

ENVIRONMENT, HEALTH and SAFETY PLAN (HASP)

CONTRACTOR'S SAFETY PROGRAM

For

CONVENTIONAL CONSTRUCTION

March 31, 2010

Revision 1



BROOKHAVEN
NATIONAL LABORATORY

Operated by
Brookhaven Science Associates
Under contract with the
U.S. Department of Energy (DOE)

(NAME OF COMPANY)

HEALTH AND SAFETY PLAN (HASP)

For

Job Title: _____

Building Number: _____

Contract Number: _____

Job Number: _____

Date Awarded: _____

BNL Contract Person: _____

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Note: If a Section does not apply to your contract work, insert at the top of that Section:

“This Section does not apply to this contract work”

Section 1: COMPLIANCE LETTER

(COMPANY LETTERHEAD)

Date: _____

Brookhaven National Laboratory
Bldg. 650T
Upton, N.Y. 11973
Attn: Mr. Peter Boyle, or other designated person
Construction Supervisor

Re: Contract No: _____

Job Title: _____

Job No: _____

Bldg. No: _____

Dear Mr. Boyle:

In conformance with the requirements of the construction documents for the above project, the following information is submitted on our company's construction Health and Safety Program, (HASP):

- Copy of Record of Contractors previous (2) years total loss history **or**,
- Copy of the company's record of injuries and accidents (OSHA 300 logs), **or**
- Insurance experience modification rate for the past two years, **and**
- Environmental compliance records (if applicable) for past five years, including fines, Administrative Consent Orders, and Notices of Violations.

We understand that Brookhaven National Laboratory (BNL) is an ISO 14001 Registered Organization. All construction and environmental work shall conform to the applicable requirements of this program. **(Insert Company Name)** its employees and subcontractors shall follow the Occupational, Safety and Health Administration (OSHA) standards, New York State (NYS) Industrial Code Rules, Department of Energy (DOE) Directives, and the BNL requirements listed in its Standards Based Management System (SBMS) <https://sbms.bnl.gov> pertaining to: Work Planning and Control for Operations, Emergency Response/Spill Response, Waste Management (radiological, hazardous, mixed, medical, industrial), Chemical Handling and Use (RCRA, OSHA), Land Use Restrictions (Wetlands, Pine Barrens, Endangered Species), Liquid Effluents. If this HASP is amended i.e. changes in scope of work, new materials or processes, or as new information dictate, BNL review and accept those changes prior to implementation.

(Insert Company Name) its employees and subcontractors shall comply with the applicable requirements established in the Occupational, Safety and Health Administration (OSHA) standards, Department of Energy (DOE) Directives, New York State (NYS) Industrial Code Rules, SBMS <https://sbms.bnl.gov>. Environment, Safety and Health Standards of the SBMS are located at: <https://sbms.bnl.gov/SBMSearch/LD/ld08/ld08t011.htm> for review and use. Where the requirements specified in the BNL Standards Manual and the SBMS exceed the requirements of the OSHA standards, the BNL requirements shall take precedence.

BNL shall provide all appropriate permits required by these standards. **(Insert Company Name)** shall verify that these permits are current for the scope of work and updated, with appropriate approvals, to reflect any changes to the scope of work, and shall abide by the requirements of the permit.

This letter also certifies that (Insert Company Name) is aware of, understands and shall comply with the safety regulations of the DOE 10 CFR 851, OSHA Standard 29 CFR 1926 and 29 CFR 1910.

In addition, (Insert Company Name) understands that the BNL ES&H Standards Manual and the Standards Based Management System (SBMS) is available, on-line, for our review and use and we shall comply with applicable safety requirements for this project.

Sincerely,

Title: _____

Date: _____

Section 2: STATEMENT OF ACCIDENT PREVENTION PROGRAM

(COMPANY LETTERHEAD)

Re: Contract No: _____

Job Title: _____

Job No: _____

Bldg. No: _____

Project Superintendent: _____

Phone Numbers: Onsite: _____ **Off Site:** _____

Policy Statement: A safe and healthful place of employment is a basic right of every working person. Exposure to unsafe conditions, no matter who created them, is unacceptable. Therefore, accident prevention measures shall be integrated with all operating functions.

A safe and healthful place of employment can exist and be maintained only if both supervisory and non-supervisory personnel participate in and support the safety and health program by working with whoever is designated as being responsible for overseeing safety and health conditions on the job site. Employees should report all unsafe conditions to the Safety Representative or Alternate.

For each jobsite there shall be a **Safety Representative** and a **Safety Alternate**.

Name: _____

Phone Numbers: Jobsite: _____ **Office:** _____

Pager: _____ **Alternate's Name:** _____

The Safety Representative shall implement the Accident Prevention Program and shall:

1. Prior to the start of work each day on a jobsite, evaluate the site for any unsafe conditions at the jobsite and take appropriate steps to eliminate employee exposure.
2. Prior to the initiation of any work by employees, evaluate the hazards of that work, and instruct the employees as to site and job-specific hazards. As jobs change, site and job-specific instructions shall also change.
3. As a minimum, conduct documented weekly Safety Toolbox meetings with all employees. These meetings may be in the form of one-on-one contacts or group meetings. Example of a Target Audience could include BNL Construction Inspector, ES&H Professional, Project Management, Radiological Control Division, Building Manager, etc.
4. At a minimum, inspect the jobsite daily. Such inspections shall be documented, using a safety and health checklist noting discrepancies and the corrective actions taken. Include a descriptive outline of the program for daily inspections and reporting of jobsite conditions. The program shall include the person responsible for conducting inspections, the frequency of inspections, reporting unsafe acts or conditions, and taking corrective action to prevent or control the unsafe act or condition. Daily inspections shall be performed and documented by the Safety Representative or Alternate during active construction, periodically during shutdowns to ensure site barriers are maintained, etc., and when mandated by adverse weather conditions.
5. Insure that first aid and emergency services are available when required. Brookhaven National Laboratory (BNL) shall provide emergency services, fire, medical, and spill response, for any emergencies arising while on the Laboratory property. BNL shall provide emergency medical transportation. All construction personnel shall use the BNL emergency phone number 2222 or

911 (from any BNL phone) or 344-2222 (from a pay phone or cellular phone) and immediately notify the BNL Project Person in the event of any emergency. Minor injuries shall be those that are treatable by first aid only and the contractor must maintain a First Aid Injury Log where the first aid kit(s) are located. The sheets shall be turned in monthly to the project office for recordkeeping purposes. All other injuries, beyond basic first aid shall be reported to and treated by BNL's Occupational Medicine Clinic or BNL's Laboratory Protection Division's Fire Rescue Group.

6. Investigate all accidents or near-miss accidents and take appropriate steps to eliminate the cause of the accident before work is resumed. All such incidents and the follow-up treatment shall be reported immediately to the BNL Project Manager for required additional notifications.
7. Periodically review and update this checklist with additional items that were originally not included, but identified during the worksite inspections.

8. Inform all employees of the location and availability of the company's WRITTEN HAZARD COMMUNICATION PROGRAM, which is required to be on the jobsite, and which must include copies of all MATERIAL SAFETY DATA SHEETS (MSDS) for hazardous materials used on the jobsite by the Company.

9. Make readily available for all employees copies of 29 CFR 1910.20, Employee Access to Exposure and Medical Records (which includes Material Safety Data Sheets and other exposure records).
10. Conduct annual training for employees concerning who is the person responsible for keeping these records and that the employees or their authorized representatives have the right to have access to them.
11. Ensure that all personnel (workers or visitors) wear, as a minimum, the following personal protective equipment (PPE)
 - a. Approved head protection (Hard-hat required for all construction sites).
 - b. Approved foot protection
 - c. Approved safety glasses with side-shields – ANSI Z87 compliant
 - d. Long pants.
 - e. Shirts with sleeves that cover the shoulders, no tank tops or cut-off shirts.
 - f. Hi-Visibility Reflective Vests or clean Hi-Visibility apparel.
12. Ensure that all workers on the job site wear personal protective equipment appropriate for their particular task as defined in the Phase Hazard Analysis, (PHA), written for that scope of work. **The Safety Representative or Alternate shall be on the site and immediately available whenever physical work is in progress, either by the General Contractor or by subs of any tier.**

Safety Representative Training and Qualifications:

I certify that the Safety Representative and Alternate, has completed, as a minimum, the 10-hour OSHA Construction Safety course, (no subcontractors). For multi-discipline projects, using subcontractors, the 30-hour OSHA Construction Safety Course shall be completed. **Attached is a copy of those individual's training completion certificate(s).**

A summary of the Safety Representative's and Alternate's training and qualifications, as appropriate for this job, is also included. The individuals are trained and knowledgeable in the Environment, Safety & Health requirements of the project for which he or she shall be responsible.

Acceptable training and qualifications shall include certificates of completion for formal classroom and hands-on training, as applicable, in:

- OSHA- approved 10-Hour Construction Safety & Health Regulations, 30-Hour for high hazard or complex activities, (supervising subcontractor work).

Additional training may be required for specific hazards for competent persons.

Designation as Competent Person

Specific identification of “Competent Person” (per OSHA), his/her qualifications, including, but not limited to, formal Construction Safety Awareness courses taken, applicable to the nature of this Project, and where applicable, the method of accomplishment in a specific plan, i.e. fall protection, excavation. Competent Person must have had formal, documented training, have knowledge of existing standards, and have authority to take actions deemed necessary.

- Competent Persons shall be designated by the Contractors Safety Representative to oversee safety matters in an individual group performing work at individual work locations. They shall be designated in the HASP. Competent Persons are the Contractors’ persons responsible for safety matters in an individual group performing work at individual work locations. They may be Subcontractor personnel and have other Project responsibilities in addition to their safety function. They shall be familiar with the work being performed, shall have appropriate OSHA related training, be familiar with the hazards to be encountered at the particular Work Site, and shall be capable of being designated as the OSHA defined “Competent Person”. They shall have the authority to stop the work if an unsafe condition develops or an unsafe act is occurring. An interview may be required with BNL to establish their competency and to secure the BNL’s acceptance/concurrence prior to their assignment as a Competent Person.
- Note: A “Competent Person” certification is not achieved just by successfully completing a 10 or 30 hour Construction Outreach Safety training course. It is through specialized courses of instruction for that particular field or topic.
- Operations requiring a Competent Person:
 - Lockout/Tag out (LOTO)
 - Working on live electrical circuits
 - Scaffolds
 - Excavations
 - Confined Spaces
 - Material handling/forklift operation/rigging
 - Fall Protection
 - Respiratory Protection
 - Hazardous Chemicals
 - Lead, asbestos
 - Radiological

Company Owner/President/CEO

Date: _____

Section 3: CONTRACTOR/SUBCONTRACTOR RESPONSIBILITIES

(COMPANY LETTERHEAD)

The following summarizes the responsibilities of the (Insert Company Name) as prime contractor and any subcontractors hired by the contractor in the course of this project:

CONTRACTOR RESPONSIBILITIES:

- General Contractors shall retain full responsibility for the safety of his/her personnel and all subcontractor personnel.
- Immediately stop and rectify any and all conditions that are found to be unsafe and/or unsanitary.
- Issue a "Stop Work" for those events, which pose an imminent danger to personnel, environment, or equipment. All Stop Work orders shall be reported to the BNL Construction Inspector.
- A follow-up report shall be issued detailing the action taken to rectify any and all unsafe conditions.
- Coordination of activities with Subcontractors shall take place to ensure work proceeds in accordance with applicable safety requirements.
- BNL Construction Inspector and Subcontractors shall be notified of any recognized hazards, potential problem areas and safety requirements.
- Establish and maintain complete and accurate records of construction site hazard inventory information, hazard assessments, exposure measurements, and exposure controls, including a daily, written inspection of the site.
- Coordination of all pertinent certifications, training and record keeping shall take place and their accessibility for review made available.
- Review possible safety hazards, construction activities, etc., with his/her personnel.

SUBCONTRACTOR RESPONSIBILITIES:

- Subcontractors shall retain full responsibility for the safety of his/her personnel also.
- Subcontractors shall sign-off indicating acceptance of the General Contractor's HASP before starting work on the site.
- Review possible safety hazards, construction activities, etc., with his/her personnel.
- Issue a "Stop Work" order for those events which pose an imminent danger to personnel, environment, or equipment. All Stop Work orders shall be reported to the General Contractor and the BNL Construction Inspector.
- Ensure that their supervisors and workers understand all necessary precautions to be taken and sees that these precautions are carried out.
- Make regular inspections of hand tools and equipment prior to daily use in all phases of the construction activity.
- Immediately correct any safety deficiencies when identified and/or notified.
- Immediately inform the General Contractor and General Contractor Safety Representative of any and all unsafe conditions or activities.

