

# OSHA Protocol

## Compliance Audit at Brookhaven National Laboratory

**Purpose:** The purpose of this Protocol is to describe how OSHA will perform the compliance audit at the Brookhaven National Laboratory (BNL) under the Department of Energy's (DOE) Office of Science. This compliance audit is designed to assist DOE in determining the cost to bring the laboratory into compliance with the OSHA safety and health standards.

**Scope:** This protocol is applicable to the performance of the comprehensive OSHA compliance audits for facilities and operations under the direction of DOE's, Office of Science. All federal and contract workers, including visiting scientists, engaged in the Office of Science laboratory operations will be evaluated for compliance with 29 CFR 1910 (General Industry), 29 CFR 1926 (Construction), 29 CFR 1960 (Federal Programs), 29 CFR 1904 (Recording and Reporting Occupational Injuries and Illnesses), and Section 5(a)(1) of the Occupational Safety and Health Act.

**Background:** The Brookhaven National Laboratory is located in Upton, New York. Brookhaven National Laboratory's mission is to perform basic and applied research to deliver energy, environmental, and national security for our Nation. This site is a multipurpose science laboratory managed by Brookhaven Science Associates for the U.S. Department of Energy. The site was founded in 1947 and has an annual budget of approximately \$500M total. Brookhaven is composed of the following five science divisions: High Energy and Nuclear Physics, Basic Energy Sciences, Life Sciences, Energy, Environment and National Security, and Light Sources. There are about 3,000 direct employees and about 4,500 visitors per year. The laboratory site covers approximately 5,320 acres, 30% of which is developed. There are approximately 400 buildings in use with a total area of 4.36 million square feet. Many buildings date back to World War II and some are older.

Brookhaven National Laboratory's role for the DOE is to produce excellent science and advanced technology with the cooperation, support, and appropriate involvement of the scientific and local communities. The fundamental elements of the Laboratory's role in support of the DOE strategic missions are the following:

- to conceive, design, construct, and operate complex, leading edge, user-oriented facilities in response to the needs of the DOE and the international community of users;
- to carry out basic and applied research in long-term, high-risk programs at the frontier of science;

- To develop advanced technologies that address national needs and to transfer them to other organizations and to the commercial sector; and;
- To disseminate technical knowledge, educate new generations of scientists and engineers, maintain technical capabilities in the nation's workforce, and to encourage scientific awareness in the general public.

#### Major Facilities

- Relativistic Heavy Ion Collider (RHIC), the world's newest and biggest particle accelerator for nuclear physics;
- National Synchrotron Light Source (NSLS), attracting more users annually than any other research machine in the world;
- Alternating Gradient Synchrotron, home to Nobel Prize-winning research and many pivotal discoveries in high-energy and nuclear physics;
- Accelerator Test Facility, the nation's proving ground for new concepts in generating, accelerating and monitoring particle beams.
- Tandem Van de Graaff Facility, ion sources for hardware testing and supplier of ions for RHIC.

#### **BNL Compliance Audit Activities:**

##### A. Generic Workplan

The compliance audit at BNL will be conducted in accordance with the "OSHA Comprehensive Compliance Audits Workplan for DOE's Non-Defense Laboratories". That generic workplan provides comprehensive information regarding the performance of the compliance audits at ten designated laboratories. This protocol, which utilizes the generic workplan as its framework, is tailored to the specific aspects of the BNL operation.

##### B. Composition of Audit Team

An OSHA compliance audit team will conduct the BNL audit. It is expected that there will be approximately 14-16 people on site to support the audit effort. The team will be composed of experienced federal OSHA personnel and contractors. The OSHA personnel and contractors will have expertise in safety, industrial hygiene, radiation, health physics, and medical and health screening. OSHA Headquarters personnel may also be on site throughout the entire audit.

### C. Laboratory Coordination

The BNL pre-site scoping visit was performed during the week of September 2, 2003. Planning and scheduling with the on-site points of contact has been ongoing since the scoping visit was completed. OSHA team leaders will conduct the opening conference on the morning of Tuesday, October 21, 2003. Upon arriving, the audit team members will receive facility access and dosimetry badges and attend the opening conference. OSHA reserves the right to modify the schedule as the audit develops and further information is gathered.

Coordination between OSHA and NRC audit activities at BNL was not necessary as the NRC and OSHA DOE scheduled audits did not coincide.

