Worker Safety and Health
Annual Industrial Hygiene Monitoring Plan
FY 2006

1. Purpose

The purpose of the annual industrial hygiene monitoring plan is to establish priorities for industrial hygiene monitoring during the upcoming year. Monitoring priorities are based on regulatory compliance, a need for quantitative hazard evaluation data, and the estimated risk of hazards.

The IH Group at BNL has conducted interviews with each directorate and identified, through discussions with Safety and Health Coordinators, areas of concern for monitoring during FY2006.

BNL is implementing the following scheme for FY2006 to assess, document and monitor worker exposures. The scheme includes four parts: this Plan, the Compliance Suite exposure monitoring database, the IH Calculator and the IH Scheduler.

2. IH Monitoring Goal Setting

To establish goals, the following criteria are used:

- Compliance with regulatory (OSHA/DOE) standards/guidance
- Relative risk to worker and assignment of Similar Exposure Groups
- Needs of the Department/Directorate
- Special Emphasis programs identified by the IH Group

Goals for the FY2006 plan were determined using the following inputs: IH and ESH coordinator staff discussions; a review of chemical inventories; a review of worker concerns; anticipated and known worker exposures. Additional information was gathered through reviews of: recent accidents/injuries; recent OSHA/DOE inspection findings; lessons learned; and assessment of need by departments.

3. 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
   - carcinogens
   - other particularly hazardous substances
   - chemicals used in large quantities

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.

4. 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 IH Scheduler 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.

Exposure Assessments (EA)

This monitoring plan uses the following EA strategy:

Qualitative Exposure Assessment	Hazard Characterization	Need determined primarily through Work Planning; review of existing data; area monitoring (ex. Noise); and ESH coordinator input
	Scope/Screen for exposure potential	
	Analyze and Interpret Results	
	Prevention and Controls	
Quantitative Exposure Assessment	Develop quantitative Monitoring Plan	Annual IH Monitoring Plan based on review of analytical data and interpretive reports.
	Conduct Exposure Monitoring	
	Determine need for and periodicity of re-evaluations	
Medical Monitoring	Review with OMC exposure and medical data as required; re-monitor as necessary	Data is input to Compliance Suite for OMC review and OMC is on IH report distribution list.

In some instances, BNL will provide non-monitoring, qualitative assessments. This type of assessment would include: exposures to items that do not have regulatory OELs or methods for monitoring and analysis such as biological materials/organisms and pesticides; and theoretical assessments based on a quantitative analysis of the exposure potential.

An example of a theoretical hazard assessment based on exposure potential might include the use of extremely small quantities. For instance, an S&H representative may determine through calculations that if all of the material were instantaneously aerosolized the airborne level would be below 10% of the OEL and ventilation would lessen exposures further. In this instance, there is essentially no risk of overexposure.

Ranking Exposure Monitoring Data

The IH Scheduler is used to rank monitoring data, assess the need for additional monitoring and schedule future monitoring. The following criteria are used by the Safety and Health Representative to establish the IH monitoring schedule:

Risk Category	Exposure Level	Relative Risk	Frequency of Monitoring
A	Worker exposure exceeds OEL on TWA_8	Significant risk	All workers in 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	May be at significant risk. Needs further evaluation: compliance with OEL uncertain	25% of workers in SEG, quarterly
C	Area/worker exposure is >10% of OEL to OEL level	Moderate risk	10% of workers once per year
D	Area/worker exposure <10% of OEL.	Low risk	1 representative sample per year for three years, then one sample per 3 year cycle
U	Unknown area/personal exposure	Risk assigned on best available guidance	Sample on next operation(s) until characterized as A-D

BNL will use 10-25% of the OEL as the Administrative Control Limit (ACL). This will be confirmed or changed as needed by continual review of monitoring data and hazard analyses as they become available. The ACL is not to be viewed as a modified OEL but rather as a level for decision making with respect to regulatory compliance and for determining the need for additional monitoring.

The IH monitoring data will be reviewed by a Senior Industrial Hygienist and incorporated into exposure assessments (EAs). The EAs will be integrated into the existing programs, experiments and operations. The IH Monitoring Plan will be reviewed and updated on an annual cycle by the IH Group manager