An open and continuous line of communication shall be maintained between the Contractor and Subcontractor to discuss and abate any unsafe acts or conditions that arise or may arise in the course of this project.

(COMPANY LETTERHEAD)

TRAINING AND EDUCATION:

- Effective safety oriented signs and posters shall be properly posted and clearly visible at various locations around the job site to include the designated entrance to the project site.
- The Safety Representative or Alternate shall ensure that all personnel and Subcontractors have been properly trained for the hazards anticipated on this project as specified in Section 15, "*Phase Hazard Analysis*".
- All new or re-hired personnel shall be effectively instructed in construction safety policies, regulations and procedures for the project prior to the start of work, for one's own safety and the safety of all those working at the job site (documented).
- Avoiding recognized potential hazardous situations during the activities planned for the workweek shall be addressed at weekly toolbox talks or more frequently if necessary. Any new safety procedures, PHA's, and safety updates shall be discussed at these talks, and a safety-conscious attitude shall be emphasized and reinforced.
- As each new phase of construction begins, as specified in Section 16, "*Phase Hazard Analysis*" (PHA), comprehensive, detailed, task-specific PHA's shall be developed and submitted for acceptance, a minimum of one week ahead of the scheduled activity start, and a safety awareness meeting shall be held for all personnel and subcontractors involved in that new aspect of the work. The affected employees shall review and acknowledge the PHA with their signature.
- Proper steps shall be taken to correct non-compliance and to all personnel not practicing appropriate safety measures and procedures.
- Incorrect safety practice/procedure shall be immediately communicated to the responsible person.
- The Safety Representative or Alternate shall ensure that the person has a clear understanding of the corrective action to take and the possible consequences if those measures are not followed.
- Severe or repetitive safety violations shall be cause for permanent removal from the job site.
- The Safety Representative shall maintain on file any special training records and education documentation. These files shall be continuously updated.

DRUG-FREE WORKPLACE POLICY STATEMENT

(COMPANY LETTERHEAD)

Drug-Free Workplace

Policy Statement:

The unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace. A single violation of such prohibition shall result in the offending individual being removed from the job-site and recommendation of participation in an approved drug abuse assistance or rehabilitation program, and/or reporting to the civil authorities for criminal prosecution.

All employees shall abide by the rules of this program, and shall notify the employer in writing of the employee's conviction under a criminal drug statute for a violation occurring in the workplace no later than 5 days after such conviction.

Program Elements:

Ongoing drug-free awareness training program includes:

1. Mandatory, documented participation by all employees as outlined on the following page.
2. Classroom and/or toolbox discussions shall include:
 - The dangers of drug abuse in the workplace.
 - Distribution and discussion of the Contractor's policy of maintaining a drug-free workplace.
 - Any available drug counseling, rehabilitation, and employee assistance programs.
 - The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace.
3. Intervention Procedures - employee and supervisor.
 - Identification - Signs and Symptoms
 - Corrective action
4. Personnel actions - program enforcement, disciplinary options, and employee assistance.
 - Legal or criminal actions.
 - Disciplinary actions up to and including termination.
 - Drug abuse or rehabilitation program.
5. Brookhaven National Laboratory's Contracting Officer shall be notified in writing within 10 days after receiving notice of an employee's conviction under a criminal drug statute for a violation occurring in the workplace. Notification shall include the position title of the employee and the appropriate personnel action to be taken within 30 days under the requirements of this program.

Company Owner/President/CEO

Date: _____

DRUG-FREE WORKPLACE REQUIREMENTS – TOOL BOX TALK

Project Title: _____

Location: _____

Date: _____

Instructor: _____

(Insert Company Name) strictly prohibits the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance including alcohol. A single violation of such prohibition shall result in the offending individual being removed from the job-site and recommendation of participation in an approved drug abuse assistance or rehabilitation program, and/or reporting to the civil authorities for criminal prosecution. Counseling, rehabilitation, and assistance are available through this company, for further information contact *(Insert Employee Assistance Representative's)* or talk to your supervisor.

All employees shall abide by the rules of this program and shall notify *(Insert Company Name)* in writing of the employee's conviction under a criminal drug statute for a violation occurring in the workplace no later than 5 days after such conviction.

Personnel should be alert to abnormal behavior, and are required to report their observations to the appropriate supervisory personnel. Should the behavior create or have the potential to create a hazard to personnel, property or the environment, personnel have the right to stop work on that activity.

Substance and alcohol abuse shall not be tolerated in the workplace. It contributes to unsafe, unproductive work, and may result in adverse action against you personally by company and legal authorities.

List of trained attendees: (To be continuously updated and included with the project file)

TOOL BOX TOPIC - OUTLINING, TASKS, HAZARDS and CONTROL MEASURES (Target Audience)

Worker Safety Toolbox Topic Meetings

Worker Safety Toolbox Topic meetings shall be held no less than once each week. Each employee of the Contractor and each subcontractor working at the Site shall attend these meetings.

An employee failing to attend a Toolbox Topic meeting shall not be permitted to perform any work that requires safety precautions that were discussed in the meeting, until the employee has received the same instruction.

The Contractor should notify BNL at least 1 week in advance of each scheduled Toolbox Topic meeting. A record of each meeting, including the topics covered, and a signed list of attendees, shall be prepared by the Safety Representative or the Alternate and transmitted to the BNL Project Engineer within 3 working days after the meeting.

Each Toolbox Topic meeting shall include instruction and discussion of safe working methods, PHA's, and applicable rules required for the safe performance of the work scheduled during the 1-week period following the meeting. BNL reserves the right to direct the Contractor to cover additional information.

The Toolbox Topic meeting may be conducted by the Safety Representative, the Contractor supervisor, or by a supervisor of the subcontractor. The Safety Representative shall approve the content of each subcontractor Worker Safety Toolbox Topic Meeting.

Selecting Tool Box Topics

Use common sense in selecting a pertinent topic. You wouldn't want to present "Dressing for Winter Work" in the middle of summer. "Heat Exhaustion/Sunstroke" is more appropriate to the season. Failure on management's part to select an appropriate topic to present will result in uninterested workers, a waste of everyone's time and a loss of credibility on the part of company management.

Observe job-safety techniques. Focus on what is important (and mandatory). Listen to and follow up on employee recommendations. Identify what poor work practices are causing injuries or accidents on the job. Plan for and schedule out for a month so you have time to research and possibly modify your company policy to make it more effective.

Recognizing Unsafe Conditions

Recognizing unsafe conditions, or hazards in the workplace, is not just a Management responsibility. It is everyone's responsibility from the most junior employee to the company president to identify hazards and make suggestions on how to fix the problem.

Guide for Discussion

Help develop and/or participate in the review of the specific Phase Hazard Analysis for the task to be done.

- Causes of unsafe conditions or actions:

- Taking an unsafe position
- Lack of skill or knowledge or failure to apply skill or knowledge.
- Poor housekeeping, cluttered work area.
- Horseplay.
- Congested, poorly lit, sloppy material storage areas.
- Careless handling of materials.
- Improper or defective tools being used.
- Lack of machine guarding or failure to install/maintain warning systems.
- Lack of or failure to wear the proper personal protection equipment, (PPE).
- Weather conditions – high winds, snow and ice, lightning.
- Worker not dressing properly for the job to be done.
- Failure to follow instructions.

- Inattention to surroundings and to identify the existing hazards in the work area.
- Poor attitude towards the safety effort/program
- Taking chances or shortcuts.
- Worker's physical condition or limitations, not being "fit for duty".

Steps to take once an unsafe condition is found:

- If possible, correct the condition yourself immediately
- Report any major unsafe condition or action to the appropriate company authority.
- Follow-up – report the condition again if it is not corrected.

Remember: There are three steps to follow in recognizing unsafe conditions.

- Look for trouble (the unsafe condition),
- Report it or fix it, (if you can), and
- Act to prevent it from happening again.

Additional Discussion Notes that are Specific to this Project:

NOTE: Always promote a discussion on any of the topics covered in the Worker Safety Tool Box Meetings. Should any question arise that you cannot answer, don't hesitate to contact your Employer.

(INSERT COMPANY NAME)

EXAMPLE OF HAZARD COMMUNICATION PROGRAM

1. Purpose

The purpose of this hazard communication program is to inform ***(Insert Company Name)*** employees and all sub-contractor employees of known chemical hazards that may exist in the workplace as per OSHA Subpart Z, §1910.1200;.

2. Application

This program applies to chemicals known to be present in the workplace in such a manner that employees may be exposed under normal conditions, non-routine tasks, or foreseeable emergencies.

This hazard communication program relies on Material Safety Data Sheets (MSDS) from suppliers for purposes of hazard determination.

3. Program Summary

The major elements of this written program are as follows:

- a) Labels and other forms of warning
- b) Material Safety Data Sheets (MSDS) from suppliers
- c) Employee information and training
- d) List of hazardous chemicals known to be present in the workplace
- e) Methods for informing employees of hazards of non-routine tasks
- f) Methods for informing contractor employers of hazards their employees may be exposed to while working for ***(Company Name)***.

4. Labels and Other Forms of Warning

Each container of hazardous chemicals shall be labeled, tagged, or otherwise marked with:

- a) The identity of the hazardous chemicals (or chemicals), and,
- b) Appropriate hazard warnings

Labels and other forms of warning shall be legible and in English, and shall be prominently displayed or readily available in the work area during each shift.

5. Material Safety Data Sheet

A material safety data sheet (MSDS) shall be kept for each hazardous chemical known to be present in the workplace.

Material safety data sheets are kept ***(location)*** and are readily accessible by employees during each work shift.

The ***(Job Title)*** is responsible for maintaining the MSDS in a complete and up-to-date manner.

When work is shipped off-site to Vendors, copies of MSDS for any known hazardous chemicals included as part of the products shipped shall be passed along to the Vendor.

6. Training & Information

- a) All employees shall be trained according to a written hazard-communication training plan that is part of the company's overall hazard communication program.
- b) Training shall extend to non-routine tasks, as necessary, and to foreseeable emergencies.
- c) All employees shall be trained on any revisions to this program.

(INSERT COMPANY NAME)

HAZARD COMMUNICATION TRAINING PROGRAM

1. Initial Assignment Information and Training

- a) The **(Insert Job Title)** shall train new employees in hazard communication and protection procedures as part of their general orientation before the new employees begin work.
- b) The **(Job Title)** is responsible for training affected employees whenever new hazardous chemicals are introduced into the workplace. This responsibility extends to provide additional training, as required, for existing employees reassigned into new positions.
- c) All current employees shall be trained in the elements of **(Company Name)** hazard communication program by **(Insert Contract Start Date)**.

2. Curriculum

- a) All employees shall be provided with the following information:
 - 1) Employees shall be informed that **(Company Name)** is required by law to have a chemical hazard communication program.
 - 2) Employees shall be informed of the details of **(Company Name)** chemical hazard communication program including:
 - The location and ready availability of a list of all hazardous chemicals used by the company
 - A list of all hazardous chemicals known to be present in the work area is kept at **(Location)** and is available for review by employees during each work shift
 - The location and ready availability of Material Safety Data Sheets (MSDS) for hazardous chemicals used within the company
 - Specific operations or tasks in the employees' work area that use hazardous chemicals
- b) All employees shall receive training as follows:
 - 1) Employees shall be trained in methods and observations to detect the presence of hazardous chemicals.
 - 2) Employees shall be trained regarding the specific physical and health hazards of known hazardous chemicals in the employees' work area.
 - 3) Employees shall be trained in protective measures including the use of personal protective equipment and protective measures implemented by **(Company Name)**, including work procedures.
 - 4) Employees shall be trained in understanding, interpreting and using hazard information provided on labels and in MSDS.

3. Training Program Completion

All **(Company Name)** employees are required to successfully complete the **(Company Name)** hazard-communications training program. Employees are required to follow safe and healthy work practices as a condition of employment.

4. Non-Routine Tasks:

Training for hazard protection during non-routine tasks is the responsibility of the **(Insert Supervisor or other Job Title)** and shall be provided as needed.