### D. Opening Conference

BNL will provide an appropriate meeting facility and make the necessary arrangements to assure the attendance of all appropriate parties. OSHA will conduct the opening conference which shall include all appropriate BNL management, contractors, labor union representatives, and DOE officials. This opening conference affords the OSHA the opportunity to explain the audit process, procedures, schedule, and to address questions that may arise from the participants. During the opening conference BNL will brief the OSHA audit team on its site emergency procedures.

Upon arrival, OSHA will receive visitor passes and then proceed to building 464 where there will be a short introductory meeting with DOE managers and Environmental Safety and Health staff. The audit team will then proceed to the arranged office space in building 129 and have an audit team coordination meeting lasting approximately an hour. The opening conference will begin at 10:00 am followed by an informal meeting with the BNL escorts followed by a lunch break. It is anticipated that the audits will begin immediately after a lunch break.

### E. Schedule

The audit is currently scheduled to begin on October 20, 2003 and run through November 21, 2003. Each day the audit team will depart from the on-site OSHA office at 8:30 AM and return about 3:30 PM to prepare their audit reports. Normally the work day will conclude and team members shall depart the site at 5:00 PM. Work schedules may be extended as necessary for a reasonable amount of time, with the consent of the audit team leader, audit team members, and the BNL staff, if it would improve the efficiency and integrity of the audit process. An example of such an instance would be when an additional hour would enable the completion of a building or divisional area so that the area would not have to be revisited.

OSHA will work with BNL to coordinate the daily assignments in order to improve the

efficiency of the inspection and escort assignment process. As part of the effort to continuously improve the audit process; OSHA will solicit feedback from the audit team, DOE, and the BNL Safety and Health staff during the course of the audit. The scheduled audit days may be adjusted once the extent of the audit activity is confirmed.

## F. Compliance Audits

OSHA will conduct compliance audits according to the workplan and OSHA's Field Inspection Reference Manual (FIRM) as it applies to the scope and purpose of the DOE laboratory audits. Unlike the typical OSHA inspection procedures, compliance audits will be scheduled in advance for each BNL facility or operation. BNL will be furnished daily with an updated audit schedule in order to facilitate the arrangement of escorts. Audit team members will explain findings during the audit process. This will be the time and opportunity for BNL personnel to discuss specific findings and abatement options with the auditor. All workers (visiting scientists, construction workers, etc.) engaged in BNL, Office of Science directed work will be included in the audit process.

Based upon the pre-audit information provided by BNL, walk-through audits will be conducted in the buildings and facilities occupied by and under the management control of DOE's, Office of Science. Buildings and facilities to be audited will be directed by the Office of Science and the BNL laboratory. The OSHA Injury and Illness logs will be reviewed to help characterize the types of hazards present. The primary goal is to ensure the high hazard areas and operations are audited first and then consideration will be given to office spaces. Construction activities taking place in conjunction with these buildings/facilities will be included in the audited activities.

The BNL Standards-Based Management System (web-based SBMS) was provided by BNL as requested in the pre-audit information. These written safety and health programs will be reviewed by the audit team members prior to the onsite audit and evaluated on site for compliance with current OSHA standards. These programs include, but are not limited to plans for Asbestos, Chemical Hygiene, Confined Spaces, Hazard Communication, Hearing Conservation, Laboratory Safety, Lockout/tag-out, Respiratory Protection, Lead, and Recordkeeping.

It is not anticipated that the audit team will collect air, bulk, or wipe samples due to the time constraints involved with performing sampling and waiting for results. Instead, the audit team members may ask to review the site's sampling data and the BNL staff may be asked to demonstrate their sampling process or review sampling protocols to ensure compliance with OSHA standards. Direct-reading instrument samples may be taken to validate sampling data. If the audit team member questions the possibility of employee overexposure or hazard identification, the BNL may be requested to perform sampling under the direction of the audit team member.

OSHA will not be issuing citations with penalties, but will determine the compliance status relative to current OSHA standards. OSHA will generate a list of findings with abatement options. Findings of the General Duty Clause refer to Section 5(a)(1) of the Occupational Safety and Health Act which requires "Each employer to furnish to each employee, employment and a place of employment which is free from recognized hazards that cause or are likely to cause death or serious physical harm." The general duty provision shall be used only where there is no OSHA standard that applies to the particular hazard involved as outlined in 29 CFR 1910.5(f).

Each General Duty Clause violation must be evaluated to meet the following four elements:

1. The employer failed to keep the workplace free of a hazard to which employees of that employer were exposed.
2. The hazard was recognized.
3. The hazard was causing or was likely to cause death or serious physical harm.
4. There was a feasible and useful method to correct the hazard.

