>
	PAGE <b>3 OF 10</b>

63.	Equipment interlocks are tested and not over-ridden.
64.	Is provision made to prevent automatic restart after power failure.
65.	Appropriate task lighting is provided.
66.	Appropriate recycle containers are provided and used for soldering operations.
67.	Local exhaust ventilation is available, currently tested and used where necessary.
68.	Spray-finishing operations conducted in a room specifically designated for that purpose and protected with an approved fire-suppression system.
69.	Spraying areas provided with mechanical ventilation that is operating during spraying.
70.	Approved metal waste cans equipped with self-closing lids provided for rags and waste exposed to finishing materials.
71.	Processes that generate toxic mists (spray undercoating, dusts, welding fumes, gasoline vapors) protected by local ventilation systems that draw the noxious substances away from the breathing zone.
<b>Laboratory &amp; Chemical Use Areas</b>	
72.	Postings at entrance are appropriate for hazards
73.	Food not stored or consumed in lab.
74.	Refrigerators are clearly labeled for non food substances.
75.	All chemical containers labeled including hazard symbols where appropriate.
76.	Acids segregated from organics or bases. Nitric acid separated from other inorganic acids.
77.	Chemical liquids kept in closed containers when not in use.
78.	Liquid chemicals are not stored above eye level.
79.	Gasoline and other flammable liquids stored in approved containers and cabinets.
80.	Bottles containing strong acids or strong alkalis stored on spill trays.
81.	There is sufficient storage space to accommodate needs without using fume hoods for storage.
82.	CMS barcode or Static Inventory present and current.
83.	Chemicals are used in an area with proper ventilation- lab hood, one-pass HVAC, proper air balance.
84.	Hazardous processes are done a fume hood.
85.	Carcinogens and highly toxic chemicals are documented and handled in accordance with standard laboratory operating procedures in a designated area. Containers are correctly labeled.
86.	Eyewash/shower pathways are not obstructed, tepid water delivery, travel distance <10 sec and 100 feet, maintained well. Where shower is not within the immediate area, the BNL interim policy is utilized and effectively communicated.
87.	A system is in place to control apparatus and/or experiments running overnight and/or at weekends.
88.	Properly designed carriers available for the transportation of bottles.
89.	All <u>centrifuges</u> have interlocked lids. If not, is a suitable warning sign affixed to the <u>centrifuge lid</u> ?
90.	Procedures are in place and posted for specialized equipment such as autoclaves.
91.	There is sufficient unobstructed space to allow movement of air into and through fume hoods to rear discharge slots.
92.	Laboratory hoods are face velocity tested
93.	Toxic Exhaust ventilation systems with HEPA filter are surveillance tested
94.	Lead operations and storage are appropriately conducted.

<b>BROOKHAVEN NATIONAL LABORATORY</b> Safety & Health Services Division  <b>INDUSTRIAL HYGIENE GROUP</b> Standard Operating Procedure	NUMBER <b>IH60900</b>
	REVISION <b>Final Rev1</b>
SUBJECT:  <b>Industrial Hygiene Tier 1                  Inspection Criteria</b>	DATE <b>06/01/07</b>
	PAGE <b>4 OF 10</b>