5. Foreseeable Emergencies:

Training for hazard protection during foreseeable emergencies (such as fires, floods, spills, etc.) shall be provided to all affected employees as part of their general safety training.

6. Sub-Contractor Employees

The employer of sub-contractors required to work on this project shall be informed of the hazard communication program. While the sub-contractor is responsible for their own employees' training, (Company Name) shall attempt to answer sub-contractor employees' questions about workplace hazards.

The MSDS and list of hazardous materials shall be available to sub-contractor employees as well.

REFERENCES:

29 CFR 1910.1200 – <i>Hazard Communication Program</i>
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Section 6: EMERGENCIES: FIRE, MEDICAL, ENVIRONMENTAL & ACCIDENT INVESTIGATION

(COMPANY LETTERHEAD)

Hazard Control and Implementation Guidelines/Checklists:

The Safety Representative or Alternate shall assume responsibility and ensure that the following guidelines are adhered to for the safeguard of all personnel and the environment:

A. FIRST AID AND MEDICAL ATTENTION:

- The Safety Representative or Alternate shall maintain an adequate sized First Aid Kit onsite.
- The Safety Representative or Alternate shall inform the BNL Project Manager of all injuries immediately.
- For all injuries and illnesses beyond basic first aid, the Safety Representative or Alternate shall immediately report them to Brookhaven National Laboratory's Occupational Medicine Clinic or BNL Laboratory Protection Division Fire Rescue personnel for treatment at extension 2222 or 911. If calling from a phone not part of the BNL system, i.e., cellular phone, (631) 344-2222 must be dialed.

Notification of the injury shall also be made to the Safety & Health Services Division, BNL Construction Inspector, F&O ESHTQ and DOE, by the BNL Project Manager

- The Safety Representative or Alternate shall ensure that all project personnel are properly trained on site and facility-specific information.
- Only qualified BNL Laboratory Protection Division Fire Rescue Group personnel shall provide emergency services and medical transportation.

B. FIRE PROTECTION AND PREVENTION:

- Fire extinguishers shall be provided and properly maintained at strategic locations around the job and free access to all fire hydrants of the job site shall be maintained.
- Fire protection equipment shall be provided during any construction activities that may pose a fire hazard, i.e. welding, open flame, cutting & welding, etc., and there shall be one fire extinguisher for each activity.
- ***(Insert Company Name)*** shall provide fire protection equipment (one fire extinguisher for each 1,500 sq. ft. of floor space).
- All necessary permits, i.e. welding, cutting, etc., shall be obtained and a fire watch program shall be in effect as needed.
- There shall be one fire watch assigned for each open flame operation with no other duties assigned to the person on fire watch.

- In case of any fire notify the Safety & Health Services Division, BNL Construction Inspector immediately after notification of the Fire Rescue Group.

- Within **2 hours** of an emergency incident, the Safety Representative shall submit a written report to BNL Modernization Project Office (MPO) and the report shall include, as best as can be determined within the two hour period, the following information:
 - Type of fire
 - Cause of the fire
 - Planned remedial action to prevent any future occurrences
 - Nature and outcome of any and all injuries not only personnel, but also to equipment and the project itself

C. ENVIRONMENTAL PROTECTION:

- The use of containment for spill intervention shall be implemented when applicable.
- There shall be proper storage and handling of hazardous materials (all MSDS sheets inclusive).
- There shall be proper documentation of operations, maintenance and repair of equipment.
- Leaking or loose fluid retention systems shall be intercepted via documented daily equipment inspection.
- Roller Compacted Aggregates, Concrete or Blacktop shall be used as the surface for overnight parking, site storage of vehicles or heavy equipment that have the potential to leak.
- **(Company Name)** shall remove all unused chemicals at completion of project and before departing the BNL site.

In the case of a fire, medical emergency, spill response or any other arising emergency the BNL Laboratory Protection Division shall be immediately contacted by dialing the following number(s):

Dial 2222 or 911 from any BNL phone

Dial (631)344-2222 from a phone not part of the BNL system
i.e., cellular phone or other outside lines

Upon notifying BNL Laboratory Protection Division, contact the *Safety & Health Services Division and the BNL Construction Inspector.*

D. SITE EMERGENCY SIGNALS

- **Building Fire Alarm Bells:**
 - Any Activation of fire alarms
 - Evacuate the building immediately and report to the outdoor assembly area.
- **Site Sirens:**
 - **Continuous** sounding of the site sirens for 5 minutes; Proceed immediately to the designated indoor assembly area, await further instructions which may include the nature of the emergency, the type, sequence and the routes for evacuation.
 - **Intermittent** sounding of the site sirens for 5 minutes; Evacuate the site immediately.
 - Contractor shall establish an effective means or alerting workers to emergencies

E. Assembly Areas, Evacuation Zones & Routes

- Contractor is to identify and post indoor and outdoor assembly areas locations and evacuation routes from the project site.

F. Accident Investigations

If one or more persons require medical treatment beyond first aid and/or reportable damage to the environment or property has occurred, the Contractor shall immediately notify the BNL Laboratory Protection Division. After notifying BNL Laboratory Protection Division, contact the Safety & Health Services Division and the BNL Construction Inspector as soon as possible.

Preserving the Scene

The Contractor will secure and preserve the accident scene to the greatest extent possible. Preserving the scene means leaving everything within the vicinity of the accident untouched, the extent possible. Securing and isolating the scene of an incident protects people from any remaining hazards, prevents the scene from being disturbed or altered, and prevents items from being removed from or relocated within the incident scene so that an accurate reconstruction of events is possible. A scene is generally secured by such means as:

- Cordoning the area off with rope, tape, or barricades
- Locking doors and gates
- Posting warning signs
- Using a log to document who can enter the area and their justification for entry
- Posting guards to control and limit access

The Contractor will maintain the security of the scene until BNL's Laboratory Protection Division and other qualified responders and subject matter experts can assume control of the scene of an incident.

Interviews

The accident investigator or competent person will need to begin interviewing involved parties and witnesses as soon as possible after the event to collect facts, construct a timeline, and clarify critical elements. The Contractor shall identify witnesses to the accident and ensure that any uninjured parties are available for interview.

If any witnesses are injured or in distress, be sympathetic and do not cause additional distress to find out what happened. Instead, diplomatically collect names and contact information and provide these to the accident investigator or competent person.

Section 7: EXCAVATIONS

(COMPANY LETTERHEAD)

EXAMPLE OF COMPETENT PERSON QUALIFICATION SUBMISSION FOR EXCAVATIONS

(Insert Name) _____ is the designated, qualified, competent person responsible for excavation safety on;

Job Title: _____ Bldg #: _____ Job # _____

(Insert Names) is/are effectively trained, qualified by experience, and fully knowledgeable in excavation hazards, OSHA excavation safety standards, and safe working requirements.

(Insert Names) is fully qualified and responsible for identifying excavation hazards and has authority to take all precautions necessary to protect personnel, property and the environment.

The qualified competent person shall be responsible for:

- Implementing the project-specific excavation plan,
- Making frequent daily physical inspections to verify proper implementation,
- Taking all precautions necessary, up to and including work stoppage,
- Advising BNL and workers on any required changes to the excavation plan,
- Briefing workers on current project-specific excavation hazards prior to start of shift,
- Securing and clearly marking the area during working and non-working hours, and
- Flagrant violation of excavation safety requirements will result in termination.

Company Owner/President/CEO

Date



Note: If excavations will be within the scope of work for the project, a detailed, site-specific excavation plan shall be developed by a competent person and submitted to BNL for acceptance prior to start of excavation. Some elements of an effective plan shall include as a minimum:

EXCAVATION PLAN

- Brookhaven National Laboratory has categorized soil on site as class C, (non-cohesive).
- All cave-in protection shall conform to the applicable OSHA requirements for Class C soil. Benching is not permitted.
- Methods intended for supporting existing utilities and maintaining surface appurtenances such as roadways, sidewalks, and other anticipated surface encumbrances is defined herein.
- A contingency plan for notifying the Modernization Project Office (MPO), Long Term Response Action (LTRA) Group, Laboratory Protection Division upon suspicion or discovery of any contaminated soils, live munitions or other materials shall be implemented.

- Excavations that are less than 5 feet (1.52m) in depth and physical examination of the ground by the qualified competent person provides no indication of any potential cave-in or soil movement, shoring or sloping is not required **providing conditions do not change**.
- Where the competent person finds there is **any** potential risk of cave-in, and sloping is to be used solely as cave-in protection, the slopes shall be no greater than one to one and one-half, rise to run, or approximately 34 degrees from the horizontal. Note: Class C soil cannot be benched.

- Satisfactory lumber/timber shall be used, i.e. badly cracked/broken timber shall not be used for bracing or support of excavations.
- An adequate number of ladders shall be present in the excavation for access. OSHA requires no more than 25 feet of lateral travel between ladders. Ladders must extend 36" above the top surface of the excavation and used in accordance with the manufacturer's instructions.
- Excavated materials shall be placed away from excavation cut a minimum of 2' in order to decrease additional loading on the support system as well as decreasing potential for excavated material to slough off into the cut.
- Daily, **documented**, inspections shall be done by the excavation competent person to monitor the condition of the support system.
- A plan for proper de-watering and an excavation plan that fully describes the method used to protect workers from cave-in shall be submitted for review and acceptance by BNL.
- Proper permits shall be filled out and approved before beginning work (i.e. digging, confined space entry permits, etc.)
- There shall be barricading to eliminate the potential of vehicles or personnel from falling into the excavated site.
- A rigging plan for materials in and around the excavation shall be submitted for review and approval.
- Excavations shall be effectively barricaded to prevent unauthorized entry.
- Earth ramps shall be constructed in soil so a person can exit the excavation while standing upright.

CAVE-IN PROTECTION EQUIPMENT

- Cave-in protection equipment shall be provided at 5 ft in depth and examination of the soil/ground by a competent person provides no indication of a potential cave-in or soil movement.
- For excavations greater than 20 feet in depth, the protective systems shall be designed and approved by a registered professional engineer with a specialty in soil mechanics. Where shoring, shielding or systems other than sloping are proposed, there shall be a submittal of manufacturer's or engineer's data on the system to be used, the depths of the excavations where it shall be applied, and the system configurations to be utilized.
- The soil for this project is type Class C. All cave-in protection shall conform to the applicable OSHA requirements for Class C soil. Cave-in protection systems shall be submitted to the Modernization Project Office (MPO) for acceptance prior to work being performed in the excavation or trench.
- Failure to have a "qualified competent person" present during excavation work will result in the work being stopped.

REFERENCES:

29 CFR 1926 Subpart P - Excavations

Section 8: CONCRETE AND MASONRY PENETRATIONS

(COMPANY LETTERHEAD)

PERMITS:

- All concrete and masonry penetrations shall be performed in accordance with Facilities & Operations Directorate DF-ESH-803 "Concrete and Masonry Penetrations," which requires that a completed permit be in place at the jobsite prior to penetrations being made.
- A Lockout/Tagout Program shall be submitted and accepted if utilities must be shutdown to safely perform the work.
- There are hazards associated in the scope of many construction activities. One such hazard is the generation of respirable dusts i.e. silica during horizontal concrete penetrations. Respiratory protection shall be evaluated and documented for use by the contractor Industrial Hygiene group during these and other activities throughout the course of a project.

REFERENCES:

29 CFR 1926 Subpart Q – Concrete and Masonry
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Section 9: ELECTRICAL SAFETY

(COMPANY LETTERHEAD)

ELECTRICAL SAFETY PROGRAM & SAFEGUARD CHECKLIST:

- Electrical dangers and improper electrical conditions, when observed, shall be corrected immediately.
- Use of the following equipment is prohibited by all personnel.
 - Metal ladders used while performing energized electrical work
 - Damaged or defective equipment, such as frayed extension cords, missing grounding pins, etc.
 - Not using equipment as designed or required by manufacturer such as daisy-chaining of electrical cords, indoor use only component being used outdoors, not protecting cords from physical damage, pinch points, (run through doorways), improperly strung in corridors, etc.
- All personnel shall be protected from such electrical hazards:
 - Exposed live electrical parts
 - Ungrounded electrical equipment (double insulated tools are acceptable)
 - Unprotected electrical cords, (ground not continuous).
 - Non-GFCI protected equipment
- Daily tests and inspections by a qualified person on the following construction equipment shall be made to ensure it is safe, free from defects, and functioning properly, (as intended):
 - Lighting and illumination equipment
 - Power and Electrical Equipment
 - GFCIs
 - Portable electric tools and cords
 - Extension cords
- Safety Representatives or Alternate shall ensure that all project personnel are instructed to inspect power tools prior to each use to ensure tools are in proper operating condition.
- Immediately tag out and remove all equipment found to be defective for repair or replacement.
- A Control Zone shall be utilized to protect personnel who may accidentally encounter exposed energized components because of a lack of knowledge or awareness of the hazards.
- Personnel who may accidentally come in contact with energized circuits while working within a Control Zone shall be protected by the following:
 - Training in accordance with appropriate procedures,
 - Lockout and Tagout,
 - A suitable barricade, signs and
 - Personal Protective Equipment appropriate for the task
- Equipment failure shall be prevented by proper maintenance and inspection of all electrical equipment and other equipment/tools coming into contact with electric equipment/sources.