Where OSHA does not have a standard, recommendations will be made to improve workplace conditions. Team members will share their years of experience in observing industry processes and knowledge of "best practices" to provide a higher standard of safety and health. These "Recommendations" are not OSHA non-compliance "findings", but rather suggested ways of providing a safe and healthful work environment based upon the auditors safety and health experience and expertise with laboratory personnel.

#### G. Closing Conference

The closing conference is designed to facilitate an understanding of the OSHA process, convey the audit findings and exchange ideas as to how to improve the audit process at the remaining DOE audit locations. A closing conference will be scheduled with BNL once the team leaders determine the audit process is near enough completion to compile the findings. During the closing conference OSHA will present the preliminary findings of the audit. It is not anticipated that the presentation by OSHA will include a detailed and extensive discussion of the audit findings; but rather will stimulate discussion with respect to a pattern of audit findings and information on program implementation.

#### H. Final Report

A final compliance assessment report will be prepared by OSHA and delivered to DOE's, Office of Science as soon as possible after completion of the audit. Discussions

regarding specific audit findings, specific hazards, and clarification of abatement options and recommendations addressed in the audit report will be conducted upon delivery of the report or shortly thereafter, at the convenience of DOE and BNL.

#### I. Security matters

Items related to security training are addressed in the 30 minute web-based orientation training which will be completed prior to arriving on site. Audit team members will be accompanied by appropriate escorts and BNL badges will be displayed in accordance with laboratory policy.

#### J. Radiation Dosimetry

BNL will provide individual radiation dosimeters for each audit team member who may have potential exposure to ionizing radiation while at BNL. The results of the radiation dose monitoring will be reported within a reasonable timeframe to each audit team member who wore a dosimeter and the DOE liaison, for inclusion in the audit team member's medical records.

The results will be sent to the DSTM DOE liaison:

Trese Louie  
Department of Labor/OSHA  
200 Constitution Ave NW  
Room N3653  
Washington, DC 20210

#### K Site-specific training

Before arriving on-site, each OSHA auditor will complete a web-based 30 minute General Orientation Training Module made available via the internet with a link and password provided by BNL.

#### L. Pre-inspection request for information

OSHA requested pre-audit information from BNL as listed in the workplan. Most of the information was provided in a timely manner via the BNL web site. The purpose for requesting this information in advance of the audits was to permit OSHA to more effectively and efficiently assign inspection staff and conduct the audits. The status of OSHA requested pre-audit information is found in Attachment 3.

#### M. Data Base

BNL will complete the Microsoft Access Database building inventory to facilitate scheduling of the audit.

Attachments:

1. BNL Site Map
2. BNL Facility Index Table
3. OSHA Requested pre-audit information

## Brookhaven National Laboratory Pre-Audit Information

BNL contacts for additional information:

Maria Dikeakos	(631) 344-3950
Scott Mallette	(631) 344-5345

OSHA Requested Information	Web or Data Base Access
<b>General Site Information</b>	
• Description of laboratory facilities and buildings	Provided
• List of known work related hazards in buildings	Provided
• Security Clearance Requirements	Provided
• Organizational Chart	Provided
• Number and Location of BNL Employees	Provided
• List of Contacts for Program Reviews	Provided
• Site-Specific Training Requirements – 30 minute web-based	Provided
• Required PPE for Audit Team Members	Provided
• Map of Complex	Provided
• Rules for taking Photographs	Provided
• Rules for Radiation Monitoring	Provided
• Integrated Safety Management System BNL Standard-Based Management System (web-based)	Provided
• Badges for onsite entry	Provided upon entry
• Previous OSHA Inspection Reports	NA
<b>Safety and Health Programs</b>	
• Hazard Communication Program	Provided



• Respiratory Protection Program	Provided
• Lockout-Tagout Program	Provided
• Bloodborne Pathogens	Provided
• Confined Space Program	Provided
• Asbestos Program	Provided
• Lead Abatement Program	Provided
• Emergency Management Program	Provided
• Powered Industrial Trucks	Provided
• Cranes, Hoisting, and Rigging Program	Provided
• Eye and Personnel Protective Equipment	Provided
• Fire and Life Safety Program	Provided
• Electrical Safety Program	Provided
• Beryllium Program	Provided
<b>Medical, Physical Hazards and Radiation Safety Programs</b>	
• Laser Safety Program	Provided
• Ionizing Radiation Program	Provided
• Non-Ionizing Radiation Program	Provided
• Magnetic Field Program	Provided
• Chemical Hygiene and Laboratory Safety Program	Provided
• Cryogenic Safety	Provided