This information applies to BNL staff, guests, visitors, users and contractors during research, general industry operations, maintenance and construction activities with hazardous substances.

Introduction

This subject area provides the program to implement the Personal Protective Equipment (PPE) requirements in OSHA 29 CFR 1910.132-140 and DOE 10 CFR 851.

When controlling workplace hazards, the process for determining feasible and effective controls should be based on the following hierarchy of controls (those at the top of the list are potentially more effective and protective than those at the bottom):

- Elimination;
- Substitution;
- Engineering controls;
- Administrative controls;
- Personal protective equipment.

The best controls eliminate the hazard. Next are those that control the source or shield the worker from the source, followed by controls that limit a worker's exposure to the source. Finally, the last barrier is the use of protective equipment worn by the worker.

This subject area supplements (but does not supersede) other subject areas that have requirements on personal protective equipment. Many of these requirements are shown in the exhibit Supplemental PPE Requirements.

Follow this subject area when PPE is "mandatory," i.e., when PPE is required to control exposure levels for regulatory compliance or is mandated by a management decision. When workers request to use personal protective equipment in situations where the use is not required, the use is considered "voluntary." Voluntary use is allowed if PPE does not increase the exposure to hazards. The requirements and guidance in this subject area are optional (i.e., non-mandatory) for "voluntary" PPE use. Some examples of voluntary use include:

- a worker wears earplugs around a noise source that does not exceed regulatory limits, and
- a worker uses a dust mask while mowing grass to prevent allergy symptoms from grass clippings.

The BNL respirator program is comprised of this subject area and documents maintained by support divisions and line organizations that use respirators. The program is overseen by the PPE and Respirator Subject Matter Expert. For more information, consult the ESH Guide: PPE and Respirators, the Respirator Protection Program Roadmap/Crosswalk, and the Respirator Protection Program Program Description.

This subject area contains the following sections:

1. Area-based Personal Protective Equipment
2. Operation-based Personal Protective Equipment
3. Obtaining Personal Protective Equipment
4. Using, Maintaining, Storing, and Disposing of Personal Protective Equipment
5. Respirators
6. Contractor Use of Personal Protective Equipment and Respirators
7. Oversight of Personal Protective Equipment and Respiratory Protection Programs

Responsibilities

All BNL and non-BNL employees are responsible for recognizing and complying with this subject area's requirements.

Line supervisors are responsible for ensuring that employees are trained to the hazard level to which they will be exposed.

The Department Chair/Division Manager is responsible for ensuring consistent implementation of this procedure for BNL and non-BNL workers.
Cross-references

BNL uses the work planning and control processes to properly manage all work, as described in the Work Planning for Experiments and Operations Subject Area. PPE is an integral part of work planning.

Violations of the PPE requirements fall under the purview of the Disciplinary Actions Subject Area.

Links to PPE requirements and recommendations/guidance in other Subject Areas are provided in the exhibit Supplemental Personal Protective Equipment (PPE) Requirements/Guidance.

References

29 CFR 1910.132 140, Personal Protective Equipment
ANSI/ISEA 107: American National Standard for High Visibility Safety Apparel and Headwear
ANSI/ISEA 207: American National Standard for High-Visibility Public Safety Vests
ANSI Z41: American National Standard for Personal Protection-Protective Footwear
ANSI Z87.1: American National Standard for Occupational and Educational Eye and Face Protection
ANSI Z89.1: American National Standard for Industrial Head Protection
ANSI Z359: American National Standard for Fall Protection
ASTM 2413 Standard Specification for Performance Requirements for Foot Protection
ASTM F 1117: Standard Specification for Dielectric Footwear
Animal Research, Subject Area
Asbestos, Subject Area
BNL Hazard Validation Tool, Safety and Health Services website
BNL Supplier Nonconformance (BSNC) Reporting and Tracking System, Procurement and Property Management website (Limited Access)
BNL Training and Development website
Beryllium, Subject Area
Biosafety in Research, Subject Area
Bloodborne Pathogens, Subject Area
Chemical Safety, Subject Area
Compressed Gas Cylinders and Related Systems, Subject Area
Cryogenics Safety, Subject Area
Electrical Safety, Subject Area
Explosives Safety, Subject Area
Fall Protection, Subject Area
Fire Safety, Subject Area
Graded Approach for Requirements, Subject Area
Guidance on Chemical Protective Gloves and Suit Selection Process, ESH Guide: Chemicals, Safety and Health Services website
Guidance on Disposable Gloves: "Splash Protection & Incidental Contact" for laboratory and fine work detail, ESH Guide: Personal Protective Equipment and Respirators, Safety and Health Services website
Guidance on Hard Hat Styles, Manner of Use, and Replacement, ESH Guide: Personal Protective Equipment and Respirators, Safety and Health Services website
Guidance on Lab Coats: Selecting, Obtaining, Using, Storing, and Cleaning, ESH Guide: Personal Protective Equipment and Respirators, Safety and Health Services website
Guidance on the Required & Recommended PPE Design, ESH Guide: Personal Protective Equipment and Respirators, Safety and Health Services website
Heat and Cold Stress, Subject Area
IH72200 Respirator Selection for Non-Radiological Hazards, SHSD Standard Operating Procedures and Controlled Documents/Records page, Safety and Health Services website
Inspections and Acceptance, Subject Area
Job Assessment Form (JAF), Occupational Medicine Clinic website
Laser Safety, Subject Area
Lead, Subject Area
Lifting Safety, Subject Area
Nanoscale Particle ESH, Subject Area
NIOSH National Personal Protective Technology Laboratory (NPPTL), Certified Equipment List (CEL) page, Searchable Certified Equipment List
Noise and Hearing Conservation, Subject Area
Pressure Safety, Subject Area
Respirator Protection Program Program Description
Standards of Performance

All staff and users shall identify, evaluate, and control hazards in order to ensure that work is conducted safely and in a manner that protects the environment and the public.

All staff and users shall ensure that they are trained and qualified to carry out their assigned responsibilities, and shall inform their supervisor if they are assigned to perform work for which they are not properly trained or qualified.

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compare the effective date of the printed copy to the effective date of the document online in SBMS.
This information applies to workers and Environmental Safety and Health Coordinators, Cognizant Space Managers, Research Space Managers, Safety and Health Representatives, Environmental Safety and Health Representatives, or other personnel that a line organization assigns to maintain the area-based PPE portion of the Hazard Information Placards.

This section applies to work areas at the BNL site only. It does not apply to:

- Areas that have no occupational hazards. Excluded areas typically include offices, conference rooms, lunch/break rooms, copier rooms, and office supply storage rooms.
- Contractor construction and renovation sites. Follow the site's Health and Safety Plan regarding personal protective equipment (PPE) use and postings.
- Radiological hazards posted areas. Consult the Entry and Egress for Areas Controlled for Radiological Purposes Subject Area and the Radiological Control Manual Program Description.

### 1. Area-based Personal Protective Equipment

The area-based Personal Protective Equipment (PPE) requirements are the minimum PPE necessary to protect all entrants from the hazards of typical operations conducted in the area. Hazard Information Placards (or alternative signs) are required for some areas as indicated in the Signs, Placards, and Labels for Environmental, Safety and Health (ESH) Hazards Subject Area. The posted PPE applies to everyone entering the area unless otherwise exempted (see exemptions below). The Hazard Validation Tool (HVT) is used to generate the area-based PPE requirements shown on the Hazard Information Placard. Area-based PPE requirements in the HVT address biological, chemical, unbound nanoscale particle, and physical hazards, such as abrasions, projectiles, and crush from dropped parts.

Some hazards (for example, noise, carcinogens, confined spaces, and radiological hazards) posting requirements are not completely addressed on the Hazard Information Placard. Additional hazard-specific posting/signs are used to specify the PPE for these hazards. These postings take precedence over the Hazard Information Placard’s area-based PPE requirements.

Regarding the area-based PPE listed on the Hazard Information Placard and other specific postings/signs, such as high noise or radiological postings:

- Workers who typically occupy the room are expected to wear the PPE described on the Hazard Information Placard and specific postings/signs at all times in the area.
- Trades who enter the area to perform work are expected to wear the equivalent to the PPE described on the Hazard Information Placard and specific postings/signs at all times (as defined by your ESH Representative/Coordinator). In addition to the PPE required for the work being performed. BNL laundered uniforms with long sleeve shirt and long pants may be substituted for a lab coat.
- All people entering the area are expected to comply with the PPE described on the Hazard Information Placard unless exempted as listed below.
- Doors that are locked and under the control of the typical occupants are considered “access controlled” for visitor and non-routine entrants to an area. These entrances do not need the Hazard Information Placard’s area-based PPE posting. If an unlocked point of entry is likely to be entered by un-escorted visitors, the entrance should be posted with the applicable area-based PPE requirements.
- Entry into an area to immediately retrieve and don PPE listed on the Hazard Information Placard is acceptable. If there are multiple entrances into a room, when practical, PPE should be stored near the primary entrance.

**Exemptions for the Hazard Information Placard area-based PPE requirements, with conditions:**

- Areas with no Hazard Validation Tool (HVT) hazards (such as offices, lunch/break rooms, conference rooms, copier rooms, and office supplies storage rooms) do not require the Hazard Information Placard. A Hazard Information Placard is optional at the discretion of the area owner.
- Contractor construction and renovation sites do not require area-based PPE requirements specified via the Hazard Information Placard. For these areas, area-based PPE requirements are designated by signage specified in the project’s Health and Safety Plan.
- During escorted tours, the area-based PPE requirements on the Hazard Information Placard can be temporarily suspended for the duration of the tour, if operations are stopped and hazards are mitigated. The area does not need to have the Hazard Information Placard’s PPE section hidden, flipped over, or removed during these brief periods of time.
- This exemption does not apply to audits, surveillances, and inspections where entrants may access or inspect hazards. This exemption may or may not be appropriate for all hazards-specific postings. This is determined on a case-by-case basis by the line organization in accordance with the requirements for the specific hazard indicated in the applicable subject area. Some examples of hazard-based decisions on suspending area-based PPE during tours are:
  - A noise area could be made quiet by turning off a machine;
A chemical lab could only be made acceptable for a visitor in sandals if all chemicals were stored behind barriers, such as flammable cabinets and closets.

This suspension of area-based PPE requirements for tours may not be applicable to all hazards, especially those where posting requirements and PPE are specified in another subject area. For example, a confined space cannot be exempted for a visitor, even if the hazards are removed.

**Required Procedure**

Do the following to implement the area-based PPE requirements at BNL:

1. The ESH Managers of line organizations ensure the area-based PPE requirements listed in the PPE Certifications in the [Hazard Validation Tool](https://example.com) are posted at main entrances and entrants comply with the requirements.
   - If an area is not certified in the HVT, contact the [PPE and Respirator Subject Matter Expert](https://example.com) to have an area evaluated.
2. Areas that require only long pants and enclosed-toed shoes do not require posting if work planning, training, access control, and/or escorting adequately informs entrants of these requirements.
   - Areas that require safety glasses, lab coats, and/or impact resistant shoes are to be posted by:
     - A Hazard Information Placard (HIP) or
     - An OSHA-compliant sign.
   - Areas that require other PPE, such as hard hats and hearing protectors, are to be posted by OSHA-compliant sign.
   - The HIP or sign(s) need to be posted at the primary entrance. Secondary entrances only need to be posted as necessary to ensure occupants and visitors entering areas are informed of the PPE requirements of an area. Postings on secondary entrances are not needed when there is electronic key access, locked entrances, or a work planning document and training that address the area-based PPE requirements.
   - Consult the exhibit [Details of Pre-determined Area-based PPE Certifications](https://example.com) for more information on pre-determined areas.

**Guidelines**

The BNL Hazard Validation Tool (HVT) is used to generate the Hazard Information Placard (HIP), which displays area-based PPE requirements determined in the PPE Certifications in the Hazard Validation Tool.

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**SUBJECT AREA PROCEDURE CONTENT**

This information applies to BNL staff, Guests, visitors, and users during research, general industry operations and maintenance activities with inhalation hazards.