REFERENCES:

29 CFR 1926 Subpart K – Electrical Safety 29 CFR 1910 Subpart S – Electrical Safety NFPA 70E – Standard for Electrical Safety in the Workplace
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EXAMPLE OF PERIODIC INSPECTION CHECKLIST

DATE OF INSPECTION ___/___/___ TIME OF INSPECTION _____

NAME OF INSPECTOR _____

NAME OF EMPLOYEE BEING INSPECTED _____

DATE OF ORIGINAL TRAINING ___/___/___

DEPARTMENT WHERE WORKING _____

MACHINE OR EQUIPMENT _____

DEVIATIONS OR INADEQUACIES OBSERVED DURING THE INSPECTION:

REVIEW CONDUCTED OF EMPLOYEE'S RESPONSIBILITIES? Yes___ No___

INITIAL TRAINING TO BE REPEATED? Yes___ No___

THE SIGNATURES BELOW CERTIFY THAT A PERIODIC INSPECTION HAS BEEN PERFORMED, AND COMPLETED.

INSPECTOR_____ EMPLOYEE_____

Sample -TESTING, TROUBLESHOOTING, AND VOLTAGE MEASURING ELECTRICAL WORK PERMIT
Contractor: _____ Permit # 2009-1

PART I: TO BE COMPLETED BY THE REQUESTER:

- (1) Description of circuit/equipment/job location: Various electrical equipment with a listed Hazard/Risk Category up to 1 (2) Description of work to be done: LOTO, testing, troubleshooting, or diagnosing equipment
- (3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage: Testing, troubleshooting, diagnosing, and zero-voltage testing are required to be performed energized. BNL Supervisor must be notified prior to work

Company President

Date

PART II: HAZARD ANALYSIS:

Detailed job description procedure to be used in performing the above detailed work: Notify affected workers, LOTO all

- (1) sources of hazardous energy unnecessary to complete work, cordon off work area, while wearing PPE listed below perform work to complete task.
- (2) Description of the Safe Work Practices to be employed: LOTO Reason not to LOTO Work is required to be performed energized

(3) Flash Boundary	4 ft.	Flash Hazard	1	Working Distance	18"
Shock Hazard	Up to 480 volt	Limited Approach Restricted Approach Prohibited Approach	3'5" Avoid contact	Glove Class	00

(4) Protective Equipment

<input type="checkbox"/> None	<input checked="" type="checkbox"/> Earplugs	<input checked="" type="checkbox"/> Leather Gloves as required	<input checked="" type="checkbox"/> Leather Shoes as needed
<input type="checkbox"/> Cotton Clothing	<input type="checkbox"/> Face shield	<input checked="" type="checkbox"/> Voltage-rated Gloves	<input type="checkbox"/> Voltage-rated Shoes
<input checked="" type="checkbox"/> Fr Clothing	<input type="checkbox"/> Flash suit	<input checked="" type="checkbox"/> Hard Hat	<input checked="" type="checkbox"/> Safety Glasses

- (5) Means employed to restrict the access of unqualified persons from the work area: barrier tape, barricade, or attendant

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Group Leader/Job Supervisor/Company President

Date

PART IV: WORK

Job Briefing must be performed including discussion of any job-related hazards to include:
 Daily pre-work briefing
 Post work feedback during weekly toolbox

PART V: The following AUTHORIZED WORKERS are Qualified Persons trained in emergency procedures per NEC70E :

Name	Life #	Name	Life #
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Authorizing Supervisor/Company President

Date

Supervisor acknowledges the above personnel are properly trained, knowledgeable and experienced to work under the permit.

Forward a copy to BNL contact.

Sample - TESTING, TROUBLESHOOTING, AND VOLTAGE MEASURING ELECTRICAL WORK PERMIT

Contractor:

Permit # 2009-2

PART I: TO BE COMPLETED BY THE REQUESTER:

- (1) Description of circuit/equipment/job location: Various electrical equipment with a labeled Hazard/Risk Category up to 2* or, if there is no arc flash hazard label, tasks on attached list with a Hazard/Risk Category #2
- (2) Description of work to be done: LOTO, testing, troubleshooting, or diagnosing equipment
- (3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage: Testing, troubleshooting, diagnosing, and zero-voltage testing are required to be performed energized. BNL Supervisor must be notified prior to work.

Company President

Date

PART II: HAZARD ANALYSIS:

Detailed job description procedure to be used in performing the above detailed work: Notify affected workers, LOTO all sources

- (1) of hazardous energy unnecessary to complete work, cordon off work area, while wearing PPE listed below perform work to complete task.
- (2) Description of the Safe Work Practices to be employed: LOTO Reason not to LOTO Work is required to be performed energized

(3) Flash Boundary	4 ft.	Flash Hazard	2*	Working Distance	18"
Shock Hazard	Up to 480 V	Limited Approach Restricted Approach Prohibited Approach	3'5" 1'-0" 0'-1"	Glove Class	00

(4) Protective Equipment

<input type="checkbox"/> None	<input checked="" type="checkbox"/> Earplugs	<input checked="" type="checkbox"/> Leather Gloves	<input checked="" type="checkbox"/> Leather Shoes
<input type="checkbox"/> Cotton Clothing	<input checked="" type="checkbox"/> Face shield	<input checked="" type="checkbox"/> Voltage-rated Gloves	<input type="checkbox"/> Voltage-rated Shoes
<input checked="" type="checkbox"/> Fr Clothing	<input type="checkbox"/> Flash suit	<input checked="" type="checkbox"/> Hard Hat	<input checked="" type="checkbox"/> Safety Glasses/Goggles
	<input checked="" type="checkbox"/> Balaclava		

- (5) Means employed to restrict the access of unqualified persons from the work area: barrier tape, barricade, or attendant

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Group Leader/Job Supervisor/Company President

Date

PART IV: WORK

Job Briefing must be performed including discussion of any job-related hazards to include:
Daily pre-work briefing
Post work feedback at weekly toolbox

PART V: The following AUTHORIZED WORKERS are Qualified Persons trained in emergency procedures per NEC70E :

Name	Life #	Name	Life #
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Authorizing Supervisor/Company President

Date

Supervisor acknowledges the above personnel are properly trained, knowledgeable and experienced to work under the permit.

Forward a copy to BNL contact.

Sample -TESTING, TROUBLESHOOTING, AND VOLTAGE MEASURING ELECTRICAL WORK PERMIT

Contractor:

Permit # 2009-3

PART I: TO BE COMPLETED BY THE REQUESTER:

- (1) Description of circuit/equipment/job location: Various electrical equipment with a labeled Hazard/Risk Category up to 4 or, if there is no arc flash hazard label, tasks on attached list with a Hazard/Risk Category 4
- (2) Description of work to be done: LOTO, testing, troubleshooting, or diagnosing equipment
- (3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage: Testing, troubleshooting, diagnosing, and zero-voltage testing are required to be performed energized. BNL Supervisor must be notified prior to work

Company President

Date

PART II: HAZARD ANALYSIS:

- (1) Detailed job description procedure to be used in performing the above detailed work: Notify affected workers, LOTO all sources of hazardous energy unnecessary to complete work, cordon off work area, while wearing PPE listed below perform work to complete task.
- (2) Description of the Safe Work Practices to be employed: LOTO Reason not to LOTO Work is required to be performed energized

(3)

Flash Boundary	4 ft.	Flash Hazard	4	Working Distance	18"
Shock Hazard	Up to 480 V	Limited Approach Restricted Approach Prohibited Approach	3'-6" 1'-0" 0'-1"	Glove Class	00

(4) Protective Equipment

<input type="checkbox"/> None	<input checked="" type="checkbox"/> Earplugs	<input checked="" type="checkbox"/> Leather Gloves	<input checked="" type="checkbox"/> Leather Shoes
<input type="checkbox"/> Cotton Clothing	<input type="checkbox"/> Face shield	<input checked="" type="checkbox"/> Voltage-rated Gloves	<input type="checkbox"/> Voltage-rated Shoes
<input checked="" type="checkbox"/> Fr Clothing	<input checked="" type="checkbox"/> Flash suit	<input checked="" type="checkbox"/> Hard Hat	<input checked="" type="checkbox"/> Safety Glasses/Goggles
	<input type="checkbox"/> Balaclava	<input checked="" type="checkbox"/> double-layer switching hood	

- (5) Means employed to restrict the access of unqualified persons from the work area: barrier tape, barricade, or attendant

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Group Leader/Job Supervisor/Company President

Date

PART IV: WORK

Job Briefing must be performed including discussion of any job-related hazards to include:
Daily pre-work briefing
Post work feedback at weekly toolbox

PART V: The following AUTHORIZED WORKERS are Qualified Persons trained in emergency procedures per NEC70E :

Name	Life #	Name	Life #
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Authorizing Supervisor/Company President

Date

Supervisor acknowledges the above personnel are properly trained, knowledgeable and experienced to work under the permit.

Forward a copy to BNL contact.

(COMPANY LETTERHEAD)

SAFE OPERATION AND MAINTENANCE:

Prior to the use of motor vehicles or mobile equipment on BNL property, this plan shall be discussed with all employees, including subcontractor employees, concerning the scope of work to be accomplished, and the methods to accomplish that work safely as outlined in the task specific Phase Hazard Analysis, (PHA).

The supervisor, foreman, or safety representative shall verify that all vehicles and mobile equipment have been inspected and maintained at the **beginning of each shift** to assure all parts, equipment and accessories affecting safe operation are in proper operating condition and free from defects. Inspection and maintenance shall include:

- Operator License, Certification, or other documented Qualifications
- Backup alarms, equipment warning horn
- Rollover Protective Structures (ROPS)
- Lighting
- Cab Glass
- Fluid Levels
- Leak/Spill Containment and Cleanup Equipment, Procedures and Training
- Service brakes, Parking Brake
- Restraint devices, (Seat Belts)
- Traffic Safety Requirements
 - Spotters
 - Portable fire extinguisher
 - Cones/barricades/berms/stop logs
 - Trained Flagging Personnel
 - Traffic Warning and Information Signs cited by OSHA and specified by the Manual Uniform Traffic Control Devices (MUTCD).
 - Emergency Signals
 - Work Plan, (PHA)
 - Traffic Diversion Plan, (Maintenance of Traffic).
 - Approvals from Local Authorities and Agencies

All defects shall be corrected before placing vehicle/equipment in service.

Employees shall not operate vehicles or mobile equipment with an obstructed view to the rear without a reverse signal alarm distinguishable from the surrounding noise level unless an observer signals that it is safe to do so.

**THE OPERATOR SHALL IMMEDIATELY STOP THE VEHICLE OR MOBILE EQUIPMENT IF HE/SHE
LOSES SIGHT OF THE OBSERVER**

All vehicles and equipment shall be maintained in a leak free condition. Effective secondary containment methods shall be employed to prevent any leakage onto soil. Fittings and hoses shall be frequently inspected for tightness, proper seal, deterioration, or loss of leak-tight integrity.

All personnel shall know the emergency stop signal and shall use it in the event of, or potential for, imminent danger or violation of a radiological requirement. When feasible, ground personnel, spotters, supervisors, and safety representatives shall carry air horns as an established emergency stop signal for all equipment.

Every attempt shall be made to establish and maintain equipment operations a safe distance away from ground personnel or other equipment that may be adversely impacted by the operation of mobile equipment. Safe work zones shall be established to prohibit personnel from being within the range of motion of equipment, material being manipulated or carried by equipment, or material or structures that could potentially become entangled or disturbed by equipment. In any area, personnel shall not approach equipment from within the range of motion defined above without the operator's knowledge and consent.