95.	Radio Frequency Radiation (RFR) All RFR hazards properly identified.
96.	Laser properly labeled.
97.	Proper warning signs are posted around laser operations.
98.	Peroxidizables are tested and dated.
99.	Mercury devices in secondary containment.
100.	Where <u>respiratory sensitizers</u> are in use (e.g. processes involving isocyanates, solvents, etc), suitable engineering control measures, personal protection and/or health surveillance implemented.
101.	Fire extinguishers are present, bar coded and appropriate for the hazard (eg. Metal X for metal fires)
102.	Appropriate spill kits: all components are present, in good condition and appropriate for the hazards
<b>Etiologic Agents and Biohazard Areas</b>	
103.	Storage areas, e.g. rooms, cupboards, refrigerators, freezers etc., where potentially infective materials are kept labeled accordingly.
104.	The door labeled with the relevant signs.
105.	Sharps containers are available, leakproof and punctureproof, not overfilled and properly labeled
106.	Microbiological safety cabinets, used to control exposure to biological agents, have <u>containment and filter penetration tests</u> at appropriate intervals. Certificate available for each cabinet in the area.
107.	Plans specify appropriate <u>decontamination and disinfection</u> procedures.
<b>Sound Level/Noise</b>	
108.	Regular noise surveys conducted
109.	Hearing protection available
110.	Areas above 85 dbA posted
<b>Personal Protective Equipment</b>	
111.	Protective eye and face devices comply with ANSI Z87.1-1989 and the name of the manufacturer is stamped on the frame.
112.	Protective eyewear (filter lenses or plates) selected for welding, cutting, and brazing shall be based on ANSI Z87.1-1968, or see table in OSHA 1910.252.
113.	All areas and equipment requiring the use of PPE devices posted with a sign indicating this requirement.
114.	Required PPE provided to visitors to the work area when needed.
115.	If not "one shift" disposable, the <u>PPE</u> regularly inspected, cleaned and maintained in a sanitary and reliable condition.
116.	Protective equipment stored where it cannot be contaminated by hazardous substances and where it will not contaminate outdoor clothing.
117.	Defective or damaged PPE removed from service immediately.
<b>Gas Cylinders &amp; Toxic Gases</b>	
118.	Compressed gas cylinders have their contents and precautionary labeling clearly marked on their exteriors
119.	Cylinders stored in upright position and immobilized by chains or other means to prevent them from being knocked over

<b>BROOKHAVEN NATIONAL LABORATORY</b> Safety & Health Services Division  <b>INDUSTRIAL HYGIENE GROUP</b> Standard Operating Procedure	NUMBER <b>IH60900</b>
	REVISION <b>Final Rev1</b>
SUBJECT:  <b>Industrial Hygiene Tier 1                  Inspection Criteria</b>	DATE <b>06/01/07</b>
	PAGE <b>5 OF 10</b>

120.	Gas lines from cylinders are appropriate for the gas, have proper connections and are protected from damage such as when passing through wall openings.
121.	The storage area permanently posted with the names of the gases stored in the cylinders
122.	Charged and full cylinders stored away from empty cylinders
123.	Cylinders on welding carts are removed daily and stored properly or the cart is designed in accordance with the OSHA protective measures.
124.	Cylinders stored away from incompatibles, excessive heat, continuous dampness, salt or corrosive chemicals, and areas that may subject them to damage
125.	Cylinder valves closed at all times, except when the valve is in use.
126.	Toxic gas stored in ventilated cabinet
127.	Toxic gas has detection system
128.	Compressed gas cylinders have safety pressure relief valves
129.	All compressed gas cylinders subjected to periodic hydrostatic testing and exterior inspection
130.	Gas cylinders sited away from doors or escape routes
131.	Properly designed gas cylinder trolleys provided for their transportation
132.	
133.	
134.	

**HP-IHP-60900**

Environmental, Safety, Health & Quality Directorate  
SHSD Industrial Hygiene

**Industrial Hygiene Tier 1 Inspection  
Job Performance Measure (JPM) Completion Certificate**

Candidate's Name	Life Number:
------------------	--------------

**SHSD Procedure Knowledge**

Practical Skill Evaluation: Demonstration of Evaluation Methodology

Criteria	Qualifying Performance Standard	Unsat.	Recov.	Satisf.
1. PPE	Demonstrates knowledge of the required PPE to participate in a Tier 1 Inspection.			
2. Inspection Criteria	Demonstrates sufficient knowledge of the principles and acceptance criteria in Attachment 9.1 as to responsibly and accurately assess hazard conditions.			
3. Hazard Analysis	Demonstrates knowledge of the various types of IH hazards and conditions, and the essential steps in performing a meaningful hazard analysis of the area.			
4. Assessment Report Content	Demonstrate the knowledge that all items in Attachment 9.1 must be addressed in verbal communication or an assessment report.			
5. Distribution of copies	Demonstrates how to correctly distribute the evaluation to the appropriate ESH professional(s).			

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

Candidate Signature:	Date:
----------------------	-------

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

Evaluator Signature:	Date:
----------------------	-------