**2. Operation-based Personal Protective Equipment**

The operation-based personal protective equipment (PPE), a.k.a. task-based PPE, requirements are listed in work planning documents (e.g., work permits, prescribed work procedures), and subject areas, and are the minimum PPE when certain hazards and operations are conducted. These
requirements are in addition to the area-based PPE described on the Hazard Information Placard(s).
The operation-based PPE requirement is targeted at providing information to the workers who are performing specific work and are not necessary when the specific task is not being performed. An example would be a welding helmet during arc-welding in a shop where safety glasses are the area-based PPE requirement.

**Required Procedure**

Follow these steps for use of PPE and respirators:

1. Work Planners initiate the requirements from the Work Planning and Controls for Experiments and Operations Subject Area to select the specific PPE for the operations (job/activity). Sources of selection information include:
   - Specific PPE requirements in similar work planning documents;
   - The subject area for a hazard;
   - The exhibit Supplemental Personal Protective Equipment (PPE) Requirements/Guidance;
   - The exhibit Requirements for Filtering Facepiece Respirator Use;
   - The exhibit Requirements for Respirators Used for Emergency Situations.

   If not covered by the above sources of requirements, for respirator selection, go to the section on Respirators.

2. Workers who use chemical protective equipment complete training based on the following:
   - Workers who use splash gloves: Hazard Communication (HP-IND-200) or Laboratory Standard (HP-IND-220) for those who use gloves for chemical protection from hazardous concentrations of chemicals.
   - Workers who use chemical protective immersion gloves and impervious full body suits: Chemical Protective Clothing User Training (HP-OSH-157) for those required to don body protective clothing and gloves in hazardous operations. It is recommended for all PPE users.

   See the BNL Training and Development website for courses.

3. Workers wear the PPE described in the work planning documents governing their work or a specified by their supervisor during worker-planned-work tasks.

4. Before using the equipment, workers check it according to training and manufacturer’s instructions:
   - Check gloves and suits for leaks, tears, and signs of degradation. Discard if not in working order;
   - Inspect hard hats for signs of damage or excessive wear. Replace if damaged or deteriorating. Replace after any event involving significant impact from a dropped object or impact with a hard surface.

   If PPE is defective, do not use it. If the equipment is defective because of a supplier-related defect, then notify Procurement and Property Management (PPM) through the BNL Supplier Nonconformance (BSNC) Reporting and Tracking System.

5. Workers and Supervisors provide feedback on potential program improvements or problems. Inform the Supervisor, ESH Coordinator, Facility Support Representative, Safety & Health Representative, or the PPE and Respirator Subject Matter Expert of any problems using the PPE or respirators and any suggestions for improvements to the BNL program.

**Guidelines**

Consult the Guidance on Disposable Gloves: “Splash Protection & Incidental Contact” for laboratory and fine work detail on the ESH Guide: Personal Protective Equipment and Respirators for the recommended way to use disposable gloves when handling chemicals.
This information applies to BNL staff, Guests, visitors, and users during research, general industry operations and maintenance activities with inhalation hazards.

3. Obtaining, Procuring, and Purchasing Personal Protective Equipment

Required Procedure

Some Personal Protective Equipment (PPE) has no restrictions on where it may be purchased and who may purchase it. Other PPE has restrictions on the process to obtain it. Follow the steps below for the correct acquisition of PPE.

1. Obtain generic PPE (e.g., non-prescription safety glasses, gloves, disposable suits and clothing, lab coats, face shields, hard hats, ear plugs, ear muffs) from the BNL store room, e-Procurement, purchase order, PeopleSoft requisition, or with BNL credit card. There are no restrictions on the method of obtaining generic PPE. However, safety glasses and face shields must bear the ANSI A87.1 designation. Consult the Guidance on Required & Recommended PPE Design in the ESH Guide: PPE and Respirators for details on the features of effective PPE.

2. Obtain the PPE listed below (categorized as ESSH&Q Risk Level A2 [Major] or A1 [Critical] in the Graded Approach for Requirements Subject Area) via BNL stores or by obtaining approval from the appropriate SME:
   - **Fall protection**: harnesses, lanyards, and accessories;
   - **Respiratory protection**: breathing air compressors, hoods and Grade D breathing air cylinders. Cylinders of compressed breathing air must meet the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989.
   - **Electrical safety**: electrical flash suits and gloves;
   - **Chemical safety**: Level A chemical protective suits.

3. Obtain **prescription safety glasses** using the electronic web form: Safety Glasses Authorization - BNL Form #2211. Form #2211 must be completed by the Department/Division ES&H Coordinator. Prescription safety glasses are selected and picked up at the Safety Shoes and Eyeglasses Office, ext. 2864, in Building 30. A new eye prescription must be submitted every two years and a maximum of one pair of glasses will be issued per fiscal year.

   When the safety glasses available from the Safety Glass and Safety Shoe Program Office cannot fulfill a special need, purchase prescription safety glasses:
   - With a web requisition; or
   - With petty cash reimbursement if approved by the Department/Division financial administrator.

   Safety glasses must bear the ANSI A87.1 designation.

4. Obtain **safety shoes** via e-procurement. Select the catalog Saf-Gard Safety Shoe Company and purchase a Safety Shoe Voucher. Shoes are picked up at the Safety Shoes and Eyeglasses Office, ext. 2864, in Building 30. The safety shoe voucher must then be submitted in a timely manner to the safety shoe representative in Building 30. Other shoes are available outside the standard program, which would be out of pocket at the employee’s expense. A maximum of two pair of shoes will be issued per fiscal year. Supervisors are responsible to manage the annual allotments.

   When the safety shoes available from the Safety Glass and Safety Shoe Program Office cannot fulfill a special need, purchase safety shoes:
   - With a BNL credit card only after obtaining approval of the Credit Card Program Administrator;
   - With petty cash reimbursement if approved by the Department/Division financial administrator.

   Safety shoes must bear the ASTM 2413 or ANSI Z41 designation. A composite toe is an acceptable alternative to steel-toe.

5. To obtain **respiratory protection** equipment, see the section on Respirators.

Guidelines

For guidance on the descriptions and proper design of PPE, consult Guidance on the Required & Recommended PPE Design in the ESH Guide: Personal Protective Equipment and Respirators.

For details on lab coat availability, consult Guidance on Lab Coats: Selecting, Obtaining, Using, Storing, and Cleaning in the ESH Guide: Personal Protective Equipment and Respirators.

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This information applies to BNL staff, Guests, visitors, and users during research, general industry operations and maintenance activities with inhalation hazards.

4. Using, Maintaining, Storing, and Disposing of Personal Protective Equipment

Required Procedure

1. Maintain personal protective equipment (PPE) and respirators in the manner specified in manufacturers' recommendations and training classes.
2. Handle and store contaminated PPE between uses during the day (i.e., during work breaks) according to manufacturer's instructions, applicable regulatory requirements for regulated areas, training, and the Operation-Based Protective Clothing Selection Form. Decontaminate or properly dispose of PPE at the end of use each day.
3. Dispose of PPE according to guidance from the Environmental Compliance Representative.
4. Lab coats which have been in contact with Unbound Nanomaterials (UNP) must be disposed of as hazardous waste. They are not to be laundered.

Guidelines

Guidelines on preventing heat stress when wearing PPE that covers all or most of the body are provided in the web-based training module Heat Stress Prevention (TQ-HEATSTRESS) (see the BNL Training and Development website) and the Heat and Cold Stress Subject Area.

Guidance on wearing short pants during hot weather is presented in Guidance on Short Pants in Hot Weather in the ESH Guide: Personal Protective Equipment.

Recommendations on lab coats are presented in Guidance on Lab Coats: Selecting, Obtaining, Using, Storing, and Cleaning in the ESH Guide: Personal Protective Equipment and Respirators.

Replace bicycle helmets after any event involving head impact in an accident.

Inspect hard hats periodically for signs of damage or excessive wear. Replace if damaged or deteriorating. Replace after any event involving significant impact from a dropped object or impact with a hard surface. Consult Guidance on Hard Hat Styles, Manner of Use and Replacement in the ESH Guide: Personal Protective Equipment.
This information applies to BNL staff, guests, visitors, and users during research, general industry operations and maintenance activities with inhalation hazards. See also the Respiratory Protection Program (RPP) of Brookhaven Science Associates Program Description. For contractors using respirators during construction activities with hazardous substances, consult the section on Contractor Use of Personal Protective Equipment and Respirators.

5. Respirators

Required Procedure
Staff, guests, visitors and users follow all sections of the PPE Subject Area; below are additional requirements for respirators. This section contains the following subsections:

- 5.1 Prepare for Respirator Use
- 5.2 Select Respirators
- 5.3 Obtain Respirators
- 5.4 Use Respirators
- 5.5 Clean Respirators
- 5.6 Dispose of Respirators

5.1 Prepare for Respirator Use

1. Workers who will use respirators complete annual training based on the following requirements:
   - Respirator - Voluntary User (TQ-RESP-VOLUNTARY): users of filtering facepieces and half mask air purifying-respirators (APRs) on a voluntary basis. The Voluntary Use of Respirators When Not Required By Regulations form documents the conveyance of required instructions for voluntary users. Submit the completed form to your Training Coordinator for entry into BTMS. Retain signed form for three years.
   - Respirator - Filtering Facepiece Respirators (TQ-FILTERING-RESP): users (required) of filtering facepiece respirators (dust masks); recommended for voluntary users.
   - Respirator - Air Purifying & Powered Air Purifying (HP-IND-301-W): all users (required and voluntary) of half face and full face mask air purifying respirators.
   - Respirator - Airline Respirator (TQ-AIRLINE-RESP): all users of hood, helmet, half face and full face mask respirators from compressor or fixed location airline sources.
   - Respirator - Self-Contained Breathing Apparatus: all users of SCBA. Training is provided by the line organization or outside training provider.
   - Respirator Fit Test and Familiarization Practical (HP-IND-317): users (required) of half face and full face mask APRs or powered air purifying-respirators (PAPRs) and filtering facepieces; available for voluntary users.
   - Respirator - Escape Devices: all users of emergency escape devices. Training is by the line organization or outside training provider.
   - Respirator Issuers (HP-IND-313RCT): Issuers of Respirators for Radiological Control Technicians (RCTs)

See the BNL Training and Development website for courses.

2. When work requires the use of respirators (mandatory use), workers obtain medical approval prior to fit testing and respirator use. The Environmental Safety and Health (ESH) Coordinator and Supervisor initiate medical approval to wear the respirators by:
   - Completing the BNL Employee Respirator Medical Approval Form or the equivalent in the online Job Assessment Form (JAF) and
   - Submitting it to the Occupational Medicine Clinic (OMC); and
   - Completing an OMC Job Assessment Form (JAF) indicating the conditions requiring respiratory protection.

See the Occupational Medicine Clinic website for instructions.

3. Workers who use tight fitting facepiece respirators complete the annual fit testing provided by the BNL Respirator Fit Tester for the appropriate type of respiratory protection equipment prior to using the respirator. Fit testing is required for the following:
   - Mandatory use of filtering facepiece respirators (FFR);
   - Mandatory use of half face and full face mask air purifying, airline, and SCBA respirators.

Note: Fit testing is not required for voluntary respirator users, but will be provided upon request.

5.2 Select Respirators

1. Work Planners initiate the requirements from the Work Planning and Controls for Experiments and Operations Subject Area to select the specific PPE for the operations (job/activity). Sources of selection information include:
   - Specific PPE requirements in similar work planning documents;
5.6 Dispose of Respirators

1. Dispose of PPE and respirator cartridges according to guidance from the Environmental Compliance Representative.

5.5 Clean Respirators

1. Clean respirators in a manner that meets the requirements in the OSHA Respirator Standard 29 CFR 1910.134 Appendix B-2. See the exhibit OSHA Requirements on Respirator Cleaning.
   - For radiological hazards: contact the Facility Support Representative for guidance.
   - For non-radiological hazards: Decontaminate the exterior of the respirators. Store respirators in a sanitary manner (plastic bag or case) in a contamination-free area. Return the used mask in the storage bag to the BNL Approved Respirator Issuer according to the instructions and schedule listed on the Respirator Selection Form.