If required to work within the range of motion of equipment or materials, personnel shall attend daily toolbox discussions/briefings with operators to define the day's plan for accomplishing the work, and individual responsibilities and work locations. Methods for maintaining communication via visual contact, hand signals, and the use of air horns shall be established for and understood by all affected personnel. Personnel working within the range of motion of equipment or materials shall maintain communication with equipment operators at all times as discussed at the daily toolbox meeting. All personnel exposed to mobile equipment or vehicles of any type or at any time, shall wear high visibility clothing.

Machinery, equipment, or parts thereof, which are suspended or held aloft, shall be substantially blocked to prevent falling or shifting while personnel are working on, around, or between them. Vehicles and equipment shall be maintained and repaired at our company shop, never on the customer's property.

Equipment or rigging components shall not be modified without the Manufacturer's written consent which a copy will then be maintained on the job site for review by BNL.

Free rigging off the tines of Forklifts is a violation of OSHA requirements and is prohibited.

Suspect/Counterfeit rigging components are a know hazard in the construction industry. All rigging items brought onto the site shall be inspected by the BNL Hoisting & Rigging Inspector before being placed into initial service, and by a qualified person on a regular basis thereafter..

REFERENCES:

29 CFR 1926 Subpart O – Motor Vehicles, Mechanized Equipment, and Marine Operations

Note: If hoisting & rigging will be within the scope of work for the project, a detailed, site-specific rigging plan shall be developed by a qualified person and submitted to the BNL Hoisting & Rigging Inspector for review and acceptance at least 4 working days prior to the planned lift. All lifting equipment and operations must be conducted in accordance with applicable ANSI standards and DOE and OSHA requirements. Some elements of an effective plan shall include as a minimum:

EXAMPLE OF RIGGING PLAN

Building #: _____ **Work Location:** _____ **Job #:** _____

Project Title: _____ **Project Engineer:** _____

Mobile Crane Operations: (Descriptive Drawing - Sketch w/measurements of pre- and post-lift locations any encumbrances/clearances, crane capacities at working radius, impact on utilities (contact MMC @ ext 2468) include protective measures where required.)

Crane Operators: Licensed by the **NYS Dept of Labor**, qualified for the specific type of equipment to be used.

Mobile Crane Inspection Documentation: (Include copies of the crane load charts (as planned set up), plus documentation of latest crane inspections (annual & monthly) along with rigging plan.)

Total Weight of Lift: (includes load weight, all rigging equipment, & load block)

Description of Material to be Lifted w/Dimensions, Center of Gravity:

Tag lines and locations of attendants:

Pre-lift Meeting: (Documented, attendees, content)

Designated Signal Person:

Designated Person In Charge (PIC):

Communication and Signals: (Hand signals, emergency signal, voice communication.)

Describe Method of Accomplishment: (provide a written description of the operation. All lifting operations must be conducted in accordance with ANSI standards and the DOE and OSHA requirements.)

REFERENCES:

29 CFR 1926 Subpart H – Material Handling, Storage, Use and Disposal

EXAMPLE OF RIGGING PLAN WORKSHEET

(INSERT NAME OF CONTRACTOR)

Building #: _____ Job #: _____ Project Title: _____
Location: _____

Note: All lifting operations shall be conducted in accordance with applicable ANSI standards and DOE and OSHA requirements.

Equipment List						
Equipment List	Type	Qty.	Dimensions	Capacity	Configuration	Load
Slings						
Shackles						
Roller/Skates						
Jacks						
Cribbing/Shoring						
Hoist						
Lifting Vehicles						
PPE/HAZMAT						
Transport Vehicles						

REQUIREMENTS FOR SITE-CLEARING PLAN

The following must be included when developing a site-clearing plan:

Person in Charge (PIC)

- Name
- Phone or pager #'s
- Qualifications and experience include any safety training received.

Daily Pre-clearing site evaluation

- Existing encumbrances, appurtenances, or other obstacles.
- Changes in site conditions or other trade activities.
- Installation and continuing maintenance of silt fences throughout project.

Coordination with other trades

- Site access control, area marked, fenced, or otherwise identified.

Communication and Signals

- Hand signals
- Emergency signal
- Voice communication.

Equipment inspection and maintenance

Inspect equipment daily or before each use for:

- Safety guards and features in good condition and working order; i.e. kickback protection ROPS/FOPS, PPE, alarms, seatbelt, vehicle horns, service brakes, parking Brake, cab glass, etc.

Daily Pre-clearing site evaluation - Existing encumbrances, appurtenances, other obstacles, changes in site conditions, or other trade activities.

Coordination with other trades - Site access control, area marked, fenced, or otherwise identified.

Communication and Signals - Hand signals (see chart), emergency signal, voice communication.

Training- Initial, ongoing, weekly toolbox talks, daily operations plan.

Equipment inspection and maintenance - Inspect equipment daily or before each use for safety guards and features in good condition and working order; i.e. kickback protection, ROPS/FOPS, PPE, alarms, cab glass, etc.

Requirements:

- Descriptive Drawing - Sketch of site to be cleared showing beginning and ending locations or areas of concentration, direction of work to progress, locations of clearing operations (generic if no unusual circumstances expected, or specific for areas requiring operational changes to accommodate existing or future obstacles or site conditions), safe working distances or radii, material handling/trucking routes(generic and specific), traffic signs as stipulated in the Manual Uniform Traffic Control Devices (MUTCD), material staging and processing areas, silt fences, telephone, sanitation supplies, lunch/break areas.
- Describe Method of Accomplishment - A written description of the operations, the personnel performing them and their sequence, i.e. felling, limbing, bucking, skidding, chipping, loading, cabling, etc. is attached. All clearing operations must be conducted in accordance with ANSI and OSHA requirements.

EXAMPLE OF SITE-CLEARING PLAN WORKSHEET

(INSERT NAME OF CONTRACTOR)

Building #: _____ Job #: _____ Project Title: _____
 Location: _____

Note: All tree felling, cutting, handling, and chipping operations shall be conducted in accordance with applicable ANSI standards and OSHA requirements.

Equipment List						
Equipment List	Type	Qty.	Operator(s)	Capacity	Configuration	Load
Saws						
Loaders						
Skidders						
Chippers						
Trucks						
Transport Vehicles						
Slings/Cables						
Other						

I (Insert name) ensure that all rigging hardware and slings will be in accordance with the OSHA, ASME and BNL Lifting Safety Subject Area requirements for inspection and load test.

Submitted by: _____ Date Submitted: _____

Approved: YES NO Reviewed by: _____

Reason for Rejection:

Note: If conventional fall protection measures cannot be used (i.e. guardrails, safety nets, catch platforms), then a site-specific written fall protection program shall be developed by a qualified person submitted to BNL for review and acceptance prior to commencement of working at heights 6' and above. Some elements of an effective plan shall include as a minimum:

Section 11: FALL PROTECTION

(COMPANY LETTERHEAD)

General:

- Each employee on a working/walking surface **6 feet or more** above a lower level shall be protected from falling by a **guardrail system, a safety net system, or personal fall arrest system**. Where a guardrail system is employed, and a controlled access zone has been established for leading edge work, the control line may be used in lieu of a guardrail system along the edge that parallels the leading edge as described in the written and accepted, site specific, fall protection program.
- Guardrails shall be constructed at all floors, wall openings, or roof openings if these openings cannot be covered. Guardrails shall be constructed at all elevator shafts and stairwells.
- All fall protection equipment in use shall be inspected daily before use by a qualified person.

Observe any possibilities of elevated falls:

Ladders:

- Ladders shall be used in accordance with manufacturer's instructions.
- There shall be careful observation of and advising to all personnel on proper use of ladders, slope of ladders, height above elevation levels, conditions of ladders.
- Ladders shall be properly inspected by a qualified person to make sure that the following conditions are not encountered:
 - Broken rungs or missing steps
 - Improperly secured and erection of ladder
 - Improper ladders used (i.e. using metal ladders for electrical work)
 - Poorly constructed man-made ladders
 - Used in accordance with the manufacturer's instructions
 - Painted surfaces which cover up defects
- Use of ladders with broken/missing rungs or steps, broken/split side rails or other faulty or defective construction is prohibited. If ladders are defective they shall be marked "Do Not Use" and removed from the site.
- Ladders shall extend at least 36" above the landing and shall be tied-off to prevent accidental displacement. To minimize fall exposures, use of ladder extensions are encouraged. Step ladders shall only be used in the full open position with side brackets locked.
- For man-made (not commercially purchased) ladders, the following criteria shall be included in their construction, as specified by OSHA:
 - Width of single cleat ladders shall be between 15 and 20 inches.
 - Cleats shall be uniformly spaced, 12 inches, top to top. Filler blocks must be used between the cleats.
 - A nominal dimension of two-inch by four-inch lumber shall be used for side rails up to 16 feet long.

Scaffolds: (Submit the completed Scaffold Training Session Acknowledge Sheet with this HASP)

- Scaffolds shall be plumbed level and properly erected, maintained and guarded; and working surfaces shall be fully planked, equipped with guardrails, and set on sound, rigid footing. Toe boards are required on walking/working surfaces where there is a potential for tools and equipment to fall off.
- All scaffolds used on this job shall be designed by (Name of Competent and Qualified Person) and constructed and loaded in accordance with that design.
- Each employee who works on the scaffold shall be trained by a competent person to recognize the hazards associated with the type of scaffold in use and to understand the procedures to control or minimize those hazards, training shall be documented, and the records continuously updated as necessary and maintained on the project.
- Employees who are observed/discovered standing on guardrails, or tied off to unapproved guardrails or other components will be immediately terminated for cause, (zero tolerance).
- (Company) shall have each employee who is involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold trained by (Name of Competent & Qualified Person) to recognize any hazards associated with that work.
- Scaffolds and scaffold components shall be inspected for visible defects by a competent person before assembly and then before each work shift, and after any occurrence which could affect a scaffold's structural integrity. Tags shall be affixed to the scaffold showing proof of daily inspections.
- For this project, the type of scaffold to be used is (Insert the type of scaffold) and it conforms to the requirements of (Insert appropriate 29 CFR 1926 Subpart L Section)

References:

29 CFR 1926 Subpart L	Scaffolds
29 CFR 1926 Subpart M	Fall Protection
29 CFR 1926 Subpart X	Stairways and Ladders
BNL SBMS Fall Protection Subject Area	

SECTION 12: LOCK-OUT/TAG-OUT PROGRAM

POLICY:

This document defines lock-out/tag-out, list specific procedures to follow to properly lock-out/tag-out, define responsibility for lock-out/tag-out, and show the importance of both education and discipline in these procedures.

INTRODUCTION:

Lockout/tag out (LOTO) refers to specific practices and procedures to safeguard employees from injury due to the unexpected energization or startup of machinery and equipment, or the release of hazardous energy during operations, service, or maintenance activities.

These may include:

- Gravity
- Electrical
- Mechanical
- Chemical
- Hydraulic
- Pneumatic
- Thermal
- Radiological

RESPONSIBILITY:

It is the responsibility of the ***(Name of Responsible Individual)*** to enforce the lock-out/tag-out procedure as well as provide the necessary equipment to comply in all respects with the procedure. Transferred employees shall be instructed by their supervisor in the purpose and use of lock-out/tag-out procedure. Supervisors shall be responsible for enforcing the specific lock-out/tag-out procedures.

1. No locks shall be removed from equipment without first consulting the BNL Project Manager.
2. A lock-out/tag-out continued from one shift to the next shall be the responsibility of the craftsmen involved to remove the appropriate lock and replace it with a new one.
3. If more than one individual is required to lock-out or tag-out equipment, each shall place their own lock or tag on the affected equipment in such a way as to be certain the equipment is locked out. If the affected equipment cannot accept multiple locks or tags, a multiple lock-out or tag-out hasp shall be used.

EQUIPMENT:

Equipment shall consist of the following:

1. Padlocks – Master brand only with a red band. Provide sufficient quantities of padlocks, each lock to have an individual key, and one master key controlled by ***(Name of Responsible Individual)***.
2. Multiple Lock Tongues and Lock Boxes - to be used in case more than one person or group is involved in a job.
3. Danger/Warning Tags and Log Book- to be used whenever lockout/tag out is used to control hazardous energy. Tags shall be compliant with ANSI 535.5 Log Book compliant with the SBMS.

