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*Approval signatures on file with master copy.

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1. INTRODUCTION

As part of the endeavor to eliminate the diverse and changing potential for unsafe conditions, and to increase the safety awareness of individual employees, a formal ES&H inspection program shall be implemented.

2. SCOPE

This procedure sets forth the responsibilities and elements of the ES&H inspection.

3. RESPONSIBILITIES

3.1 *NSLS Department Chairman* is responsible for ensuring implementation of this procedure. Specifically, he shall ensure that this plan is suitable for the NSLS activities.

3.2 *NSLS Safety Engineer* is responsible for the direct execution of this procedure. Specifically, he shall:

- Schedule departmental inspections.
- Conduct the inspection and designate other personnel to assist.
- Ensure that the required reports are prepared and distributed.
- Ensure that the reported deficiencies have adequate and documented follow-up.

4. CONDUCT OF INSPECTIONS

4.1 Frequency

- Offices, grounds and public areas shall be inspected annually.
- All other areas including Experimental Floor, Ring Tunnels, Machine Shops, and Laboratories shall be inspected quarterly.

4.2. Personnel

The inspection team shall have at least two members. One shall be the NSLS Safety Engineer and the second can be any other BNL staff member. A third member, the Local Area Representative, should be on the tour whenever possible. Other members shall be selected based on their knowledge and experience. An attempt will be made to include a member of the ESH/Q directorate; this will depend on their availability. Also, personnel who work in the area(s) being inspected are encouraged to participate in the inspection process.

4.3 Inspection Team Notification, The NSLS Safety Engineer Shall:

- Post a schedule on the web before the beginning of the calendar year.
- Send an email reminder to all participating tour members one day before the scheduled inspection.

4.4 Inspection Procedure

Prior to conducting the inspection, the inspection team shall review records of previous inspections, departmental accident and injury reports, occurrence reports, environmental noncompliance reports and the Safety Inspection Guidance List (see Attachment 1). This provides a form of On-The-Job Training for the team members.

- Inspections should be thorough to ensure that no location that may contain a potential hazard is overlooked.
- All unsafe conditions and practices should be noted and included in the NSLS Tier 1 Safety Inspection Report (see Attachment 2).
- Any condition that may result in imminent danger should be immediately corrected. If the condition is not corrected immediately the operation shall be shut down or measures, such as barriers, be put in place until the condition can be corrected.

5. REPORTING

The NSLS Safety Engineer shall:

- Record all hazards and their locations. (see Attachment 2)
- Discuss findings with the inspection team members at the time of the inspection.
- Generate an Inspection Report (see Attachment 2) and within one week of the tour distribute copies to all tour members, in addition to the NSLS Department Chairman and the NSLS ES&H Coordinator.

6. CORRECTIVE ACTION

6.1 The persons responsible for repairing the deficiencies are sent their first Safety Violation Notice within one week of the inspection (see Attachment 3).

6.2 If there is no response from the responsible person within three weeks, a second Safety Violation Notice is sent. A summary that lists the delinquent responsible persons is sent to the Local Area Representative. The Local Area Representative shall call the responsible persons and encourage them to correct their deficiencies.

6.3 If there is no response from the responsible person within six weeks, a third Safety Violation Notice is sent. Attached to the notice is a memo from the NSLS ES&H coordinator that states the importance of the prompt correction of safety violations.

6.4 If the violation remains open for an entire quarter, an in-person warning is given by the NSLS Chairman to the responsible person. This warning states that if the violation is not corrected within 24 hours, a stop work order will be enforced until all open violations are corrected.

Attachment 1

NSLS SAFETY INSPECTION GUIDANCE LIST

CHEMICAL SAFETY

1. All chemical bottles, containers, etc. shall be labeled with a NFPA sticker (stocked # S33834), which lists the contents, date, owner, and hazards.

2. Incompatible chemicals shall not be stored together.

3. Eye wash fountains and emergency showers should be inspected annually and should be free of obstructions.

4. Peroxide forming chemicals (ethers, tetrahydrofuran & peroxides) shall be carefully inspected and monitored to ensure that chemicals have not expired.

5. Proper use of flammable storage and corrosive cabinets shall be verified.

6. Hazardous chemicals and foods shall not be stored together.

7. All chemicals shall be stored in proper secondary containment trays.

8. All chemistry lab doors shall be posted with BNL interim administrative control signs regarding use of corrosives in the labs.

COMPRESSED GAS & CRYOGEN SAFETY

1. Caps shall be kept on gas cylinders at all times when not in use.

2. Empty and charged cylinders shall be stored in separate, well marked areas, and incompatible types of gas shall be properly segregated.