5.4 Use Respirators

1. Before using the equipment, workers check it according to training and manufacturer's instructions:
   - Check respirator face seals, valves, cartridges, and straps. Perform a user seal check on respirators at each donning.
   - If PPE is defective, do not use it. If the equipment is defective because of a supplier-related defect, then notify Procurement and Property Management (PPM) through the BNL Supplier Nonconformance (BSNC) Reporting and Tracking System.
   - Workers wear the PPE described in the work planning documents governing their work or a specified by their supervisor during worker-planned-work tasks.
   - Handle and store contaminated respirators between uses during the day (i.e., during work breaks) according to manufacturer's instructions, applicable regulatory requirements for regulated areas, training, and the Respirator Selection Form. Decontaminate or properly dispose of PPE at the end of use each day.
   - Workers and Supervisors provide feedback on potential program improvements or problems. Inform the Supervisor, ESH Coordinator, Facility Support Representative, Safety & Health Representative, or the PPE and Respirator Subject Matter Expert of any problems using the PPE or respirators and any suggestions for improvements to the BNL program.

5.3 Obtain Respirators

1. Obtain respiratory protection equipment as follows:
   - Filtering facepieces (dust masks) from BNL store room, purchase order, BNL credit card, or e-procurement;
   - Respirator cartridges from the BNL store room, e-procurement, web requisition, or BNL credit card;
   - Respirator elastomeric facepieces (full face and half face) by contacting a BNL Approved Respirator Issuer (see the Definitions section).

BNL Approved Respirator Issuers supply the respirator equipment specified on the Respirator Selection Form or by Radiological Control Division procedures for radiological and nuclear hazards. Respiratory protective equipment must be on the NIOSH NPPTL Certified Equipment List or approved in another BNL Respiratory Protection Program Administrator certification process.

BNL issued reusable respirator masks will be provided in the following order:
   - Decontaminated and sanitized respirator masks will be re-issued when available.
   - When no masks are available for re-issue:
     - Obtain new respirators from the BNL stores when available;
     - When not available, new respirators will be ordered via a web requisition submitted by the Facility Support Representative.

Purchasing new models of respirators (that require fit testing) must be approved by the BNL Respiratory Protection Program Administrator so that masks and adapters are obtained for fit testing.

Cylinders of compressed breathing air must meet the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989 (see Step 2 in the Obtaining PPE section).

2. The Facility Support Representative or Safety & Health Representative determines the appropriate respiratory protective equipment using the following:
   - Chemical Hazards: Safety and Health Services procedure IH72200 Respirator Selection for Non-Radiological Hazards and completes a Respirator Selection Form to specify the type of face-piece, cartridge, End-of-Service Life Indicator and/or cartridge change-out schedule;
   - Radiological Hazards: Radiological Control Division procedure FS-SOP-4002 Selection and Issuance of Respiratory Protection for Radiological Hazards on the FS Standard Operating Procedures page.

The subject area for a hazard:
The exhibit Supplemental Personal Protective Equipment (PPE) Requirements/Guidance;
The exhibit Requirements for Filtering Facepiece Respirator Use;
The exhibit Requirements for Respirators Used for Emergency Situations.

If not covered by the above sources of requirements, then document respirator selection by completing Step 2.

2. The Facility Support Representative or Safety & Health Representative determines the appropriate respiratory protective equipment using the following:
   - Chemical Hazards: Safety and Health Services procedure IH72200 Respirator Selection for Non-Radiological Hazards and completes a Respirator Selection Form to specify the type of face-piece, cartridge, End-of-Service Life Indicator and/or cartridge change-out schedule;
   - Radiological Hazards: Radiological Control Division procedure FS-SOP-4002 Selection and Issuance of Respiratory Protection for Radiological Hazards on the FS Standard Operating Procedures page.

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SUBJECT AREA PROCEDURE CONTENT

Personal Protective Equipment (PPE) and Respirators

Effective Date: Dec 29, 2017
Periodic Review Due: Dec 29, 2022

This information applies to contractors during construction activities with hazardous substances.

6. Contractor Use of Personal Protective Equipment and Respirators

If the scope of a project, which was initiated without the need for respiratory protection, changes and necessitates respiratory protection, hazardous operations must be stopped and restarted only after the contractor has instituted a BNL-approved program.

Required Procedure

1. The BNL organization contracting the services of a contractor ensures that:
   - The need for Personal Protective Equipment (PPE) and respirators for work in areas with BNL area-based PPE requirements is specified in the bid package;
   - The bid package specifies that the contractor must comply with OSHA 29 CFR 1910.134 (29 CFR 1926.103) and ANSI Z88.2 requirements if their operations require respiratory protection;
   - The bid package specifies that the contractor must comply with OSHA 29 CFR 1926 Subpart E for other PPE.

2. The BNL organization contracting the services of a contractor who will use respirators:
   - Requires the contractor to submit a written Respiratory Protection Program (or equivalent) that meets all the requirements in OSHA 29 CFR 1910.134 (29 CFR 1926.103) and ANSI Z88.2 requirements to BNL prior to respirator use. Ensure the Program includes:
     - Designation of a Respiratory Protection Program Administrator;
     - Types of respirators, face-pieces, cartridges, End-of-Service Life Indicators, and cartridge change-out schedule based on the hazards present in the work area;
     - Measurement or assessment of potential airborne concentration by a qualified person;
     - Processes to ensure respirators are properly worn, inspected, maintained, cleaned and stored throughout the project;
     - Processes to ensure that adequate quality, quantity, and flow of breathing air is provided for atmosphere-supplying respirators to users;
   - Ensures the contractor maintains the following documentation for each worker wearing respiratory protective equipment:
     - Employee Respirator Medical Approval by a licensed health care provider;
     - Employee training on the use and limitation of the respiratory equipment to be used;
     - Fit Testing on the equipment to be used.
   - Monitors the implementation of the respiratory protection program by the contractor, by:
     - Ensuring the contractor follows the T&C (Terms & Conditions) and 0900 Construction Specifications (or equivalent);
     - Ensuring the contractor follows their Respiratory Protection Program.
     - Inspecting respirator usage and contractor on-site cleaning facilities at start-up and at least annually.
   - Stops work by contractors that fail to comply with their written program (i.e. Health & Safety Plan and Respiratory Protection Program).
   - Ensures that two weeks prior to beginning work requiring respiratory protection, the contractor notifies the Construction Safety Engineer of the use of respirators via the form Notification of Respirator Use by a Contractor.
   - Documents the oversight of the contractor’s operations per the section Oversight of Personal Protective Equipment and Respirator
3. When a contractor will use BNL-supplied respiratory protection equipment, the BNL organization contracting the services ensures:
   - The contractor has a valid written Respiratory Protection Program (or equivalent) that specifies the respirators to be used;
   - Workers have completed respiratory protection training;
   - Workers have received medical approval to use respiratory protection equipment from a licensed health care provider.
   - Workers have obtained fit testing for the respiratory protection equipment BNL will issue. Contractors must provide documentation of fit testing to BNL before the respiratory equipment is issued.
   - Workers return used masks to BNL according to the instructions of the BNL issuer.

The BNL organization contracting the services of a contractor who will use BNL-supplied respiratory protection equipment will coordinate with a BNL-approved Respiratory Issuer to supply the respiratory equipment specified on the contractor's Respiratory Protection Program.

4. As respirators are used by contractors, the worker's supervisor, the contractor's Respiratory Protection Program Administrator, and the BNL organization contracting the services ensure:
   - Workers inspect the face seal, valves, cartridges, and straps before each donning of the equipment and perform a user seal check at each donning of the equipment;
   - Workers properly wear, maintain, and store the equipment.

---

7. Oversight of Personal Protective Equipment and Respiratory Protection Programs

High risk personal protective equipment (PPE) is categorized as ESSH & Q Risk Level A2 (Major) or A1 (Critical) as described in the [Graded Approach](#) Subject Area. The high risk equipment includes:

- Fall protection: harnesses, lanyards, and accessories;
- Respiratory protection: breathing air compressors, masks and hoods;
- Electrical Safety: Electrical flash suits and gloves;
- Chemical Safety: Level A chemical protective suits.

**Required Procedure**

1. BNL supervisors provide oversight of the proper use of respirators and the status of their worker's physical condition to wear a respirator (new facial hair, new scarring, drastic change in body weight, etc.). Supervisors provide daily supervision of the use of PPE and respirators by BNL workers.
2. BNL line organizations conduct and document inspections of High Risk PPE (A1 and A2) items upon receipt for compliance with regulatory mandated design specification requirements and the Inspections and Acceptance Subject Area requirements. Line organizations establish a program to inspect and maintain A1 and A2 PPE items that have a limited service/shelf life according to the requirements recommended by the manufacturer or set in a BNL Subject Area (e.g., NFPA 70E, Electrical Safety: expiration date of gloves). If PPE is defective, do not use it. If A1 and A2 equipment is defective because of a supplier-related defect, notify Procurement and Property Management (PPM) through the BNL Supplier Nonconformance (BSNC) Reporting and Tracking System.

3. BNL line organizations conduct and document inspections of respirators that are used for emergencies as per the exhibit Requirements for Respirators Used for Emergency Situations.

4. BNL contracting organizations periodically review contractor’s record of their respiratory protection program and ensure that the contractor:
   - Provides daily supervision of the use of PPE and respirators;
   - Conducts formal inspections of respirator usage, storage and on-site cleaning facilities at start-up and at least monthly. Ensure the inspections are documented via the Respirator Cleaning Facility Inspection Record and Respiratory Protection Program Periodic Oversight Record, or equivalent.

5. The Safety and Health Services Division’s Respiratory Protection Program Administrator provides periodic surveillance of the BNL Respiratory Protection Program. The frequency is set in the Safety & Health Services Division (WS&H/Facility Safety) 5-yr Assessment Plan.

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Reporting Obligations

This subject area does not contain reporting obligations.

External/Internal Requirements

BNL has to abide by all applicable Prime Contract clauses, DOE directives, industry standards, as well as Federal, state, and local laws. BNL develops its policies and procedures based on an evaluation of these external requirements. This Subject Area implements the following requirements:

<table>
<thead>
<tr>
<th>Requirement Number</th>
<th>Requirement Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 CFR 830, Subpart A</td>
<td>Energy, Nuclear Safety Management, Quality Assurance Requirements</td>
</tr>
<tr>
<td>10 CFR 851</td>
<td>Worker Safety and Health Program</td>
</tr>
<tr>
<td>29 CFR 1910</td>
<td>Labor/Occupational Safety and Health Standards</td>
</tr>
<tr>
<td>29 CFR 1926</td>
<td>Labor/Safety and Health Regulations for Construction</td>
</tr>
<tr>
<td>ANSI Z 49.1</td>
<td>Safety in Welding, Cutting and Allied Processes</td>
</tr>
<tr>
<td>ANSI Z 88.2</td>
<td>Respiratory Protection</td>
</tr>
<tr>
<td>BSA Contract No. DE-SC0012704 - Clause C.4</td>
<td>Statement Of Work</td>
</tr>
<tr>
<td>BSA Contract No. DE-SC0012704 - Clause H.27 (ACT)</td>
<td>Non-Federal Agreements for Commercializing Technology (Pilot) (ACT)</td>
</tr>
<tr>
<td>BSA Contract No. DE-SC0012704 - Clause H.3</td>
<td>Contractor Assurance System</td>
</tr>
<tr>
<td>O 414.1D Admin Chg 1 (May 8, 2013)</td>
<td>Quality Assurance</td>
</tr>
</tbody>
</table>
Training

To ensure your training is up-to-date, consult the Training & Development Web site or contact your Department/Division Training Coordinator. The table below indicates the specific training requirements for PPE and Respirators.