1. Equipment shall be distributed and controlled by ***(Name of Responsible Individual)***.

WHEN TO LOCKOUT/TAGOUT:

Lock-out/tag-out procedures shall be used:

Anytime there is danger of injury from an unexpected release of energy.

In Section 16, of the Phase Hazard Analysis, contractors of any tier must identify specific hazardous energy sources and their controls.

A LOCK-OUT is simply a locking device, such as a padlock, placed on a power source to prevent the release of hazardous energy that could set a machine in motion or otherwise endanger an employee working on the machine. Locks may be used with a lock-out device that holds an energy control point, such as a switch, lever or valve, in the off position, making it impossible to operate.

A TAG-OUT is a written warning telling all others not to operate a switch or valve that could release hazardous energy or set a machine in motion. The tag-out is placed prominently on the switch or lever so as not to be missed.

LOCKOUT/TAG-OUT PROCEDURES:

The following are specific procedures to be followed for lockout/tag out:

1. ***(Name of Responsible Individual)*** shall contact the BNL Project Contact Person for information of known hazards related to the Contractors work.
2. ***(Name of Responsible Individual)*** shall discipline workers when informed of observed violations of lockout/tag out by BNL Contact Person.
3. ***(Name of Responsible Individual)*** shall identify all lockout/tag out qualified persons who are trained and knowledgeable in the requirements of Lockout/Tag out and trained to recognize and avoid the hazards that might be present.
4. ***(Name of Responsible Individual)*** shall train unqualified persons on the requirements of the lockout/tag out procedures for unqualified persons.
5. ***(Name of Authorized Individual)*** shall be authorized by Company for testing <600 volts on energized equipment or conductors, in writing and a written copy given to the BNL Contact Person.

NOTE: Only immediate BNL Contact Person (Supervisor) and 2 knowledgeable persons are to authorize emergency removal of a lock or tag. An attempt must be made to notify the individual who applied the tag. After removal tag must be signed by the 3 individuals and logged.

6. Equipment startup. ***(Name of Responsible Individual)*** shall make a final safety check before restarting equipment, to be certain it is safe to operate. Make sure of the following:
 - a. All tools and other items have been removed.
 - b. All machine guards are returned to their proper position.
 - c. All electric, hydraulic, pneumatic or other systems are properly reconnected.
 - d. All employees are clear of equipment.
 - e. Work has been inspected by the BNL Electrical Inspector.

Many of the lock-out/tag-out procedures appear to be common sense, and they are. Following them will ensure safe operation calibration, maintenance and repair of equipment and/or processes, without dangerous surprises or injury.

REFERENCES:

29 CFR 1910.147	Control of Hazardous Energy (Lockout/Tag out)
29 CFR 1926.417	Lock-out and Tagging of Circuits
NFPA 70E	Standard for Electrical Safety in the Workplace

(COMPANY LETTERHEAD)

HOT WORK PERMIT:

- Proper cutting/welding permits shall be obtained from the BNL Construction Inspector. The contractor will participate in the review for the permit and comply with all requirements on the permit. Cease operations if permit conditions cannot be met.
- Requirements of the SBMS Fire Safety Subject Area shall be observed.

Hot Work Permits are required for:

1. Welding and allied processes;
 2. Heat treating by use of open flame;
 3. Grinding;
 4. Thawing pipe by open flame or resistance from electrical current flowing through the pipe;
 5. Powder-driven anchors;
 6. Hot riveting;
 7. Thermite welding;
 8. Brazing, braze welding, silver solder and soldering;
 9. Similar applications producing or using a spark, flame, or heat.
- Participate in the review for the permit and comply with all requirements on the permit. Cease operations if permit conditions cannot be met.
 - Preventing fires in all areas of the Laboratory complex
 - Assessing the risk from fire within individual work areas by use of a PHA
 - Ensuring safe egress from facilities
 - Installing, inspecting, and maintaining fire suppression, fire detection, fire walls and fire doors
 - Designing, installing, modifying, and documenting fire detection and suppression systems
 - Minimizing the chance of a fire started by or accelerated with the use of flammable or combustible liquids, pyrophoric materials and combustible metals, hydrogen, and oxidizers
 - Proper separation, securing and storage of gas cylinders
 - Notification shall be made to the Laboratory Protection Division Fire Rescue Group and a permit obtained 24 hours prior to work commencing.
 - A dedicated, trained, fire watch and the suitable fire extinguisher for the cutting/welding operation shall be provided and maintained until 60 minutes after the hot work is completed (or as specified on the Hot Work Permit for the job). This includes break and lunch periods. For a complete listing of required precautions, consult the Hot Work Permit. If there is a need to resolve conditions, contact the BNL Construction Inspector for assistance.
 - Maintain proper PPE during all Hot Work operations

Example of the daily checklist required to be completed by the contractor:

Daily Checklist to Review Area for Fire Prevention During Welding, Cutting, and Other Hot Work

Supervisor completing the checklist: _____ **Date** _____

Item	Yes	No	N/A
All combustibles must be relocated at least 35 ft in all directions from the work site and the following criteria also must be met:			
Where the combustible materials, such as paper clippings, wood shavings, or textile fibers, are on the floor, the floor is swept clean for a radius of 11 m (35 ft).			
Ducts and conveyor systems within 35 ft that might carry sparks to distant combustibles are shielded, or shut down, or both			
Combustible floors (except wood on concrete) within 35 ft are kept wet, covered with damp sand, or protected by noncombustible or fire-retardant shields			
If relocation is impractical, combustibles are protected with fire-retardant covers or otherwise shielded with metal or fire-retardant guards or curtains			
Where floors have been wet down, personnel operating are welding equipment or cutting equipment are protected from possible shock			
If hot work is done near walls, partitions, ceilings, or roofs of combustible construction, fire retardant shields or guards should be used to prevent ignition of pipes or other metal that are in contact with combustible walls, partitions, ceilings, roofs, or other combustibles. Hot Work should not be done if the work is close enough to cause ignition by heat conduction unless the following criteria are met:			
a) Precautions are taken to prevent ignition of combustibles on the other side by relocating the combustibles.			
b) If it is impractical to relocate combustibles, a fire watch is provided on the side opposite from where the work is being performed			
Hot work must not be attempted on a partition, wall, ceiling, or roof that has a combustible covering or insulation, or on walls or partitions of combustible sandwich-type panel construction			
Fully charged and operable fire extinguishers that are appropriate for the type of possible fire are available immediately at the work area			
During hot work, consideration and special precautions are to be taken to avoid accidental operation of automatic fire detection or suppression systems due to the proximity of the hot work. Special extinguishing systems, sprinklers, or detection systems may require impairment.			
Nearby personnel are suitable protected against dangers such as heat, sparks, and slag?			
Changes in local conditions may affect the length of the period for which the hot work permit is valid. Review local conditions after any changes. Changes affecting the above stated criteria should result in work ceasing until a new permit is issued			
Upon review of the hot work, with a knowledgeable Work Planner and concurrence of the person issuing the Hot Work Permit, the 4-hour final monitor requirement may be modified based on circumstances using a graded approach. This is to be noted in the "Other Precautions Are" of the Hot Work Permit.			

REFERENCES:

29 CFR 1926 Subpart J – Welding and Cutting BNL Fire Safety Subject Area

Section 14: CONFINED SPACE ENTRY

(COMPANY LETTERHEAD)

DEFINITION OF A CONFINED SPACE:

A confined space meets the following physical characteristics:

1. Is large enough and so configured that personnel can bodily enter and perform assigned work;
2. Has limited or restricted means for entry or exit (e.g., tanks, vessels, silos, storage bins, hoppers, vaults, and pits);
3. Is not designed for continuous personnel occupancy.

Confined Space Entry

Entry into confined spaces shall be in accordance with Brookhaven National Laboratory SBMS Subject Area – Confined Spaces

The BNL SBMS Subject Area provides procedures for ensuring safe work at BNL for all personnel who enter confined spaces. It describes the requirements for safe entry, work, and exit of personnel assigned to work in confined spaces. These requirements apply to all BNL staff and non-BNL staff, including outside contractors.

This subject area describes restrictions and requirements for entry certification and confined space entry permits for compliance with 29 CFR 1910.146, Permit-required Confined Spaces. For F&O Directorate-managed projects, the Modernization Project Office (MPO) shall provide all permits for confined space entry.

BNL's Laboratory Protection Fire Rescue Group shall provide emergency response and shall be notified whenever there is an entry into a permitted confined space.

Section 15: RESPIRATORY PROTECTION AND EXPOSURE MONITORING

(COMPANY LETTERHEAD)

RESPIRATORY PROTECTION

- Respirators, applicable and suitable for the purpose intended, shall be provided by the employer when such equipment is necessary to protect the health of the employee.
- The employer is responsible for establishing and maintaining a respiratory protection program in accordance with OSHA regulations.
- There are hazards associated in the scope of many construction activities. One such hazard is the generation of respirable dusts i.e. silica during horizontal concrete drilling. Respiratory protection shall be evaluated for use by the contract Industrial Hygiene group during these and other activities throughout the course of a project.

If data is available to support the supposition that real-time monitoring is not necessary, i.e., data exists on a previous job, or in peer-reviewed literature, to show that neither the ACGIH or OSHA exposure limits are exceeded, then such data must be included with this Health and Safety Plan, and reviewed and accepted by either the BNL Industrial Hygiene Group or the employer's safety and health and professional responsible for Industrial Hygiene monitoring.

EXPOSURE MONITORING PROGRAM

All work on the project shall be done within the occupational exposure limits for Industrial Hygiene hazards set in OSHA 29CFR1926, 29CFR1910, and American Conference of Governmental Industrial Hygienists (ACGIH) *Threshold Limit Values*® (TLV) (including, but not limited to, chemical, lead, silica, asbestos, beryllium, noise, non-ionizing radiation, and heat stress hazards on the project). Compliance with the OSHA Permissible Exposure Limits and ACGIH *Threshold Limit Values*® shall be determined by representative personnel exposure monitoring and dosimetry conducted by the employer or their representative. The details of the project's exposure monitoring equipment, methods, and monitoring strategy are included in this Health and Safety Plan.

The employer will provide qualified monitoring and hazard assessment personnel to conduct all Industrial Hygiene monitoring. In addition, personnel who conduct exposure monitoring on workers who handle, disturb, or remove friable asbestos containing material will maintain NYSDOL Industrial Code Rule 56 & USEPA required training and certification for Project Monitor. Copies of all monitoring personnel certifications are included as part of this Health and Safety Plan

The employer will conduct monitoring with calibrated equipment using National Institute of Occupational Safety and Health (NIOSH) or OSHA approved methods, and have analysis conducted by an American Industrial Hygiene Association (AIHA) Proficiency Analytical Testing certified laboratory or by National Institute of Standards and Testing (NIST) traceable calibrated direct reading instrumentation. All instrumentation used for surveys shall be calibrated in compliance with the manufacturer's specification prior to use in the field.

Copies of all equipment calibration, field sampling sheets, laboratory analysis reports, and hazard assessment evaluation reports shall be submitted to the BNL within 5 days after the receipt of results from analytical laboratories or within 5 days after analysis by direct reading instruments, meters, or monitors. The monitoring equipment to be used on this project is listed on the attached table.

Section 16: PHASE HAZARD ANALYSIS PROGRAM

INTRODUCTION:

A Phase Hazard Analysis, (PHA), is an **effective** written work plan, which identifies the tasks to be completed; including access/egress and set-up/breakdown under all **expected or created** environmental conditions. Also included is the method of work for safely completing these tasks, associated work hazards, and the corresponding equipment and methods that will be used to prevent loss to **persons or property** for all contracted work, including that of Subcontractors who will develop their own PHA's and forward them to the General Contractor for their written approval, who will then forward the PHA's to BNL for acceptance..

The PHA document shall provide BNL with a defined plan of action for identified hazards and comprehensive prevention methods for exposures to workers, the BNL populous/public, and property. PHA's shall address all foreseeable exposures to employees, the BNL populous/public, and property for Contract work, including all tiers of Subcontractors. The PHA shall be used as the basis for Contract coordination items and safety planning discussions in the Construction Management process.