3. All cylinders shall be kept independently secured; the strap should support the cylinder between the midpoint and shoulder.

4. All cylinders shall be properly labeled with "full/in use/empty" tags.

5. Gas cylinders, which are not in use, shall be placed in a gas cylinder storage area outside of the building.

6. Gas cylinders shall be hydrostatic tested every 5 years; if date is expired the cylinder shall be immediately sent to Supply and Material.

ELECTRICAL SAFETY

1. Hand tools shall be properly grounded (3 prong plug) or be double insulated.

2. GFCI outlets installed within 6 feet of water sources and in wet locations.

3. Frayed electrical wires are replaced promptly upon discovery.

4. Electrical equipment (≥110 V) is properly labeled/shielded.

5. Outlet strips are properly mounted, not cascaded, and are not susceptible to physical damage.

6. Electrical panels are securely fastened, readily accessible, and breakers are properly labeled.

7. Emergency disconnect switches shall be labeled, accessible, and operable.

8. Extension cords, homemade power distribution, and flexible cords shall not be used as a substitute for fixed wiring.

9. Strain reliefs shall be in good condition on flexible cords to prevent wires from being pulled from terminal screws or junctions.

10. There shall be no breaks in electrical system integrity. (Cover missing from junction box, missing ground, improperly mounted conduit or junction boxes, etc.).

11. Any cables or conductors which could contact the magnet bus shall be moved and secured.

12. Flexible cords shall be protected by bushings or fittings where passing through holes in covers, outlet boxes, or similar enclosures.

13. Cable trays shall be grounded, one continuous length of the same material, and not over loaded.

14. Individual or bundled cables are not run unprotected across floors or walkways, where they are subject to damage or represent a tripping hazard.

15. Power distribution should be adequate for the area.

16. Extension cords shall be used only for task specific operations, no cascading of cords.

17. All Electrical Metal Tubing shall be supported at least every 10 feet and within three feet of a box, cabinet, conduit body, or other tubing termination.

18. All Lockout/Tagouts shall be in compliance with NSLS-ESH-PRM-1.5.1.

19. All voltages above 50 Volts (AC rms or DC) shall be covered with a non-conductive material, and personnel are forbidden from work on live parts without the proper training and permits.

ENVIRONMENTAL COMPLIANCE

1. Check floor drains for evidence of release of oils, chemicals, etc.

2. Appropriate use of Cross Connection Control Devices. Primary device (i.e., RPZ or DCV) installed and tested annually at building main connection.

3. No hoses hanging below the rim of sinks on faucets that are not equipped with atmospheric vacuum breakers.

4. No evidence of debris, oils/greases, and chemicals in sinks. Chemicals are stored in secondary containment trays away from sinks and drains.

5. For inspections involving outdoor storage areas, please refer to the BNL Subject Area: Storage and Transfer of Hazardous and Nonhazardous Materials.

6. Drums or containers of chemicals shall not be stored on loading platforms or outdoors.

7. Combustible materials shall not be stored within 3 meters of PCB filled equipment.

8. All PCB filled equipment shall be labeled.

EXTERIOR BUILDING & GROUNDS SAFETY

1. Trailers and modular buildings shall have a protective skirt around the perimeter of the base to prevent items from being stored under the structure.

2. Sidewalks, walkways, stairs, and ramps shall be kept free from defects/tripping hazards.

3. Adequate lighting for pedestrian traffic should be provided.

4. All passageways, stairs, ramps, entrances/exits and loading docks shall be kept clean and orderly.

5. Roof areas shall be kept clear of loose objects and materials.

6. Exterior areas shall be neat and free of debris.

7. Exterior equipment (transformers, AC units, etc.) shall be leak free.

8. Solid waste containers shall be closed and leak free.

9. Solid waste containers shall be labeled, staged on impervious surfaces, and not over filled.
10. Hazardous/Radioactive material containers shall be stored in protected enclosures and on impervious surfaces.
11. Hazardous/Radioactive material containers shall be in good condition, closed, leak free, and in secondary containment.
12. Hazardous/Radioactive materials areas shall be accessible to authorized personnel only.
13. All drums or other containers shall be secure and tightly capped, and structurally sound with no evidence of corrosion, cracks, leaks, or other damage.
14. All secondary containment systems shall be in good repair with no evidence of cracks or damage to impervious coating.
15. Scrap/Excess material storage areas shall be protected from weathering and material should be corrosion free.
16. Storm water catch basins shall be clear of foreign matter.