### Personal Protective Equipment (PPE) Training

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course No.</th>
<th>Audience</th>
<th>Delivery Method</th>
<th>Requalification Period (months)</th>
<th>JTA Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Protective Clothing User Training</td>
<td>HP-OSH-157</td>
<td><strong>Required</strong> for workers who use chemical protective immersion gloves and impervious full body suits; <strong>Recommended</strong> for all PPE users.</td>
<td>Online</td>
<td>None</td>
<td>GE-70</td>
</tr>
<tr>
<td>Hazard Communication/Laboratory Standard</td>
<td>HP-IND-200</td>
<td><strong>Required</strong> for workers who use splash gloves for protection from hazardous concentration of chemicals</td>
<td>Online</td>
<td>24</td>
<td>GE-70A</td>
</tr>
<tr>
<td>Heat Stress Prevention</td>
<td>TQ-HEATSTRESS</td>
<td><strong>Recommended</strong> to prevent heat stress when wearing PPE that covers all or most of the body</td>
<td>Online</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

### Respirator Training

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course No.</th>
<th>Audience</th>
<th>Delivery Method</th>
<th>Requalification Period (months)</th>
<th>JTA Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respirator - Air Purifying &amp; Powered Air Purifying</td>
<td>HP-IND-301-W</td>
<td><strong>Required</strong> for all users (required and voluntary) of half face and full face mask air purifying respirators</td>
<td>Online</td>
<td>12</td>
<td>GE-55A</td>
</tr>
<tr>
<td>Respirator - Airline Respirator</td>
<td>TQ-AIRLINE-RESP</td>
<td><strong>Required</strong> for all users of hood, helmet, half face and full face mask respirators from compressor or fixed location airline sources</td>
<td>Online</td>
<td>12</td>
<td>None</td>
</tr>
<tr>
<td>Respirator - Escape Devices</td>
<td>Not a BNL course</td>
<td><strong>Required</strong> for all users of emergency escape devices</td>
<td>By line organization or outside organization</td>
<td>12</td>
<td>None</td>
</tr>
<tr>
<td>Respirator - Filtering Facepiece Respirators</td>
<td>TQ-FILTERING-RESP</td>
<td>Required for all users of filtering facepiece respirators (dust masks); Recommended for voluntary users</td>
<td>Online</td>
<td>12</td>
<td>GE-55F</td>
</tr>
<tr>
<td>Respiration Fit Test and Familiarization Practical</td>
<td>HP-IND-317</td>
<td>Required for all users of half face and full face mask APRs or powered air purifying-respirators (PAPRs) and filtering facepieces; Available for voluntary users</td>
<td>Hands-on session</td>
<td>12</td>
<td>FE-55E</td>
</tr>
<tr>
<td>Respirator Selector - Non-Rad</td>
<td>HP-IHP-72200</td>
<td>Required for those who select respirator protective equipment for non-radiological hazards</td>
<td>Exam</td>
<td>12</td>
<td>HP-72A</td>
</tr>
<tr>
<td>Respirator Selector - Rad</td>
<td>FS-SOP-4002</td>
<td>Required for those who select respirator protective equipment for radiological hazards</td>
<td>Classroom</td>
<td>12</td>
<td>RR-15</td>
</tr>
<tr>
<td>Respirator Issuers</td>
<td>FS-SOP-4002</td>
<td>Required for those who issue respirator protective equipment</td>
<td>Classroom</td>
<td>12</td>
<td>RP-15</td>
</tr>
<tr>
<td>Respirator - Voluntary User</td>
<td>TQ-RESP-VOLUNTARY</td>
<td>Required for all voluntary users of filtering facepieces and half mask air purifying-respirators (APRs); Read and sign form (see Section 5.1)</td>
<td>Read and sign form (see Section 5.1)</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

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Questions/Comments
## Personal Protective Equipment (PPE) and Respirators

**Effective Date:** Dec 29, 2017  *(Rev 13.0)*  
**Periodic Review Due:** Dec 29, 2022

### Revision History

<table>
<thead>
<tr>
<th>Revision Number</th>
<th>Revision Type</th>
<th>Revision Date</th>
<th>Revision Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.0</td>
<td>Major</td>
<td>12/29/2017</td>
<td>The subject area was completely reviewed, updated, and published in the new format.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Information was added to explain the purpose of area-based and operation-based PPE. Requirements for area-based PPE were consolidated from various exhibits into the Area-Based PPE section.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- In the section on Obtaining PPE, the required steps for obtaining safety glasses and safety shoes were updated to align with current practices.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- A new section on Respirators was created that consolidates information on respirators from other sections. A link to the Respiratory Protection Program (RPP) of Brookhaven Science Associates was added.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- The section on Contractor Use of PPE was streamlined and revised to state that BNL no longer provides respiratory training or fit testing for contractors.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- The exhibit Area-based Personal Protective Equipment (PPE) Requirements was updated and re-named Details of Pre-determined Area-based PPE Certifications.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- The exhibit Operation-based Personal Protective Equipment (PPE) Requirements was updated and re-named Supplemental Personal Protective Equipment (PPE) Requirements/Guidance.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- The Area-based PPE Certification Form was deleted since it is now part of the Hazard Validation Tool.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- The Non-BNL Employee Respirator Medical Approval Form was deleted.</td>
</tr>
<tr>
<td>12.0</td>
<td>Major</td>
<td>03/31/2016</td>
<td>This was a major revision and review to align the subject area with the personal protective equipment (PPE) certifications in the Hazard Validation Tool. Referenced links to guidance/recommendations in the ESH Guide: Personal Protective Equipment and Respirators were incorporated where applicable. The section Obtaining, Procuring, and Purchasing Personal Protective Equipment was updated to better define the options for each type of PPE. The section Use of Respiratory Protection Equipment by Contractors was expanded to add the new subsection 5.1 Respiratory Protection Programs on Construction Projects and subsequent subsections were renumbered. The following exhibits were removed from the subject area and moved to the ESH Guide: Personal Protective Equipment and Respirators: Guidelines on Hard Hat Replacement, Style and Manner of Use; Lab Coat Ordering and Laundering; Lab Coat Use and Storage; and PPE Descriptions and Design Requirements Standards.</td>
</tr>
<tr>
<td>11.2</td>
<td>Minor</td>
<td>06/09/2015</td>
<td>This was a minor revision to remove the obsolete Area-Based PPE Certification Form. It was replaced by the electronic version of the same form, which is correctly linked in section 1, step 2, to the BNL Hazard Validation Tool.</td>
</tr>
<tr>
<td>11.1</td>
<td>Minor</td>
<td>04/04/2014</td>
<td>The subject area was completely reviewed and minor changes were made to clarify the processes in section 2. Planning for Use of Operation-Based Personal Protective Equipment, step 5; section 4. Using, Maintaining, Storing, and Disposing of Personal Protective Equipment, step 3; and section 6. Oversight of Personal Protective Equipment and Respiratory Protection Programs, step 1. The exhibit Area-Based Personal Protective Equipment (PPE) Requirements was revised to clarify the proper clothing option for the lower extremities.</td>
</tr>
</tbody>
</table>
### Table of Changes

<table>
<thead>
<tr>
<th>Revision</th>
<th>Type</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.0</td>
<td>Major</td>
<td>12/11/2012</td>
<td>In section 1. Determining Area-Based Personal Protective Equipment Requirements (formerly Planning for Area-Based Personal Protective Equipment Requirements), changes were made to address corrective actions regarding Area-Based PPE requirements. The exhibit Area-Based PPE Requirements and the Area-Based PPE Certification Form were revised to address “pre-determined” PPE areas. Changes were made to section 4. Using, Maintaining, Storing, and Disposing of Personal Protective Equipment and a link to the new exhibit Guidelines on Hard Hat Replacement, Style and Manner of Use was added to the Guidelines section. These changes address requirements and recommendations regarding the inspection and replacement of hard hats and bicycle helmets.</td>
</tr>
<tr>
<td>10.4</td>
<td>Minor</td>
<td>01/05/2012</td>
<td>The Area-Based PPE Certification Form was revised to enable the form to be saved as a controlled electronic record and to streamline the process for authorizing area-based PPE certifications.</td>
</tr>
<tr>
<td>10.3</td>
<td>Minor</td>
<td>09/15/2011</td>
<td>In the section Obtaining, Procuring, and Purchasing Personal Protective Equipment, steps 4 and 5 were revised to update text and the link to Safety Glasses Authorization - BNL Form #2211 and to remove the sample of the Safety Glasses Authorization - BNL Form #2211 from the subject area.</td>
</tr>
<tr>
<td>10.2</td>
<td>Minor</td>
<td>06/28/2011</td>
<td>The exhibit Lab coat Ordering and Laundering was revised to correct an out-of-date financial account number for the laundering of BNL-owned lab coats. The correct number was added.</td>
</tr>
<tr>
<td>10.1</td>
<td>Minor</td>
<td>06/10/2011</td>
<td>In the exhibit Lab Coat Ordering and Laundering, Table 1 was updated with new item numbers for ordering lab coats via e-procurement.</td>
</tr>
<tr>
<td>10.0</td>
<td>Major</td>
<td>05/24/2011</td>
<td>This was a major revision to the subject area and the following changes were made:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• In the section Planning for Area-Based Personal Protective Equipment Requirements, information was added on using the Hazard Validation Tool to enter and post area-based PPE requirements on the Hazard Information Placard/Emergency Information Placard.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• In the section Planning for Use of Operation-Based Personal Protective Equipment, the description of the methods for determining the appropriate respiratory protective equipment used by ESH professionals was revised.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• In the section Obtaining, Procuring, and Purchasing Personal Protective Equipment, the description of Grade D breathing air was added to step 1; the steps on purchasing PPE and respiratory protection were revised; and the steps on procurement of prescription safety glasses and safety toe shoes were updated.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Information on OSHA Respirator Standard Appendix B-2 Respirator Cleaning Requirements was added to the section Using, Maintaining, Storing, and Disposing of Personal Protective Equipment.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• The section Contractor use of Respiratory Protection was expanded to include more details on requirements for BNL contracting organizations who manage contractors using respirators.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• The new section Oversight of Personal Protective Equipment and Respiratory Protection Programs was added to provide more detail on the oversight of BNL and contractors’ respiratory protection programs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The exhibit OSHA Requirements on Respirator Cleaning was added to the subject area and the exhibit Instructions for Using Respirators When Not Required By Regulations was removed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A minor revision was made to the Area-Based PPE Certification Form the Machine/Technical area was split into two area types– Machine/Technical Shop – Heavy and Machine/Technical Shop – Light. The following new forms were added: Notification of Respirator Use By a Contractor; Respirator Cleaning Facility Inspection Record; Respiratory Protection Program Periodic Oversight Record; and Voluntary Use of Respirators When Not Required By Regulations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Two procedures were added to describe the BNL operation- and area-based PPE requirements.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A new exhibit was added that defines the area-based PPE requirements for selected work areas.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A new form was added for the certification of the area-based PPE requirements when the PPE is different from that stated in the exhibit.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A new exhibit was added that describes the policy on the wearing and storage of Lab coats.</td>
</tr>
<tr>
<td>9.0</td>
<td>Major</td>
<td>05/03/2011</td>
<td>The exhibit Lab Coat Ordering and Laundering was revised to provide more details about the rental, purchasing, and laundering processes.</td>
</tr>
<tr>
<td>8.1</td>
<td>Minor</td>
<td>01/28/2011</td>
<td>This was a minor revision to update links and clarify wording throughout the subject area.</td>
</tr>
<tr>
<td>8.0</td>
<td>Major</td>
<td>01/19/2011</td>
<td>The following major changes were made:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Two procedures were added to describe the BNL operation- and area-based PPE requirements.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• A new exhibit was added that defines the area-based PPE requirements for selected work areas.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• A new form was added for the certification of the area-based PPE requirements when the PPE is different from that stated in the exhibit.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• A new exhibit was added that describes the policy on the wearing and storage of Lab coats.</td>
</tr>
<tr>
<td>7.0</td>
<td>Major</td>
<td>06/21/2010</td>
<td>In this major revision, the exhibit Lab Coat Ordering and Laundering was updated to reflect changes in the acquisition and laundering of lab coats.</td>
</tr>
<tr>
<td>6.0</td>
<td>Major</td>
<td>06/03/2010</td>
<td>In the exhibit PPE Descriptions and Design Requirements Standards, section 1. Body Protection was revised with additional input on lab coats. Section 7. Recommendations for PPE Fabrics, was added to include flame resistance for fabric of construction for PPE.</td>
</tr>
<tr>
<td>5.0</td>
<td>Major</td>
<td>04/22/2010</td>
<td>This is a major revision that merged the Respiratory Protection and Personal Protective Equipment Subject Areas into a single, unified document titled Personal Protective Equipment and Respirators Subject Area (formerly the Personal Protective Equipment Subject Area).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>In this revision, the policy on filtering facepieces was significantly revised to allow the use for biological hazards and substances with an occupational exposure limit.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The section Using, Maintaining, Storing, and Disposing of Personal Protective Equipment and Respirators was renamed and revised to include respiratory protection. The section Obtaining and Maintaining QA1 &amp; QA2 Personal Protective Equipment was replaced by the new section Use of Respiratory Protection Equipment by Contractors Use of Respiratory Protection Equipment by Contractors. The term and definition for high risk personal protective equipment (PPE) was added to the Definitions section. The new exhibits Requirements for Filtering Facepiece Respirator Use and Requirements for Respirator Used for Emergency Situations were added.</td>
</tr>
</tbody>
</table>
### 4.3 Minor 06/29/2009
Minor changes were made to bring the subject area into alignment with the revision to the Fire Safety Subject Area. The exhibit Personal Protective Equipment (PPE) Requirements for Specific Work was updated and soldering was added to the table as a topic with links to the Fire Safety Subject Area and the section Personal Protective Equipment. The exhibit PPE Descriptions and Design Requirements Standards was updated to delete “welding helmet” from section 2. Eye Protection and the description for Safety shoe (impact resistant, safety toe) in section 3. Foot Protection was modified.