The Phase Hazard Analysis (PHA) is intended to identify each phase of the project, the specific hazards associated with work tasks in each of those phases, and to effectively **detail** the mitigation and prevention measures to be taken to prevent injuries, property damage, and environmental insults. For example, if the project requires working from elevations, a detailed description of the fall protection measures (including the type of equipment used) which will be taken. If respiratory protection is required, the type of respirator must be listed. **It is not sufficient to say, "Comply with all OSHA regulations."**

The Contractor shall submit a PHA document to BNL for each primary work activity at least one week prior to the intended start of that activity, (a sample PHA document is included). If the PHA does not adequately address all expected, foreseeable hazards posed by the work, BNL will require clarification or additional planning to ensure that work proceeds safely. Work shall not begin until the PHA has been submitted and accepted by BNL. If required by BNL, a presentation of the means and methods of the work to be done is to be made to BNL by the Competent Person(s) involved, showing how the plan will be implemented, **effectively communicated to the workers and properly carried out** to the satisfaction of BNL.

Where special or heavy equipment will be used, the contractor must specify the type of equipment to be used, e.g., front-end loader, man lift, concrete finishing equipment, etc. The contractor must research available information for each specialized piece of equipment, including operating manuals, manufacturer's web sites, etc., and address those hazards identified by the manufacturer of the equipment. If available prior to the start of the project the contractor must supply to the BNL Construction Safety Engineer that portion of the equipment-operating manual or other reference material, which discusses the safety precautions for that piece of equipment.

In the identification phase of the hazard identification and control process, the contractor will conduct surveys, interview workers, conduct inspections, and review records to determine the presence of hazardous conditions or program weaknesses. Analysis goes a step beyond mere identification. Not only do we want to determine if hazards exist, we want to know the negative impact that program weaknesses and hazards have on the workplace and what must be accomplished to eliminate or reduce that impact.

By closely **analyzing each part** of a component of a task, in each phase of that process, or each step in a procedure, recognized potential hazards will be identified and effective control measures put in place.

Below is an example of a typical partial list of recognized construction project hazards. It is intended that the contractor develop his own list for the specific project.

Sample of PHA's that are Task-Specific

Work Related Hazards

Temporary Construction
Cranes & other large equipment
Hand and Power tools
Compressed gases
Flammables
Hazardous Chemicals/Spills
Fire
Lockout/Tagout
Falls From Elevation
Weather Conditions
Slips, Trips and Falls
Material Delivery
Cutting/Grinding/Chipping
Roofing Work
Unsafe Acts (other)
Placement of Warning Signs

Site Configuration Hazards

Access/Egress
Underpinning/Pile Driving/Shoring
Protection of the BNL Populous
Support of Utilities
Excavations
Falling Objects
Flying Objects
Housekeeping/Site Clean Up
Noise Damage
Maintenance & Protection of Traffic
Temporary Electric
Confined Spaces
Operating energized equipment
Demolition Activities
Unsafe Conditions (other)

Section 16: PHASE-HAZARD ANALYSIS

(COMPANY LETTERHEAD)

To be completed for submittal and review. For each separate phase of the work, Task-Specific, (as appropriate) indicate the known hazards that shall be encountered and the prevention and mitigation controls which shall be in place.

SAMPLE ONLY

Work Phase or Task	Recognized or Known Hazards	Prevention/Controls
Mobilization/Staging		
Site Clearing		
Site Grubbing		
Dust Control		
Excavation/ Utility work		
Backfilling		
Compacting		
Grading		
Road Bed Stone Placement		
Building Demolition		
Asphalt Placement		
Temporary Electric		
Foundation Demolition		
Plumbing Work		
Concrete/Masonry		
Interior Rehab		
Electrical		
Mechanical Work		
Utilities		
Flooring		
HVAC		
Masonry/Exterior Work		
Building Siding		
Interior Finish Work		
Road Work - Maintenance of Traffic		
Roofing		
Structural Steel/Rebar Work		
De-mobilize		

EXAMPLE OF SPECIFIC SITE HAZARDS AND CONTROL MEASURES

SCOPE	LOCATIONS	TRADES INVOLVED	HAZARD	WORKER PROTECTION (PPE)	PUBLIC PROTECTION	CONSTRUCTION MEANS & METHODS
Steel remediation, concrete remediation, scaffolding and fireproofing	Lab rooms	Iron Workers Masons Carpenters Laborers	Fall Fire Trains Electrical Scaffold Erection Hazardous Material Site Control Site Access	Eye & Face Protection Personal Fall Protection Hearing Protection Respiratory Protection Head Protection	BNL Contract Specifications OSHA 29 CFR 1910 & 1926, DOE CFR 10, 851	Abrasive Grinding Air Tools Compressed Gas Concrete & Masonry Housekeeping Illumination Scaffolds Steel Erection Welding, Cutting & Heating
CCTV System, Dynamic Signage, PA System	Lab rooms Communication Room Hallways Basement	Electricians Laborers	Fall Electrical Site Control Site Access	Eye & Face Protection Personal Fall Protection Hearing Protection Respiratory Protection Head Protection	Specific Submittal on Public Protection for Working Areas and Notification of Proper Passage for Public Contract Specifications	Air Tools Housekeeping Ladders Scaffolds Electrical Work Practice Hand Tools
Electrical Installation	Rooms and hallways	Electricians Laborers	Fall Electrical Site Control Site Access	Eye & Face Protection Personal Fall Protection Hearing Protection Respiratory Protection Head Protection	Specific Submittal on Public Protection for Isolation of Working Areas and Notification of Proper Passage for Public Contract Specifications	Power Tools Hand Tools Scaffolds Ladders Housekeeping
Asbestos Removal	Mechanical rooms and pipe insulation	Asbestos Handlers Carpenters Laborers	Hazards Materials and Containment Ladders and Scaffolds Site Control	Personal Fall Protection Respiratory Protection Eye and Face Protection Head Protection Special clothing	Specific Submittal on Public Protection for Isolation of Working Areas and Notification of Proper Passage for Public Contract Specifications	Asbestos Containment Scaffolds Ladders Hand Tools

PHASE HAZARD ANALYSIS

APPLICABLE TO ALL CONSTRUCTION CONTRACTS

PRINCIPAL STEPS/TASKS		POTENTIAL HAZARDS		RECOMMENDED CONTROLS
1. Administration of construction contracts a. General		1. Employee unqualified for or unfamiliar with assigned duties		1. All persons shall be physically and emotionally qualified for performing the duties to which they are assigned.
		2. Untreated injuries		1. First aid kits shall be available in ratio of 1 to 25 persons or less and shall be waterproof and sterile with easy access from all workers.
		3. Unsanitary conditions		1. An adequate supply of drinking water shall be supplied from sources approved by Federal, State, or local health authorities. 2. Toilet facilities shall be provided at each construction job site in the ratios shown: No. of Employees Min. Facilities 20 or less 1 20 or more 1 toilet seat & 1 urinal per 40 workers 200 or more 1 toilet seat & 1 urinal per 50 workers 3. Washing facilities shall be provided as needed to maintain healthful and sanitary conditions. Eyewash will be provided.
b. physical qualifications of employee		1. Physically unfit employees creating hazard for themselves and others		1. All persons shall be physically and emotionally qualified for performing the duties to which they are assigned. Some factors to be considered in making work assignments are strength, endurance, agility, coordination, and visual and hearing acuity.
c. personal protective apparel and safety equipment		1. Improper protection for employee		1. Required personal protective devices shall be identified to the workers and used as required when engaged in their Craft or Trade.
d. poisonous and harmful substances		1. Exposure to harmful substances		1. All dusts, mists, fumes, gases, or other atmospheric contaminants in areas where persons are employed shall first be brought within acceptable limits by engineering controls such as ventilation, enclosure, or filtration. If this is not feasible, then administrative controls such as duration of exposure shall be used. When this method is not feasible, protective equipment shall be provided. Acceptable limits shall be those recommended in the latest edition of "Threshold Limit Values" by the American Conference of Governmental Industrial Hygienists.
e. lighting		1. Improper lighting		1. Offices, stairways, passageways, construction roads and work areas shall be lighted while work is in progress by at least the minimum standards.

f. signals, warning signs, signaling		1. Poor signals and unmarked hazards		<p>1. A uniform standard signal system shall be used in all operations.</p> <p>2. Hand signals for crane operations shall conform to ANSI B30 series.</p> <p>3. Traffic flagging procedures shall meet ANSI D6.1. Manual on Uniform Traffic Control Devices for streets and highways.</p> <p>4. Warning signs shall be placed to provide adequate warning of hazards to workers and the public.</p>
g. material handling, storage and disposal		1. Unsafe material handling, storage, and disposal		<p>1. Material in bags, containers, bundles, pallets, or stored in tiers shall be stacked, blocked, interlocked, and limited in height so that it is stable and secured against sliding or collapse.</p> <p>2. Access ways shall be kept clear.</p> <p>3. Flammable liquids in a storage building should be in a "No Smoking" area.</p> <p>4. Handling of materials should be in accordance with safety recommendations for that particular material.</p> <p>5. Disposal of all materials shall be in accordance with Federal, State, and local laws and more specific with guidance from the Environmental Protection Agency.</p>
h. fire prevention		1. Fires		<p>1. Recommendations of NFPA and all BNL regulations shall be complied with in addition to the local building codes.</p>
i. fire protection		1. Inadequate fire fighting equipment		<p>1. Portable fire extinguishers shall be provided where needed and inspected and maintained in accordance with NFPA 10 Portable Fire Extinguishers.</p>
j. welding and cutting		1. Injury or fire from welding and cutting operations		<p>1. All welding and cutting equipment and operations shall be in accordance with standards and recommended practices of the American Welding Society, Safety in Welding and Cutting, ANSI Z49.1 and the recommendations of NFPA as well as the BNL site specific requirements.</p>
k. electrical wiring and apparatus		1. Improper wiring		<p>1. All electrical wiring and equipment shall be of a type listed by UL or Factory Mutual Engineering Corp for the specific application.</p>
l. hand and power tools		1. Improper use of hand and power tools		<p>1. All hand tools shall be in good repair and used only for the purpose for which designed. Defective tools shall be tagged out and removed from service.</p>
m. ropes, slings, chains, and hooks		1. Improper use of rope, slings, chains, and hooks could result in equipment or personal injury		<p>1. The use of rope, slings and chains shall be in accordance with the safe recommendations of their manufacturer and the equipment manufacturer when used in conjunction therewith.</p> <p>2. Rigging equipment shall not be loaded in excess of its recommended safe working load as prescribed in latest edition of ANSI B 30.9. Defective or questionable rigging components shall be identified, tagged and removed from the work site.</p>

n. machinery and mechanized equipment		1. Improper and unsafe use of machinery and mechanized equipment		1. Before any machinery or mechanized equipment is placed in use, it shall be inspected and tested by a competent mechanic and certified to be in safe operating condition. 2. Qualified persons shall maintain and operate equipment in a safe manner that is consistent with the manufacturer's recommendations.
o. motor vehicles		1. Improper use		1. "Motor Vehicle" shall mean any vehicle propelled by a self-contained power unit. 2. Every person shall possess a permit valid for the equipment being operated. 3. No vehicle shall be driven at a speed greater than reasonable and proper, with due regard for weather, traffic, intersection's width, character of the roadway, type motor vehicle, and any other existing condition.
p. ramps, runways, platforms, scaffolds and towers		1. Unsafe work access platforms		1. All temporary trestles, ramps, scaffolds and similar load bearing structures shall be in compliance with OSHA 1910 and 1926 Requirements
q. excavations		1. Injury to personnel or equipment caused by ground movement		1. The sides of all excavations in which employees are exposed from moving ground, regardless of depth, shall be guarded by a shoring system, sloping of the ground, or other equivalent, effective means.
s. access facilities		1. Unsafe access to work areas		1. Safe access shall be provided to all work areas. 2. Safe access ladders shall conform to the latest edition of the Safety Codes for Portable Wood Ladders, portable metal ladders, fixed ladders, and job-made ladders by ANSI.
2. Administration of contract a. general		1. Employee unqualified for or unfamiliar with assigned duties		1. All persons shall be physically and emotionally qualified for performing the duties to which they are assigned.
		2. Equipment not transported securely		1. Tools, materials, and equipment subject to displacement or falling shall be adequately secured.
b Housekeeping /clean-up		1. Tools/materials presenting pedestrian hazard		1. Tools, materials, extension cords, hoses, or debris shall not cause tripping or other hazard. 2. Walkways, runways, and sidewalks shall be kept clear of obstructions.
		2. Electrical hazard from equipment etc.		1. Portable tools and equipment shall be grounded by a multi-conductor cord having an identified grounding conductor and a multi-contact polarized plug-in receptacle. GFCI's shall be used on all temporary Power Circuits.
c. clean-up/loading/unloading, MOT work		1. Working in proximity to vehicular traffic		1. Persons exposed to vehicular traffic shall wear vests, belts or apparel marked with a reflectorized or high visibility material. Stop/Slow Signs shall be used to direct traffic. Red flags are not permitted.