FIRE & LIFE SAFETY

1. Means of egress not obstructed by furniture, equipment, or other objects.
2. Each required exit from the building is to be identified by an illuminated exit sign.
3. All doors which are not an exit, which are located or arranged as to likely be mistaken for an exit, shall be identified by a sign indicating its actual character. (i.e. "CLOSET", "TO BASEMENT", "NOT AN EXIT", "TO COURTYARD", etc.)
4. All exit doors for emergency egress can be opened with an easy twist or provided with an UL approved panic bar.
5. Emergency lighting in place and working correctly.
6. Flammable liquids shall be stored in certified and labeled explosion proof refrigerators or cabinets.
7. The quantities of flammable liquids stored in laboratories, shops, and other point-of-use workplaces should be kept to the minimum necessary for efficient day-to-day operations.
8. Fire extinguishers should be inspected quarterly by the BNL Fire Inspector, should not be obstructed, and should be identified with a sign.
9. Sprinkler heads should be free of obstructions and protected from mechanical damage.
10. Fire Doors shall be closed, operable, inspected, and labeled.
11. Accumulation of combustibles shall not be allowed (paper, cardboard, wood, etc.).

HAZARDOUS WASTE MANAGEMENT

1. All satellite waste accumulation areas shall be posted with basic rules and shall be in compliance with the BNL Hazardous Waste Subject Area.

2. All satellite waste accumulation areas shall be at or near the point of generation and under the control of the waste generator.

3. All satellite waste accumulation areas shall have a record of waste additions to the container if more than one person is using it.

4. Each satellite waste accumulation area shall have less than 55 gallons of hazardous waste or 1 quart of acutely hazardous waste.

5. All containers in a satellite waste accumulation shall be kept closed except when adding or removing waste.

6. All containers in a satellite waste accumulation shall be properly labeled with the words "Hazardous Waste," a description of the contents, and the person's name.

7. 90-day hazardous waste areas shall be properly managed. The weekly checklist must be completed and signed by the area manger or delegate.

8. All hazardous wastes in the 90-day hazardous waste area shall be stored for less than 90 days and PCB waste shall be less than 30 days.

9. Waste labels shall be legible and completed in full.

10. An ABC fire extinguisher shall be within 30 feet of the 90 day storage area. A fire alarm pull box and a telephone shall be readily available.

11. 90-day hazardous waste area shall be posted with a sign stating "Hazardous Waste Storage Area Authorized Personnel Only."

12. All wastes shall be stored in proper secondary containment.

13. Oily waste receptacles shall be available in appropriate areas (e.g.: Machine shops & vacuum pump maintenance areas).

14. Used battery collection area shall be identified and posted with Universal Waste Accumulation Area Basic Rules.

MACHINE SHOP SAFETY

1. Machining of lead should be done only in designated shops.

2. Machine Shops shall be posted with a sign that states "Authorized Personnel Only."

3. Each machine shall be posted with a sign stating that safety glasses shall be worn while operating machine.

4. The opening between grinding wheel and rest should be no more than 1/8 inch.

5. Point of operation guards should be installed on all machines.

6. Machines designed for a fixed location shall be securely anchored.

7. All portions of a band saw/band resaw shall be enclosed or guarded, except for the working area of the blade.

8. Each power-driven machine should be provided with a disconnect switch that can only be locked in the OFF position.

9. Compressed air pressure, used for blowing metal chips, shall be less than 30 psi.

10. All motor start buttons shall be protected against accidental operation.

11. Power machines shall be provided with "safe start" devices. To prevent accidental restart after power failure.

OCCUPATIONAL SAFETY & INDUSTRIAL HYGIENE

1. Ladder Stands and Step Stools are in good condition:
   - Antiskid material is present on all steps, feet, and step stool bases
   - Wheels are functional (unless ladder stand is permanently fixed in place)
   - Caution label is posted and legible.

2. Ladders are OSHA compliant and either type I or II. (Note: type III ladders and non OSHA compliant ladders will be removed from service immediately).

3. General Housekeeping - The area shall be well maintained, clean, free of rodents/pests, and uncluttered.

4. Area should be kept free from accumulation of materials that constitute hazards from tripping, fire, explosion, or pest harborage.

5. Refrigerators shall be labeled correctly as "CHEMICALS ONLY" or "FOOD ONLY."

6. Separate disposal for glass and sharps (syringe needles) shall be available if needed.

7. Emergency phone number (2222) shall be posted on all telephones.

8. Non-hazardous waste containers shall be made available.

9. No eating, drinking or gum chewing in hazardous areas.

10. Lead that is not encapsulated nor used as radiation shielding shall be placed in the lead storage area.

11. Protective equipment (safety shoes, safety glasses, hard hats, hearing protection, cryogenic gloves, etc.) shall be used in posted areas and whenever encountering a process capable of causing bodily injury.