### 4.2 Minor 06/12/2009
This minor revision was done to close out the corrective action for ISM/Safety Improvement Project Plan Corrective Action, Corrective Action C-1.2 – Review and revise SBMS documents and HPI concerns. The section Using, Maintaining, Storing, and Disposing of Personal Protective Equipment was revised to add a step that links back to the section Planning for and Preparing to Use Personal Protective Equipment to include work planning before proceeding with work requiring PPE. The exhibit Personal Protective Equipment (PPE) Requirements for Specific Work Additional and links were added to sections and exhibits in the following subject areas: Asbestos, Traffic Safety, Marine Safety, Compressed Gas Cylinders and Related Systems, Explosives Safety, Lifting Safety, Interim Procedure Number: 2006-001 (Approach to Nanomaterial ESH), and Walking and Working Surfaces. In the same exhibit, a link was also added to the Radiological Control Manual Program Description.

### 4.1 Minor 05/29/2009
Additional links to sections and exhibits in the Asbestos, Beryllium, Cryogenics Safety, and Noise and Hearing Conservation Subject Areas were added to the exhibit Personal Protective Equipment (PPE) Requirements for Specific Work.

### 4.0 Major 05/21/2009
The new exhibit Personal Protective Equipment (PPE ) Requirements for Specific Work was added to the subject area as part of the corrective action for ISM/Safety Improvement Project Plan Corrective Action, Corrective Action C-1.2 – Review and revise SBMS documents and HPI concerns. The Safety Glasses Authorization - BNL Form #2211 was updated and formerly titled the Safety Shoes or Glasses Authorization - BNL Form #2211.

### 3.0 Major 10/29/2008
This subject area was completely reviewed and the following major changes were made:
- The Introduction and the sections were shortened to remove information not pertinent to the line organization’s implementation of PPE selection and use.
- Wording was revised to eliminate Human Performance error traps throughout the subject area and redundancy of requirements.
- A new section Obtaining and Maintaining QA1 & QA2 Personal Protective Equipment was created which centralized fragmented information from the other sections.
- The exhibits BNL Handbook on Personal Protective Equipment Selection and Use, Generic Hazard Assessments, and Specific Hazard Assessments were replaced with the exhibit PPE Descriptions and Design Requirements Standards.
- The job title Industrial Hygiene Representative was changed to Safety & Health Representative.

### 2.4 Minor 08/30/2007
The BNL Handbook on Personal Protective Equipment (PPE) Selection and Use was revised as part of a corrective action and the photo of the lab coat was updated to provide clarification on what is considered proper PPE attire at BNL.

### 2.3 Minor 08/27/2007
The exhibit Lab Coat Ordering and Laundering was added to clarify the lab coat laundering process and a link to the new exhibit was added in the section Using and Disposing of Personal Protective Equipment. References in the BNL Handbook on Personal Protective Equipment (PPE) Selection and Use, section 1A: Types of Protective Equipment were updated.

### 2.2 Minor 07/25/2007
The link to the exhibit Screening Guidelines for Work Planning & Control and Application of the Quality Graded Approach in the Work Planning and Control for Experiments and Operations Subject Area was changed to the exhibit Application of the Graded Approach in the Graded Approach for Quality Requirements Subject Area. References to ESH&Q Risk Levels were changed to ESSH&Q Risk Levels.

### 2.1 Minor 06/19/2007
The PPE recommendations/requirements for cryogens were removed from the Generic Hazard Assessments exhibit. See the Cryogenics Subject Area for PPE requirements for cryogens.

### 2.0 Major 06/12/2006
Section 1B. Electrical Safety Hazard Body Protective Equipment was removed from the exhibit BNL Handbook on Personal Protective Equipment (PPE) Selection and Use and the information was included in the new Appendix VIII. Personnel Protective Equipment (PPE) for Electrical Work in ESH 1.5.0 Electrical Safety. Links to Appendix VIII were added to flame-resistant clothing and electrical flash suit in section 1A: Types of Protective Equipment.

### 1.4 Minor 05/04/2006
The exhibit Personal Protective Equipment (PPE) Selection and Use was revised to address the concern on the reduction in fire retardant properties to clothing when insect repellent is applied.

### 1.3 Minor 03/01/2005
The exhibit BNL Handbook on Personal Protective Equipment (PPE) Selection and Use was revised to update the tables in Section 1B: Electrical Safety Body Protective Equipment from the 2000 edition of NFPA 70E to the current 2004 edition.

### 1.2 Minor 03/12/2004
Minor Change.

### 1.1 Minor 01/13/2004
Minor Change.

### 1.0 Minor 11/21/2003
This subject area provides an overview of the BNL Personal Protective Equipment (PPE) Program and sets forth the elements to implement the regulatory requirements in OSHA Title 29 of the Code of Federal Regulations Part 1910.132 – 140. The purpose of this subject area is to establish requirements on personal protective equipment (for body, eye, face, head, foot, and hand) in operations with chemical, physical, or biological hazards. This subject area replaces ESH Standard 1.16.0, Personal Protective Equipment.
NOTE: The dates for "Major Revisions" match the Subject Area Effective Date. Major and/or Minor revisions may not always match with the "Last Modified Date", since this date could reflect changes to links or spelling. Records of changes are maintained in the SBMS documentation for each subject area.

The only official copy of this document is this online version in SBMS.

Before using a printed copy, verify that it is the most current version:
compare the effective date of the printed copy to the effective date of the document online in SBMS.
## Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>air purifying-respirator (APR)</td>
<td>A respirator with an air-purifying filter or cartridge that removes specific air contaminants by passing ambient air through the air-purifying element.</td>
</tr>
<tr>
<td>atmosphere-supplying respirator</td>
<td>A respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.</td>
</tr>
<tr>
<td>authorized respirator selector</td>
<td>A person qualified, as per requirements of the Respiratory Protection Program Administrator, to select and specify the appropriate respiratory protection equipment based on an evaluation of the work environment.</td>
</tr>
<tr>
<td>BNL Approved Respirator Issuer</td>
<td>A person qualified, as per requirements of the Respiratory Protection Program Administrator, to issue respiratory protection equipment to BNL users.</td>
</tr>
<tr>
<td>emergency situation</td>
<td>Any occurrence, such as equipment failure, rupture of containers, or failure of control equipment that may result or results in an uncontrolled significant release of an airborne contaminant.</td>
</tr>
<tr>
<td>End-of-Service-Life Indicator (ESLI)</td>
<td>A system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.</td>
</tr>
<tr>
<td>filtering face piece</td>
<td>A negative pressure particulate respirator with a filter as an integral part of the face piece or with the entire face piece composed of the filtering medium (e.g., dust mask).</td>
</tr>
<tr>
<td>fit factor</td>
<td>A quantitative estimate of the fit of a particular respirator to a specific individual; it typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.</td>
</tr>
<tr>
<td>fit test</td>
<td>The use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual.</td>
</tr>
<tr>
<td>high efficiency particulate air (HEPA)</td>
<td>A filter that is at least 99.97% efficient in removing monodispersed particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.</td>
</tr>
</tbody>
</table>
| high risk personal protective equipment (PPE) | PPE categorized as ESSH&Q Risk Level A2 (Major) or A1 (Critical) in the Graded Approach for Requirements Subject Area. The high risk equipment includes:  
  - Fall protection: harnesses, lanyards, and accessories;  
  - Respiratory Protection: breathing air compressors, masks & hoods;  
  - Electrical Safety: Electrical flash suits and gloves;  
  - Chemical Safety: Level A chemical protective suits. |
<p>| immediately dangerous to life or health (IDLH) | An atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual’s ability to escape from a dangerous atmosphere. |
| licensed health care professional         | An individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services. |</p>
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>medical approval</td>
<td>The evaluation of the physical ability of a user to wear a respiratory protection device by a licensed health care provider.</td>
</tr>
<tr>
<td>negative pressure respirator</td>
<td>A respirator in which the air pressure inside the face piece is negative during inhalation for the ambient air pressure outside the respirator.</td>
</tr>
<tr>
<td>oxygen-deficient atmosphere</td>
<td>An atmosphere with oxygen content below 19.5% by volume.</td>
</tr>
<tr>
<td>personal protective equipment (PPE)</td>
<td>Clothing or equipment that is intended to protect the worker's body (including eyes, face, feet, hands, head, and hearing) from hazards capable of causing injury, illness, or impairment of any bodily function.</td>
</tr>
<tr>
<td>positive pressure respirator</td>
<td>A respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.</td>
</tr>
<tr>
<td>Powered Air-Purifying Respirator (PAPR)</td>
<td>An air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.</td>
</tr>
<tr>
<td>primary entrances</td>
<td>Doors that are normally unlocked during business hours through which unescorted personnel would likely enter. The front door and loading dock to buildings are examples of primary entrances. Within a building, the doorway from a main hallway is the primary entrance.</td>
</tr>
<tr>
<td>Respiratory Protection Program Administrator (RPPA)</td>
<td>A BNL employee designated to administratively oversee the Respiratory Protection Program and approve documentation of the mechanisms for compliance with applicable regulatory drivers.</td>
</tr>
<tr>
<td>secondary entrances</td>
<td>Doors entered only by the assigned occupants of a building or by visitors that are escorted. This includes: exterior doors that are locked during business hours, auxiliary exit doors from high-bays and experimental areas, laboratory emergency exits, and laboratory entrances through offices and service chases.</td>
</tr>
<tr>
<td>Self-Contained Breathing Apparatus (SCBA)</td>
<td>A respirator in which a clean air supply is carried by the wearer in a pressurized tank. SCBA is a positive pressure respirator and may be used in oxygen-deficient environments. The air supply is limited (typically 30-60 minutes).</td>
</tr>
<tr>
<td>supplied air line respirator (SAR)</td>
<td>Air is brought into a mask from a remote location via an air line. Supplied air may be used for any contamination below the IDLH (Immediate Danger to Life and Health) level and in atmospheres that are oxygen deficient, if supplemented with an escape bottle. Supplied air is a positive pressure respirator. Supplied air requires an air line that can limit movement, and an escape bottle of air is usually required.</td>
</tr>
<tr>
<td>user</td>
<td>A person authorized via appropriate medical approval, training, and fit testing to wear a specified piece of respiratory protection equipment.</td>
</tr>
<tr>
<td>user seal check</td>
<td>An action conducted by the respirator user to determine if the respirator is properly seated to the face. The check is done by closing off either the inlet or exhaust of the mask and inhaling or exhaling to create a positive or negative pressure within the mask by which leakage could be detected. The check should be done following the respirator manufacturer's recommended user seal check method.</td>
</tr>
</tbody>
</table>
Lessons Learned

BNL’s Lessons Learned Program supports ongoing learning by collecting and sharing work experiences and good practices. This allows us to better understand risks and hazards and develop strategies to control them. Many managers share selected Lessons Learned with their staff at daily briefings and morning meetings to update everyone’s knowledge and skills. The Program draws information from BNL, the DOE complex, and private industry. For more, see the BNL Lessons Learned Program website.