		2. Inadequate or unsafe clothing		1. Employees shall wear clothing suitable for the weather and work conditions. The minimum shall be short sleeve shirt with 4" sleeve, long trousers, and leather or other protective work shoes or boots. Canvas, tennis, or deck shoes are not acceptable.
		3. Contamination of water (cleaning solutions, pesticides, insecticides, etc.)		1. Contamination or pollution of any river, stream, soil or public water is prohibited. Required slit barriers shall be effectively maintained as installed.
		4. Insects, vermin, rodent or bird droppings		1. Protection against hazards involving insects, vermin, rodent or bird droppings shall include: <ul style="list-style-type: none"> a. Accepted first aid remedies. b. Instruction in recognition and identification.
		5. Poisonous plants		1. In areas where employees are exposed to poison ivy, oak, sumac, or other poisonous plants, the following protective measures, as pertinent, shall be provided: <ul style="list-style-type: none"> a. Appropriate protective clothing, gloves, etc. b. Accepted first aid remedies for treatment. instruction in recognition and identification
		6. Unattended machinery		1. Machinery or equipment requiring an operator shall not be permitted to run unattended.
		7. Unsafe operation of machinery or equipment		1. Machinery or equipment shall not be operated in a manner that will endanger persons or property nor shall the safe operating speeds or loads be exceeded.
		8. Repairs to machinery or equipment in field subject to traffic hazard		1. All repairs to machinery or equipment shall be made at a location which will provide protection from traffic.
		9. Traffic hazard presented by machinery or equipment		1. No vehicle shall be stopped, parked, or left standing on any road, parking lot or adjacent thereto or in any area in such a manner as to endanger the vehicle, other vehicles, equipment, personnel, or the public using or passing that road, parking lot or area.
		10. Unattended vehicle with motor running		1. No vehicle shall be left unattended until after the motor has been shut off.
d. Equipment or slow moving vehicle in roadways or travel ways		1. Slow-moving vehicle or tractor		1. The slow-moving vehicle emblem shall be used on vehicles or equipment which, by design, or move at 25 m.p.h. or less on public roads.
		2. Storage of fuel		1. All tanks, containers, and pumping equipment used for the storage or handling of flammable and combustible liquids shall be listed by U.L.

		3. Unqualified employee handling hazardous materials		1. All storage, handling, or use of flammable and combustible liquids shall be under the supervision of qualified persons.
		4. Defective tools		1. Tools having defects that will impair their strength or render them unsafe shall be removed from service.
		5. Defective power tools		1. Power tools shall be inspected, tested, and determined to be in safe operating condition prior to use. 2. Continued periodic inspection shall be made to assure safe operating condition and proper maintenance.
		6. Unsafe machinery or equipment		1. Before any machinery or mechanized equipment is placed in use, it shall be inspected and tested by a competent mechanic and certified to be in safe operating condition.
		7. Guards on hand operated powered equipment		1. Hand operated power equipment shall have guards fully in place that protect the operator, before the operating the machine.

Section 17: SOURCES OF RADIATION

(COMPANY LETTERHEAD)

LASERS

Lasers brought onto the BNL site must be reviewed by the BNL Laser Safety Officer. Only lasers which are Class 2, 3A, or 3R, will be permitted on the construction site.

- Only qualified and trained employees will be assigned to install, adjust, and operate laser equipment. Proof of qualification of the laser equipment operator will be available and in possession of the operator at all times. **(Name of Contractor)** will have the training documentation on file or it will be readily available.
- Areas in which lasers are used will be posted with standard laser warning placards.
- Only those devices labeled as Class 2 or 3a, or 3r (**no greater than 5 milliwatts**) will be used.
- Never intentionally stare into the laser beam.
- Never intentionally aim the beam at oneself or another person, particularly in the facial area.
- The beam will be turned off when not in use.
- Mirror-like surfaces will be avoided when directing the laser beam. A reflected beam can act like a direct beam on the eye.
- Areas in which lasers are used will be posted with standard laser warning placards. These can be obtained from the BNL Laser Safety Officer.
- Beam shutters or caps will be utilized, or the laser turned off, when laser transmission is not actually required. When the laser is left unattended for a substantial period of time, such as during lunch hour, overnight, or at change of shifts, the laser will be turned off. Consideration to best mitigate laser beam transmissions to passing motorists will be evaluated.
- When it is raining or snowing, or when there is dust or fog in the air, the operation of laser systems will be prohibited where practicable; in any event, employees will be kept out of range of the area of the source and target during such weather conditions.
- Laser unit in operation should be set up above the heads of the employees, when possible.

IONIZING RADIATION SOURCES

BNL must be notified in advance of all sources of ionizing radiation (e.g., Soil Density Gauges, Troxler Density Gauges, Radiography Sources, etc.) brought to the site. Contractors who use these sources in the performance of work at BNL shall demonstrate that they are properly licensed by the State of New York to own and use these sources. These sources shall be used and controlled consistent with the BNL Radiological Control Manual

(https://sbms.bnl.gov/SBMSearch/ProgDesc/RadCon/RadCon_PD.cfm) and site-wide radiological control procedures.

Work with radiation sources will be performed by competent persons trained in the use of radiological devices and in the hazards associated with them.

- All work with these sources of ionizing radiation shall be authorized through a BNL Work Permit and/or Radiological Work Permit (RWP).
- The BNL Facility Support Representative will determine if a RWP is required.
- The BNL Construction Safety Engineer will be made aware of the intent to use radiation sources.
- Appropriate BNL radiological postings will be maintained while the radiation source is in use.
- Only authorized and trained personnel will be allowed access to the radiologically controlled area.
- Appropriate BNL dosimetry will be worn at all time while in the area and maintained in accordance with the RWP.

REFERENCES

29 CFR 1926.53 and 1926.54 BNL Radiological Control Manual

Section 18: OCCUPATIONAL MEDICINE PROGRAM

(COMPANY LETTERHEAD)

To ensure the continued health of our employees *(Insert Name of Contractor)* maintains a comprehensive occupational medicine program. This program is under the direction and control of *(Insert name of Certified Occupational Medicine Physician)*.

CONTRACTOR RESPONSIBILITIES:

(Name) provides comprehensive occupational medicine services to each of its employees, or workers under his control, who

- work at BNL for 30 or more days in a 12 month period; or
- work for any length of time at BNL and are required by statute to be enrolled in a medical or exposure monitoring program.

(Name) affirms that these services are fully compliant with all provisions of Section 8 (“Occupational Medicine”) of Appendix A of the Federal Regulation 10 CFR 851 including the following provisions:

Services are provided by an occupational medicine provider (“OMP”) that

- plans and implements the occupational medicine services
- Is under the direction of a physician licensed in the state of New York.
- Is staffed by health care professionals with valid New York State licenses in their respective professions.

OMP Information

OMP Name: _____

Address: _____

Phone #: _____

Fax #: _____

The OMP determines the content of the worker health evaluations in accordance with current sound and acceptable medical practices and all pertinent statutory and regulatory requirements

At a minimum, these services include:

- Medical surveillance and medical certification examinations in compliance with all OSHA, DOE or other statutory or contractual requirements for such examinations applicable to the work to be performed and the type and level of workplace exposures. Frequency of such examinations to be determined by statute, contractual requirement or best medical practice as determined by the OMP.
- Prior to the employee’s 30th day of work at BNL an occupational medical examination shall be conducted for workers involved in physically demanding tasks, the task involves potential exposure to workplace hazards, or exposure to adverse environmental conditions.
- Evaluation at the time of potentially work-related illness, potentially harmful exposure or injury at BNL to determine work-relatedness, any need for medical restrictions or work removal, and referral for definitive care, if indicated.

- Return-to-work evaluations where a worker has been absent for 5 or more workdays due to illness or injury.
- Restricted duty as medically indicated.
- Creation and retention of a medical record that complies fully with all requirements specified in paragraph 8(f) of Appendix A 10CFR 851 for each employee for whom the OMP has provided occupational medicine services.
- Verbal and written communication to each employee as to the purpose, nature and results of all medical evaluations and tests performed and documentation of this communication in the medical record.
- Timely submittal of the results of health evaluations to BNL where such information will facilitate the mitigation of worksite hazards. Such communications will not include the release of confidential, personally-identifiable medical information, other than in exceptional instances where there is a compelling, overriding public health or public safety need.

The following occupational medicine services are also provided by the OMP, except where the OMP determines that they are not applicable or not feasible. Such a determination is documented in writing for each service that will not be provided, with sufficient explanation:

- Participation in worker protection teams, as well as worker safety and health team meetings and committees as defined, respectively, in paragraphs 8 (e)(2) and 8(d)(3) of 10CFR 851.
- Case Management of Ill or Injured workers to facilitate rehabilitation and safe return to work.
- A health promotion program to include disease and risk factor screening for the major causes of morbidity and mortality within the employee population, if determined to be cost effective. If deemed not cost effective, the OMP's decision and its basis must be documented in the outline of comprehensive occupational medicine services.
- **(Name)** health and disability insurance claims data (pre-identified) is used by the OMP in determining the major causes of morbidity and mortality within **(Name)** workforce, if such information is available to **(Name)**.
- Cost effectiveness to be judged by available evidence, published medical studies, demonstration projects at other institutions or internal analyses.
- Review and approval of the medical and behavioral aspects of **(Name)** -sponsored or **(Name)** –supported (if they exist).
 - Employee Assistance Programs (EAPs)
 - Alcohol and substance abuse rehabilitation programs; and
 - Wellness programs
- If the work requires immunization, a hazardous waste program, or involves exposure to blood-borne pathogens, the OMP shall review the medical aspects to assure their conformance to applicable guidelines.

(Name) provides to the OMP:

- Access to information (de-identified) from health, disability and other insurance plans appropriate for determining the major causes of morbidity and mortality among the contractor's employees.
- Information on the physical demands and working conditions that is associated with each contractor employee's job.

- Employee job-task and hazard analysis information, including actual or potential work-site exposures of each employee. BNL will provide potential radiological hazard exposure information if applicable.
- Notification when an employee has been absent because of an injury or illness for more than 5 consecutive workdays.
- Referral of employees about whom the supervisor has concerns regarding ability to safely perform job duties.
- The opportunity to participate in worker protection teams, as well as worker safety and health team meetings and committees (where applicable).

BNL RESPONSIBILITIES:

BNL will provide the **(Name)** OMP with

- Access to pre-existing work-site hazard information, e.g., chemical, radiological, biological, asbestos.
- Access to the workplace for evaluation of job conditions and issues relating to workers' health.
- Information or materials requested by the **(Name)** or OMP to assist the OMP in developing occupational medicine services. This information and materials may include relevant portions of BNL's Worker Safety and Health Program, BNL policies, procedures and forms, as well as consultation with relevant BNL health, safety and occupational medicine personnel.
- Chapter 8 of Appendix A of 10 CFR 851 and its implementation guide DOE G 440.1-8

For work performed at BNL, the **(Name)** is covered under BNL's site emergency plan, and may be asked by BNL to provide information relevant to the plan, or to assist in developing a portion of the plan.

REFERENCES:

Code of Federal Regulation – 10 CFR 851 - Worker Safety and Health
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EXAMPLE OF ACCEPTABLE PHYCIAN'S ACKNOWLEDGEMENT (Submit the completed physician's acknowledgement with this HASP)

I _____ affirm that the services which I provide are
(Name of Physician)

fully compliant with the provisions of Section 8 (Occupational Medicine) of Appendix A of the Federal Regulation 10 CFR 851 including the following:

- Plan and implementation of the occupational medicine services.
- I am a physician licensed in the State of New York.
- My office is staffed with health care professionals with valid New York State licenses in _____, _____, and _____.
- I will provide medical surveillance and medical certification in compliance with OSHA, DOE or other statutory or contractual requirements.

(Signature of Physician)

(Date)