12. All stair treads shall be reasonably slip resistant and nosing shall have a non-slip finish.

13. Handrails shall be provided on all open sides of exposed stairways.

14. Emergency Information Placard (green board) should be visible and updated at least annually or when conditions change that affect the hazard data provided.

15. Hazardous Information Placards are attached to all exterior doors leading directly into rooms that may present a significant hazard. (i.e., cylinder storage, chemical storage, etc.)

16. Fixed ladders shall be maintained in a safe condition.

17. Cranes and hoists shall be inspected annually by the Plant Engineering Crane Inspector.

18. All walking surfaces shall meet OSHA compliance.

19. Adequacy of general ventilation in work area.

20. Appropriate lighting for activities in work area.

21. High noise area assessed and posted.

22. "NO SMOKING" signs posted appropriately.

23. Chemicals and equipment should not be stored in fume hoods, so as to disturb airflow or interfere with work in hood.

24. Fume hood shall be in proper working order, with maximum opening sticker is attached and not expired.

25. Bremsstrahlung shielding should be properly secured. Exclusion zones should be mounted securely and in good condition.

26. Storage on top of cabinets shall not be permitted.

27. Finger guards shall be installed on all equipment where moving parts are accessible.

28. Bulbs shall be lit and shields shall be installed (or safety bulbs installed) on all light fixtures below 8 feet.

29. Unsafe Condition - any condition, in the opinion of the tour members that could cause personal harm shall be corrected.

30. Ceiling tiles shall be in place and damage free.

31. Frayed rigging slings shall be replaced immediately.

32. All over-head televisions shall be secured.

33. Any condition that could cause equipment damage shall be corrected.

34. Spill response equipment shall be available in appropriate areas.

35. All yellow CAUTION tags that are becoming illegible shall be reviewed and updated.

RADIATION SAFETY

1. Proper shielding shall be provided for all radioactive material.

2. All radiation hazards shall be identified on the Emergency Information Placard.

3. Controlled Areas shall be appropriately posted and posting must be visible.

4. Radiological Areas shall be properly posted and up to date.

5. Radiological survey instrumentation shall be within the calibration due date, and shall have a documented source response check prior to use.

6. Radiological barriers, ropes, stanchions, and gates shall be in place and in good condition.

7. All personnel shall follow NSLS radiation TLD policy.

8. All radioactive sources shall be properly stored and labeled.

SECURITY

1. All personnel wearing ID Badge
2. All doors with self-closing features close properly

3. Door locks function where required

UNSAFE PRACTICES

1. Imminent danger - climbing without fall protection, failure to tie down ladders, or using cable tray for climbing

2. Using broken or damaged tools or ladders, parking in no-parking areas, going the wrong way down one-way streets, not wearing a TLD badge or dosimeter when required

OTHER

1. Environmental, Safety, Security, Health & and Quality Issues that cannot be otherwise categorized above

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NSLS Tier 1 Safety Inspection Report Attachment 2-Revision 2.0

NSLS Tier 1 Safety Inspection Report Attachment 2-Revision 2.0 pg.2

NSLS Safety Violation Notice Attachment 3-Revision 2.0

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LIGHT SOURCES DIRECTORATE REVISION LOG

Document Number:	LS-ESH-PRM-1.2.0
Subject:	**ENVIRONMENTAL, SAFETY AND HEALTH INSPECTIONS**

Rev	Description	Date
3	Original Document	04/11/00
4	Removed outdated references to safety standards. Changed inspection frequency on grounds to annual. Updated and reformatted Guidance List.	05/30/02
5	Added guidance pertaining to facility security and cyber security. Under the chemical section in the guidance list, added interim administrative controls posting requirements for corrosive use. Under the electrical section in the guidance list, updated all references to electrical range A. Changed prepared by from John Aloi to Bob Chmiel.	07/31/2007
6	• Deleted reference to Trailer Park. • Minor formatting changes. • Added "or Delegate" to persons responsible for inspecting 90 Day Area. • Added Universal Waste Accumulation Area Posting requirement. • Changed Yellow tag review from 5 years to when becoming illegible to match QA requirement. • Changed "prepared by" from Bob Chmiel to Keith Klaus.	01/17/08
7	Added criteria for inspection of ladder stands and step stools. Updated Security section of inspection guidance to conform to SBMS Subject Area.	03/18/09
8	Added requirement for ladders to be OSHA compliant and type I or II.	04/29/09