Here is a selection of recent Lessons Learned related to this particular Subject Area:

<table>
<thead>
<tr>
<th>Title</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>From ANL: Pre-Job Thermal Stress Evaluation and Work Control Practices Can Minimize Potential for Radiological Contamination</td>
<td>Jan 27 2017</td>
</tr>
<tr>
<td>From DOE: Consideration of Chemical Sampling Technique during JHA Development</td>
<td>Jul 25 2012</td>
</tr>
<tr>
<td>Personal Heart Rate Monitors as a Tool to Manage Work Under Adverse Heat Stress Conditions</td>
<td>Aug 14 2009</td>
</tr>
<tr>
<td>Personal Protective Equipment (PPE) Inspections and Use</td>
<td>Jan 07 2004</td>
</tr>
<tr>
<td>Pressurized Dewar Cap is Blown Off and Causes Minor Injury</td>
<td>Jan 20 2009</td>
</tr>
<tr>
<td>Quick Read Lessons Learned - From Los Alamos Technical Associates: Track Hoe Grapple Hits Hardhat</td>
<td>Nov 06 2012</td>
</tr>
<tr>
<td>Quick Read Lessons Learned - From ORNL: Reminder about acceptable safety glasses</td>
<td>Apr 03 2013</td>
</tr>
<tr>
<td>Quick Read Lessons Learned - From PNNL: Glass Dewars Can Implode and PPE must be Worn When Used</td>
<td>Apr 12 2013</td>
</tr>
<tr>
<td>Respirator Cartridge Dislodges from Facepiece due to Improper Alignment</td>
<td>May 07 2007</td>
</tr>
<tr>
<td>Selecting Gloves to Avoid Potential Chemical Breakthrough</td>
<td>Apr 14 2010</td>
</tr>
<tr>
<td>Special Training Required to Operate Electrical Circuit Breakers at BNL</td>
<td>Sep 14 2012</td>
</tr>
<tr>
<td>UC Berkeley Student Suffers Severe Skin Burn</td>
<td>Jan 20 2009</td>
</tr>
<tr>
<td>Worker reported not wearing proper PPE</td>
<td>May 10 2009</td>
</tr>
</tbody>
</table>
BNL Employee Respirator Medical Approval Form

Effective Date: Mar 31, 2016

The BNL Employee Respirator Medical Approval Form is provided as a Word file.

The only official copy of this document is this online version in SBMS.

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Details of Pre-determined Area-based PPE Certifications

Effective Date: Dec 29, 2017

The Details of Pre-determined Area-based PPE Certifications is provided as a PDF.
Brookhaven National Laboratory Respiratory Protection Program Record

**BNL Employee Respirator Medical Approval Form**

This form is to be completed and available to the examining physician at the Occupational Medicine Clinic (OMC) at the time of your medical evaluation for respirator use.

<table>
<thead>
<tr>
<th>Employee Last Name:</th>
<th>First Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Life No:</th>
<th>Dept./Div.</th>
<th>Building No:</th>
<th>Extension:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Types, approximate weights of respirator, and respiratory working conditions for this employee**

- [ ] Self-Contained Breathing Apparatus (20 Lbs.)
- [ ] Air-Line Respirator (mask/hood and hoses) (9 Lbs.)
- [ ] Escape Pack (5 - 15 Lbs.)
- [ ] Full-Face Air Purifying Respirator (2 – 3 Lbs.)
- [ ] Half-Mask Air Purifying Respirator (0.75 Lb.)
- [ ] Powered Air Purifying Respirator (5 Lbs.)
- [ ] Filtering Facepiece (Dust Mask)

**Duration and frequency of respirator use:**

<table>
<thead>
<tr>
<th>Hours per Day</th>
<th>Days per Week</th>
<th>Weeks per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Expected physical work effort:**

- [ ] Light
- [ ] Moderate
- [ ] Strenuous
- [ ] Very Strenuous

**Potential for Heat Stress:**

- [ ] F
- [ ] C:
- Humidity (%):

**Emergency use:**

- [ ] None
- [ ] Escape
- [ ] Entry Rescue
- [ ] Emergency Response

**Describe Role:**

**Additional protective clothing / equipment to be worn or carried:**

- [ ] None
- Describe:

**Respirator Use Requires:**

- [ ] Close Visual Activities
- [ ] Distant Visual Activities
- [ ] Spectacle Kit

**BNL Supervisor:**

<table>
<thead>
<tr>
<th>Mail:</th>
<th>FS Representative:</th>
<th>Mail:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Approval:**

<table>
<thead>
<tr>
<th>ES&amp;H Coordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printed Name</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

**This portion to be completed by Occupational Medicine Clinic (OMC). Do not include personal medical information.**

- [ ] Respirator use approved without limitation. Qualified until next scheduled examination or eighteen months, whichever occurs first.

- [ ] Respirator use approved with limitations (check any that apply).

  - Respirator approval only through (specify date):
  - Employee approved for specific respirator and/or conditions, as follows:
  - Medically qualified with the following exceptions:

- [ ] Respirator use not approved

  - Until further notice
  - Until (specify date):
  - Employee should return to OMC on _____________ for re-evaluation of respirator approval status.

**Approval:**

<table>
<thead>
<tr>
<th>OMC Physician</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

**Distribution/Retention:**

- Original on file in OMC medical record
- Copy to ES&H Coordinator
- Copy to supervisor
- Copy to Fit Test Office
- Copy to employee

Brookhaven National Laboratory - Occupational Medicine Clinic (OMC), Building B-490-OMC Upton, New York 11973 (631) 344-3670
Details of Pre-determined Area-based PPE Certifications

These are the minimum acceptable personal protective equipment (PPE) specified for pre-determined areas are incorporated into the Hazard Information Placard in the Hazard Validation Tool. Additional PPE may be used by organizations without approval from the PPE and Respirator Subject Matter Expert (SME). Lessening these requirements requires concurrence by the SME indicated on the Area-based PPE Certification form. Other types of areas may require area-based PPE as determined by the PPE and Respirators SME.

1. Examples of some of the Pre-determined Area-Based PPE Specifications

(Consult the Facility Risk Assessments/PPE Certifications in the Hazard Validation Tool for the complete list of areas.)

<table>
<thead>
<tr>
<th>Pre-Determined Area</th>
<th>Predominant Hazard</th>
<th>Long Pants</th>
<th>Lab Coat</th>
<th>Shoes</th>
<th>Fully Enclosed</th>
<th>Safety Toe</th>
<th>Safety Glasses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accelerator Facility</td>
<td>Cuts and abrasions</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Electronics Fabrication Area</td>
<td>Chemical contact (low risk); cuts and abrasions; Small projectiles</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronics Test Bench Area</td>
<td>Cuts and abrasions</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machine Shop-Light [Light Technical Shop]</td>
<td>Cuts and abrasions; projectiles; dropped parts</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Machine Shop - Heavy [Heavy Technical Shop]</td>
<td>Cuts and abrasions; projectiles; dropped parts</td>
<td>x</td>
<td>-</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Magnet Assembly Area</td>
<td>Cuts and abrasions; projectiles; dropped parts</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Microscope/Optics Area</td>
<td>Dropped parts</td>
<td>x</td>
<td></td>
<td>x</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Laboratory - Biological</td>
<td>Biological agent contact</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Laboratory - Chemical</td>
<td>Chemical contact</td>
<td>x</td>
<td></td>
<td>x</td>
<td>-</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Laboratory - Unbound Nanomaterial (UNP)</td>
<td>UNP contact</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>-</td>
<td>x</td>
</tr>
<tr>
<td>Laboratory - Multi-Purpose</td>
<td>Chemical contact (low risk); cuts and abrasions</td>
<td>x</td>
<td></td>
<td>x</td>
<td>-</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Tech Area</td>
<td>Cuts and abrasions; dropped parts</td>
<td>x</td>
<td></td>
<td>x</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Warehouse</td>
<td>Cuts and abrasions; dropped parts</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Footnotes:

1. Complete coverage of the feet, ankles and legs by any combination of loose clothing (pants, long skirt, or leggings) and footwear is acceptable (see the examples below).
2. BNL laundered uniform with long sleeve shirt and long pants may be substituted for a lab coat. Lab coats which have been in contact with Unbound Nanomaterials (UNP) must be disposed of as hazardous waste. They are not to be laundered. Lab coats are not to be worn into offices, lunch rooms, conference rooms, etc. Lab coats should remain in the labs and corridors of science areas.
4. Safety glasses must meet ANSI A87.1. Glasses may be removed during operations with eyepieces, such as looking into microscope optics.
2. **Descriptions of some of the more prevalent pre-determined areas**

<table>
<thead>
<tr>
<th>Biological Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Areas regulated by CDC/NIH biohazard requirements for BSL-2 operations involving agents of moderate potential hazard to personnel and the environment (uncharacterized agents or agents known to consistently cause disease in healthy adult humans). Predominant area-based hazards are eye and skin exposure to harmful biological agents and chemicals.</td>
</tr>
<tr>
<td><strong>PPE required to enter area:</strong> long pants, fully-enclosed shoes, lab coat, safety glasses.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>An area regulated by OSHA 29 CFR 1910.1450 Laboratory Standard characterized by many chemical containers and operations, such as synthesis, reactions, distillations, separations, purifications, and analysis. Glassware, instrumentation, baths, ovens, furnaces, and similar lab apparatus are used. The chemicals pose an exposure risk based on the hazard, quantities, and types of operations. Areas where OSHA Particularly Hazardous Chemicals (carcinogens, highly acute toxins, and reproductive hazards) are used or stored are also designated as a Chemical Laboratory. Predominant area-based hazards are eye and skin exposure to chemicals.</td>
</tr>
<tr>
<td><strong>PPE required to enter area:</strong> long pants, fully-enclosed shoes, lab coat, safety glasses.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Multi-purpose Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Areas regulated by OSHA 29 CFR 1910.1450 Laboratory Standard in which more than one type of operations. The use of chemicals poses minimal exposure risk based on the hazard, quantities, and types of operations. Other hazards may include electronic assembly and soldering, small tools, or BSL-1 biohazards (well-characterized non-disease causing agents) and biological growth media preparation. Predominant area-based hazards are eye and skin exposure to hot surfaces and minor exposure to chemicals.</td>
</tr>
<tr>
<td><strong>PPE required to enter area:</strong> long pants, fully-enclosed shoes, safety glasses.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electronics Fabrication Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>No chemicals or only a few chemicals in low volume are used. Electronic components are tested, repaired, assembled. Wire cutting and electronic soldering may be conducted in these areas. Predominant area-based hazards are chemical contact (low risk), cuts and abrasions, small projectiles.</td>
</tr>
<tr>
<td><strong>PPE required to enter area:</strong> long pants, fully-enclosed shoes, safety glasses.</td>
</tr>
<tr>
<td><strong>Electronics Test Bench Area</strong></td>
</tr>
<tr>
<td>-------------------------------</td>
</tr>
<tr>
<td>Area has no hazardous chemicals. Electronic components are tested in non-destructive tests, such as energizing parts and detecting response. No electronic soldering is conducted in these areas. Predominant area-based hazards are cuts and abrasion from metal edges.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Microscope/Optics Area</strong></th>
<th><img src="image2.png" alt="Image" /></th>
</tr>
</thead>
<tbody>
<tr>
<td>An area where visible light microscopes, electron microscopes, or other similar equipment is used to view or analyze samples. No chemicals are used in the area and samples are handled in a manner that does not present exposure potential. Viewing into eyepieces may be required, which could be hindered by safety glasses. Predominant area-based hazard is minor risk of crush from dropped small parts.</td>
<td><strong>PPE required to enter area:</strong> long pants, fully-enclosed shoes.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Accelerator Facility</strong></th>
<th><img src="image3.png" alt="Image" /></th>
</tr>
</thead>
<tbody>
<tr>
<td>An area with beam lines, hutches, and experimental areas for accelerators. These areas are characterized by incidental use of small amounts of chemicals in procedures that are not part of a production process. Predominant area-based hazards are cuts and abrasions.</td>
<td><strong>PPE required to enter area:</strong> long pants, fully-enclosed shoes.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Machine Shop—Heavy [Heavy Technical Shop]</strong></th>
<th><img src="image4.png" alt="Image" /></th>
</tr>
</thead>
<tbody>
<tr>
<td>An area where metal, plastic, or wood parts are modified with machines and tools. Stock material may be stored. Parts and stock material of weight, size, or shape to cause serious injury to legs and feet if dropped. Predominant area-based hazards are cuts and abrasions, projectiles, risk of crush from dropped parts.</td>
<td><strong>PPE required to enter area:</strong> long pants, safety-toe shoes, safety glasses.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Machine Shop—Light [Light Technical Shop]</strong></th>
<th><img src="image5.png" alt="Image" /></th>
</tr>
</thead>
<tbody>
<tr>
<td>An area where metal, plastic, or wood parts are modified with machines and tools. Stock material may be stored. Parts and stock material is light weight and would only cause minor injury to legs and feet if dropped. Predominant area-based hazards are cuts and abrasions, projectiles, slight risk of crush from dropped parts.</td>
<td><strong>PPE required to enter area:</strong> long pants, fully-enclosed shoes, safety glasses.</td>
</tr>
</tbody>
</table>
**Magnet Assembly Area**
An area where large apparatus are manufactured, assembled, and/or tested. Parts and equipment handled of weight, size, or shape to cause serious injury to legs and feet if dropped. Predominant area-based hazards are cuts and abrasions, projectiles, risk of crush from dropped parts.

**PPE required to enter area:** long pants, safety-toe shoes, safety glasses.

**Tech Area**
An area for electrical and mechanical assembly of test apparatus (e.g., detectors and vacuum chambers). Small quantities of solvents are used. Predominant area-based hazards are cuts and abrasions, dropped parts.

**PPE required to enter area:** long pants, fully-enclosed shoes.

**Warehouse**
An area where articles (boxes, parts, supplies) and closed chemical containers are handled using mechanized and manual material handling techniques. Predominant area-based hazards are cuts and abrasions, projectiles, risk of crush from dropped parts.

**PPE required to enter area:** long pants, safety-toe shoes.

### 3. Examples of acceptable and unacceptable PPE

<table>
<thead>
<tr>
<th>Safety Glasses</th>
<th>Acceptable</th>
<th>Acceptable</th>
<th>Unacceptable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Front and side coverage</td>
<td>Front and side coverage</td>
<td>No side coverage</td>
</tr>
<tr>
<td>Enclosed Shoe</td>
<td>Acceptable</td>
<td>Unacceptable</td>
<td>Unacceptable</td>
</tr>
<tr>
<td></td>
<td>Correct heel height, full coverage</td>
<td>Heel too high, open toe</td>
<td>Open toe and heel</td>
</tr>
<tr>
<td>Lab Coat</td>
<td>Acceptable</td>
<td>Unacceptable</td>
<td>Unacceptable</td>
</tr>
<tr>
<td></td>
<td>Correct coat length, buttoned</td>
<td>Coat too short, arms not covered</td>
<td>Coat too short, not buttoned</td>
</tr>
<tr>
<td>Long Pants and Alternatives</td>
<td>Acceptable</td>
<td>Acceptable</td>
<td>Unacceptable</td>
</tr>
<tr>
<td></td>
<td>Full leg coverage</td>
<td>Full leg coverage</td>
<td>Legs exposed</td>
</tr>
</tbody>
</table>
### 4. Frequently Asked Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do the BNL PPE requirements meet Human Performance HPI principles?</td>
<td>Yes, the area-based rule approach is derived from the HPI principle that consistent, non-conditional rules are most likely to be understood and implemented. Non-conditional requirements are “rule-based.” Conditional rules with many exceptions are “knowledge-based”. This is the least preferred option because it relies on the experience and knowledge of the users in the full meaning of the exceptions. Inexperienced workers may be prone to errors in judgment.</td>
</tr>
<tr>
<td>How do I know what PPE is required for an area?</td>
<td>Areas that require Personal Protective Equipment will be posted with a placard with a pictogram and wording that specify the minimum PPE to enter the area. Other PPE may be required when hazardous operations are occurring in the area.</td>
</tr>
<tr>
<td>Which takes priority: area-based requirements or operation-based requirements?</td>
<td>The more stringent requirement is typically operation-based requirements. They are to be observed when work is being done. When work covered by operation-based PPE requirement is over, the area-based rules would then resume. For example, an apron would be required in a lab when handling a strong acid, but the apron would not be required in the same lab when the acid is not in use. The minimum PPE to enter an area will be posted at the entrance.</td>
</tr>
<tr>
<td>Who determines the PPE required for an area?</td>
<td>The line organization posts an area with the PPE requirements that are derived from this exhibit or more stringent PPE requirements. The basis for the PPE selected must at a minimum meet the requirements stated in the PPE and Respirators Subject Area and other applicable Subject Areas. Any confusions or unresolved issues are to be referred to the Chemical Hygiene Officer and PPE &amp; Respirator SME. When a lesser level of PPE is to be prescribed because of extenuating circumstances, the lower requirements require the concurrence of the Safety &amp; Health Representative. Document PPE requirements not in agreement with this Exhibit in the Work Planning and Control documents and via area postings.</td>
</tr>
<tr>
<td>What determines a “Multipurpose Laboratory” versus a “Chemical Laboratory”?</td>
<td>A “Chemical Laboratory” is characterized by frequent use chemicals in operations such as synthesis, reactions, distillations, separations, purifications, and analysis via glassware, instrumentation, baths, ovens, furnaces, etc. This use of chemicals poses high exposure and risk based on the hazard, quantities, and types of operations. The “Multi-purpose Laboratory” has more than one function and the use of chemicals poses minimal exposure and risk based on the hazard, quantities, and types of operations. Your ESH Coordinator, Safety &amp; Health Representative, and Chemical Hygiene Officer will determine the category for any laboratory whose operation is in question.</td>
</tr>
</tbody>
</table>
| Do area-based rules apply to me if I am in an area, but not actually doing any hazardous work? Examples: sitting at the counter, writing in a notebook or reading e-mails on a computer in a chemical lab. | Yes, the area-based rule still apply, for reasons such as:  
  - The hazard is still in the area, although your personal risk of exposure is lower,  
  - An accident could occur from the operations by someone else or on-going processes in the area,  
  - Your role might change to active participant in a hazardous operation without you remembering to stop to add the required PPE. |
**NOTIFICATION OF RESPIRATOR USE BY A CONTRACTOR**

<table>
<thead>
<tr>
<th>Contractor:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building/Project:</td>
<td></td>
</tr>
</tbody>
</table>

### Hazards Present

- [ ] Radiological:
- [ ] Chemicals:
- [ ] Other:

### Respirator Usage

<table>
<thead>
<tr>
<th>Respirator type</th>
<th>☐ Filtering facepiece (Dust Mask)</th>
<th>☐ APR Half-face</th>
<th>☐ APR Full-face</th>
<th>☐ PAPR</th>
<th>☐ Supplied Air</th>
<th>☐ Other</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Dates of Project</th>
<th>Start date:</th>
<th>End date:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Respirator Usage Period</th>
<th>Start date:</th>
<th>End date:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Location of Respirator Usage:</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Location of Cleaning Facility:</th>
<th></th>
</tr>
</thead>
</table>

### Submitted By

<table>
<thead>
<tr>
<th>Competent Person:</th>
<th>Print</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
</table>

Submit to:
- Project Engineer: ______________________ Building:____________

CC:
- SHSD Construction Safety Engineer, Building 120
- Respiratory Protection Program Administrator, Bldg 120
**Operation-Based Protective Clothing Selection**

### Project Information

<table>
<thead>
<tr>
<th>Work Order#</th>
<th>Job#</th>
<th>Activity#</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Work Permit#</th>
<th>ESR#</th>
<th>RWP#</th>
<th>Date of Project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Department</th>
<th>Building</th>
<th>Room/Area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scope of Work</th>
<th>Contact Name</th>
<th>Phone</th>
<th>Pager</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Description of Area:

### Description of Work to be done:

### Hazard Information

**Description of Hazard:** (Including mechanism of generation of hazard)

#### Description of Potential Exposure:

- Required Use
- Voluntary Use
- Precautionary
- Accidental
- Emergency
- Routine
- Splash
- Immersion
- Nuisance Level
- Toxic
- Irritation

#### Radiological:

- Isotope:  
- Particulate
- Gas

#### Chemical:

- Lead
- Mercury
- Asbestos
- CHEMICAL:

#### Biological:

- Biohazard Material
- Animal/Bird Droppings
- Bloodborne Pathogen
- Other:

#### Physical:

- Burn (Heat)
- Cryogen
- Laser
- Fall/Slip
- Drop/Crush
- Cut/Abrasion
- Electrical
- Impact

#### Hazard Analysis:

- Calculation
- Analogy to Similar Work
- MSDS Review
- Tour of Area
- Other:

- Measurement
- Manufacturer Data
- Professional Judgment
- Published Info

### Protective Equipment Selection

#### Eye:

- Safety Glasses
- Splash Goggles
- Gas-proof Goggles
- Face Shield

- Welding Shade:

#### Hand:

- Glove
- Elastomer (material of construction):
- Thickness:  
- mil

- Finger Cot
- BNL Stock#:  

#### Foot:

- Safety Toe
- Shoe Covers
- Boots
- Insulating
- Conductive

#### Body:

- Apron
- Lab Coat
- Suit (1 piece)
- Suit (2 piece)
- Hood/Cap

- Rain Wear
- Long Sleeves
- Long Pants
- Casual Dress

#### Other:

- Fall Harness
- Hard Hat
- Other:

### Authorization

I acknowledge that I have discussed the capabilities and limitations of the recommended PPE with the worker or work planner.

**Selection Made By (ESH Professional):**

- Print
- Signature
- Date
Operation-based Protective Clothing Selection Form

Effective Date: Mar 31, 2016

The Operation-Based Protective Clothing Selection Form is provided as a Word file.

The only official copy of this document is this online version in SBMS.

Before using a printed copy, verify that it is the most current version:
compare the effective date of the printed copy to the effective date of the document online in SBMS.

OSHA Requirements on Respirator Cleaning

Effective Date: Mar 31, 2016

Based on OSHA 20CFR1910.134 Appendix B-2 Respirator Cleaning Procedures (Mandatory)
These procedures are provided for use when cleaning respirators. They are general in nature, and alternative procedures for cleaning provided by the manufacturer of the respirators may be used, provided such procedures are as effective as those listed here. Equivalent effectiveness simply means that the procedures used must accomplish the objectives set forth in these procedures, i.e., must ensure that the respirator is properly cleaned and disinfected in a manner that prevents damage to the respirator and does not cause harm to the user.

Procedures for Cleaning Respirators
A. Remove filters, cartridges, or canisters. Disassemble facepieces by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.
B. Wash components in warm (43°C [110°F] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.

C. Rinse components thoroughly in clean, warm (43°C [110°F] maximum), preferably running water. Drain.

D. When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:
   1. Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43°C (110°F); or,
   2. Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6 to 8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 43°C (110°F); or,
   3. Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.

E. Rinse components thoroughly in clean, warm (43°C [110°F] maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.

F. Components should be hand-dried with a clean lint-free cloth or air-dried.

G. Reassemble facepiece, replacing filters, cartridges, and canisters where necessary.

H. Test the respirator to ensure that all components work properly.
is required (mandatory) by BNL.

e. When respiratory protection is not necessary, the filtering face piece mask may be used at the request of the individual. Use of the mask is NOT mandatory (i.e., voluntary) in these situations. When use of the filtering face piece is voluntary, provide the information contained in OSHA 29 CFR 1910.134 Appendix D by having the employee review and sign the Voluntary Use of Respirators When Not Required By Regulations form (TQ-RESP-VOLUNTARY) and send it to the Training Coordinator. Medical approval and fit testing is not required when the use is voluntary.

f. Store unused masks properly. Keep them in a clean location in a plastic bag in the manufacturer's box. After use, discard the filtering face piece masks and do not reuse them.

Examples of acceptable uses of the filtering face piece masks are:

- Operations where nuisance dust levels are below PEL or TLVs, such as floor sweeping, parts machining, and bulk material handling.
- Comfort for workers in operations such as mowing grass.
- Operations when exposure monitoring has verified that respiratory protection is not required, but an employee desires to wear a filtering face piece mask.
- Hazards, such as animal dander, that do not have an occupational exposure limit but may be allergenic.

**BNL Requirements on Filtering Face Piece Masks (Disposable Dust Masks) Used for Human Patient Exposure Control**

The following criteria apply at BNL to filtering face piece respirators used in exposure control applications such as the OMC physicals, EMT response, and medical research with human patients:

- a. These respiratory protective devices are acceptable to use to prevent spread of infectious organisms (such as H1N1, tuberculosis and SARS) from exposure such as coughing and sneezing.
- b. Training, medical approval, and QLFT or QNFT fit testing are required for disposable dust masks when the use of the respirator is required by BNL (i.e., mandatory). When use of the filtering face piece is voluntary, provide the information contained in OSHA 29 CFR 1910.134 Appendix D by having the employee review and sign the Voluntary Use of Respirators When Not Required By Regulations form (TQ-RESP-VOLUNTARY) and send it to the Training Coordinator. Medical approval and fit testing is not required when the use is voluntary.
- c. BNL line organizations may order and issue disposable filtering face piece masks. Authorization to requisition disposable filtering face piece masks is NOT limited to BNL Authorized Respirator Issuers.
- d. Unused filtering face piece masks must be stored properly. Keep the masks in a clean location. After use, the masks must be discarded and not reused.

The only official copy of this document is this online version in SBMS.

Before using a printed copy, verify that it is the most current version: compare the effective date of the printed copy to the effective date of the document online in SBMS.

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**FORMS/EXHIBITS CONTENT**

*Personal Protective Equipment (PPE) and Respirators*

**Subject Area**

**Effective Date:** Dec 29, 2017 [Rev 13.0]

**Periodic Review Due:** Dec 29, 2022

---

**Requirements for Respirators Used for Emergency Situations**

**Effective Date:** Mar 31, 2016
1. For atmospheres that are Immediately Dangerous to Life or Health (IDLH), use only a NIOSH certified respirator. Use either a
   - Full face-piece pressure-demand SCBA with a minimum service life of thirty minutes; or
   - Combination full face-piece pressure-demand supplied-air respirator (SAR) with auxiliary self-contained air supply.

2. Inspect equipment used for escape from IDLH atmospheres before it is carried into the workplace for use for tightness of connections and
   condition (including pliability and signs of deterioration) of the face piece, head straps, valves, connecting tube, and cartridges, canisters or
   filters.

3. Maintain all respirators for use in emergency situations as follows:
   - Check for proper function of respirators before and after each use.
   - Inspect equipment at least monthly in accordance with the manufacturer's recommendations. Inspect for function, tightness of
     connections, and condition (including pliability and signs of deterioration) of the face piece, head straps, valves, connecting tube,
     cartridges, canisters or filters, regulator and warning devices.
   - Document the date the inspection was performed, the name (or signature) of the person who made the inspection, findings, required
     remedial action, and a serial number or other means of identifying the inspected respirator. Provide inspection information on a tag or
     label that is attached to the storage compartment for the respirator, kept with the respirator, or included in inspection reports in paper
     or electronic files. Maintain until replaced following a subsequent certification.

4. Prior to entry into an IDLH atmosphere, those planning the entry confirm with BNL Fire Rescue group (F/R) that responders are aware of the
   entry and the responders are available to be on stand-by throughout entry period.

5. When employees enter the IDLH atmosphere, station one or more employee outside the IDLH atmosphere with visual, voice, or signal line
   communication maintained between the employee(s) in the IDLH atmosphere and those located outside the IDLH atmosphere. Train and equip
   the employee(s) outside the IDLH atmosphere to notify the BNL Fire Rescue group (F/R) and wait for F/R to perform any needed rescue entry.
Department/ Division/Organization: 

Date: 

Building: 

Room: 

Hazards Present for Decontamination / Cleaning

<table>
<thead>
<tr>
<th>Radiological:</th>
<th>☐ Isotope:</th>
<th>☐ Particulate:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical:</td>
<td>☐ Chemical(s):</td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Inspection Checklist

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Compliance</th>
<th>Non-compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Facepieces disassembled for cleaning (speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>b. Decontamination: Components washed in warm water (maximum 43°C [110°F]) with a mild detergent or with a cleaner recommended by the manufacturer.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>c. Components rinsed thoroughly in clean, warm water (maximum 43°C [110°F]). Drained.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>d. Disinfection: Components immersed for two minutes in one of the following:</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐ Cleaner containing a disinfecting agent, or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Hypochlorite solution (50 ppm of chlorine) at 43°C [110°F], or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Aqueous solution of iodine (50 ppm iodine) at 43°C [110°F], or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Other commercially available cleansers if their use is recommended or approved by the respirator manufacturer.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Components rinsed thoroughly in clean, warm water (maximum 43°C [110°F]) to remove all disinfectants. Drained.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>f. Components hand-dried with a clean lint-free cloth or air-dried.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>g. Respirators stored in clean bag after cleaning in preparation for use.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>h. Waste water disposal from the decontamination process is approved by the BNL Environmental Protection Division.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>i. Respirator tested to ensure that all components work properly before wearing in hazardous atmosphere.</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Comments/Findings:

Person performing Inspection: 
Print
Signature
Date
### Project Information

<table>
<thead>
<tr>
<th>Work Order #</th>
<th>Job #</th>
<th>Activity #</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Work Permit #</th>
<th>RWP #</th>
<th>Date(s) of Project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Department</th>
<th>Building</th>
<th>Room/Area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scope of Work</th>
<th>Contact Name</th>
<th>Phone</th>
<th>Pager</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Description of Area:

### Description of Work to be done:

### Line Management Approval by:

### Hazard Information

#### Description of Hazard:
(Including mechanism of generation of hazard)

#### Hazard Anticipated/Measured Air Concentration

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Anticipated/Measured Air Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiological: Isotope:</td>
<td></td>
</tr>
<tr>
<td>Chemical:</td>
<td></td>
</tr>
<tr>
<td>____Asbestos ____Lead ____Mercury ____Other:</td>
<td></td>
</tr>
<tr>
<td>Biological:</td>
<td></td>
</tr>
<tr>
<td>____Animal/Bird Droppings ____Etiologic Agent ____Other:</td>
<td></td>
</tr>
<tr>
<td>Regulatory:</td>
<td></td>
</tr>
<tr>
<td>___Voluntary Use ____Precautionary ____Nuisance Level</td>
<td>___&lt;Action Level ___&lt;PEL/TLV ___&gt;PEL/TLV ___&gt;IDLH</td>
</tr>
<tr>
<td>____Required Use Other:</td>
<td></td>
</tr>
<tr>
<td>Hazard analysis: Concentration determined by:</td>
<td>___MSDS Reviewed ___Tour of Area</td>
</tr>
<tr>
<td>___Measurement ___Calculation ___Analogy to Similar Work</td>
<td></td>
</tr>
</tbody>
</table>

### Equipment Selection

#### Facepiece

<table>
<thead>
<tr>
<th>____Full face ____Half Face ____Hood Other:</th>
</tr>
</thead>
</table>

#### Respirator Type

<table>
<thead>
<tr>
<th>____APR ____PAPR ____Air Line ____SCBA</th>
</tr>
</thead>
</table>

#### Cartridge(s)

<table>
<thead>
<tr>
<th>____SINGLE ____COMBO (Mark all needed elements)</th>
</tr>
</thead>
</table>

| HEPA (Purple) ____P-100 ____N100 ____P-95 ____N95 ____R95 ____N99 |

<table>
<thead>
<tr>
<th>Organic Vapor (Black) Organic Vapor/Acid Gas (Yellow) Acid Gas (White)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>____Multi-purpose (Olive) ____Ammonia/Amine (Green) ____Mercury/Chlorine (Orange) ____Other:</th>
</tr>
</thead>
</table>

#### End of Service on Cartridges

<table>
<thead>
<tr>
<th>Replace at End of 8 hour Shift ____Change via ESL Indicator Replace after ___ (minutes) (hours) (days) circle one</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Leave on face piece, tape inlet ____Dispose after 1 use ____Remove from face piece, store in separate bag</th>
</tr>
</thead>
</table>

#### Cartridge Disposal:

### Respirator Equipment Specification Made By:

<table>
<thead>
<tr>
<th>Print</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Issuance #</th>
</tr>
</thead>
</table>
RESPIRATORY PROTECTION PROGRAM
PERIODIC OVERSIGHT RECORD

Department/Division/Organization/Contractor: __________________________

Date: __________________________

Building: __________________________
Room: __________________________

Hazes Present

☐ Radiological:

☐ Chemical:

☐ Other:

<table>
<thead>
<tr>
<th>Inspection Checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criteria</td>
</tr>
<tr>
<td>a. Medical approval from a Licensed Health Care Provider has been obtained &amp; documented for each respirator user.</td>
</tr>
<tr>
<td>b. Respiratory protection training has been completed &amp; documented for each user for each type of respirator worn.</td>
</tr>
<tr>
<td>c. Fit testing has been completed &amp; documented for each user for each type &amp; size of respirator worn.</td>
</tr>
<tr>
<td>d. Selection of the appropriate respirator style, cartridges, end-of-service is based on the hazards present and is made by an ESH professional &amp; documented.</td>
</tr>
<tr>
<td>e. Masks are properly decontaminated/disposed of after exposure to hazards per environmental requirements.</td>
</tr>
<tr>
<td>f. Respirators that will be used in emergency situations have a documented formal plan for use, inspection, and maintenance of the equipment.</td>
</tr>
<tr>
<td>g. Mask that are permanently assigned to workers are properly sanitized between users according to manufacturer’s instructions.</td>
</tr>
<tr>
<td>h. Masks are properly stored between sessions after use according to manufacturer’s instructions.</td>
</tr>
<tr>
<td>i. Supplied Air is documented to meet CGA Grade D quality.</td>
</tr>
<tr>
<td>j. Contractor has submitted a written Respiratory Protection Program to BNL.</td>
</tr>
<tr>
<td>k. Contractor’s Respiratory Protection Program has been approved by BNL.</td>
</tr>
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</table>

Observations & Corrective Actions:

________________________________________________________________________
________________________________________________________________________

________________________________________________________________________

Inspection Performed By

Person Performing Oversight: __________________________

Print: __________________________
Signature: __________________________
Date: __________________________
Respiratory Protection Program Periodic Oversight Record
Effective Date: Mar 31, 2016

Respiratory Protection Program Periodic Oversight Record is provided as a Word file.

The only official copy of this document is this online version in SBMS. Before using a printed copy, verify that it is the most current version: compare the effective date of the printed copy to the effective date of the document online in SBMS.

Supplemental Personal Protective Equipment (PPE) Requirements/Guidance
Effective Date: Dec 29, 2017

Subject Area
PPE Requirements and Guidance
Section 3.3 Removing and Handling Animals
OSHA 29 CFR 1910.1001 General Industry
OSHA 29 CFR 1926.1101 Construction
Guidance and Recommendations on PPE & Work Practices for Inhalation and Dermal Hazards in Typical Operations and Emergencies - ESH Guides website
Beryllium
Exhibit Personal Protective Equipment for Biohazards
Bloodborne Pathogens
Exhibit Methods for Hazard Control
Chemical Safety
Exhibit Personal Protective Equipment Requirements for Working with Chemicals
Cryogenics Safety
Section Storage and Use of Cryogens/Cryogenic Systems
Exhibit Certification of Personal Protective Equipment (PPE) for Electrical Energized Work
Exhibit Certification of Personal Protective Equipment (PPE) for Operating Electrical Equipment
Exhibit Selection and Use of Rubber Gloves and Insulating Blankets
Electrical Safety
Exhibit Wearing Personal Protective Equipment
Fall Protection
Exhibit Cold Stress Hazard Information
Exhibit Heat Stress Hazard Information
Heat and Cold Stress
Exhibit Cold Stress Hazard Information
Exhibit Heat Stress Hazard Information

FORMS/EXHIBITS CONTENT
Search SBMS »
**Application:** An employee, guest, or user may request respiratory protection even if an exposure assessment determines that the atmosphere does not require respiratory protection. Use of respiratory equipment is allowed as long as wearing the respirator does not result in an increased risk of harm to the person. When an increased risk exists, as is the case for some work in Radiological Areas (as outlined in Radiological Control Division (RCD) Standard Operating Procedures, Radiological Work Permit [FS-SOP-4031]), respirators will be denied to the employee, guest, or user.

**Restrictions:** All respiratory equipment used by BNL employees, guests, or users must be provided by the BNL from sources approved by the Respiratory Protection SME. Individuals are not permitted to purchase and wear their own respirators while at BNL.

**Instructions for Using Respirators When Not Required Under the OSHA Standard (29CFR1910.134 Appendix D):**

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards.

If BNL has provided a respirator for your voluntary use, you should take the following precautions to ensure the respirator itself does not present a hazard:
1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. The National Institute for Occupational Safety and Health (NIOSH) of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

I have read the above information and agree to comply with this Voluntary Respirator Use program.

<table>
<thead>
<tr>
<th>Print Name</th>
<th>Signature</th>
<th>BNL#</th>
<th>Date</th>
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