



**NATIONAL
EMERGING
INFECTIOUS
DISEASES
LABORATORY

COMPREHENSIVE
EMERGENCY
MANAGEMENT
PLAN**

Updated March 2018



To All Recipients:

Transmitted herewith is the National Emerging Infectious Diseases Laboratory Comprehensive Emergency Management Plan. This plan provides a framework whereby the staff of Boston University will plan and perform their respective emergency functions during an emergency event at this facility. This plan includes functions that Boston University would rely upon the city of Boston and the Commonwealth of Massachusetts to perform.

This Comprehensive Emergency Management Plan combines the four phases of emergency management, (1) prevention: those activities which eliminate or reduce the probability of disaster; (2) preparedness: those activities that governments, organizations, and individuals develop to save lives and minimize damage; (3) response: to prevent loss of lives and property and provide emergency assistance; and (4) recovery: short and long term activities which return all systems to normal or improved standards.

This plan is consistent with federal, state, and local expectations as defined in Federal Emergency Management Agency (FEMA) Comprehensive Planning Guide (CPG-101), FEMA National Incident Management System (NIMS), Massachusetts Board of Building Regulations and Standards decision on NEIDL variances, City of Boston Inspectional Services Division requirements for occupancy and Boston Public Health Commission laboratory regulations and has been reviewed by agencies providing local support. It will be revised and updated as required, and reviewed at least annually.

The following National Emerging Infectious Diseases Laboratory (NEIDL), Boston University, City of Boston and Commonwealth of Massachusetts officials or their representatives have participated in the development or review of this plan.

NEIDL

- Chief Safety Officer and Responsible Official (CDC)
- Director (Principle Investigator)
- Director of Operations
- Associate Director, Research Safety - NEIDL

Boston University

- Associate VP Research Compliance (Institutional Official)
- Executive Director of Research Compliance
- Executive Director of Public Safety
- Director of Animal Sciences Center
- Director of Campus & Clinical Safety
- Director of Public Safety

03/26/18

EHS Emergency Planning Program Manager
City of Boston
Director of Biological Safety, Boston Public Health Commission
Director of Public Health Preparedness, Boston Public Health Commission

Commonwealth of Massachusetts
Director of Massachusetts Emergency Management Agency

The Boston University Environmental Health & Safety Department is charged with the responsibility to develop, maintain, and coordinate the implementation of the NEIDL Comprehensive Emergency Management Plan (CEMP).

This plan addresses emergency situations in which response actions must be coordinated.

03/26/18

APPROVAL AND IMPLEMENTATION

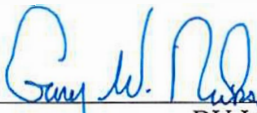
The National Emerging Infectious Diseases Laboratory's (NEIDL) Comprehensive Emergency Management Plan (CEMP) is specific to the facility located at 620 Albany Street, Boston, Massachusetts 02118. It provides a framework whereby the staff of Boston University will plan and perform their respective emergency functions during an emergency event at this facility. This plan includes functions that Boston University would rely upon the City of Boston and the Commonwealth of Massachusetts to perform.



BU Institutional Official

Kate Mellouk

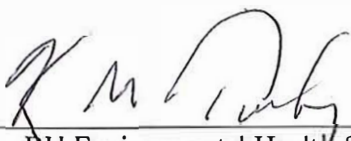
3/27/18
Date



BU Incident Commander

Gary Nicksa

3-28-18
Date



BU Environmental Health & Safety

Kevin Tuohey

3/30/18
Date

RECORD OF CHANGES

Change Number and Date	Date of Entry	By Whom Entered
1. Throughout - changed Emergency Response Planning to Emergency Management.	4/13/16	Stephen Morash
2. Page 3 – Duplicate signature sheet removed	4/13/16	Stephen Morash
3. Page 6 – Record of Distribution updated	4/13/16	Stephen Morash
4. Page 13 - Section (c) Update building usage by deleting limited use language	4/13/16	Stephen Morash
5. Page 17 – Section (v) corrected CPR certification language	4/13/16	Stephen Morash
6. Page 19 – Organization Section (a) updated	4/13/16	Stephen Morash
7. Pages 20 and 24 - location of Command Center updated	4/13/16	Stephen Morash
8. Page 30 – Revise date of BPHC Guidelines for the Implementation and Enforcement of BPHC Biological Laboratory Regulations	4/13/16	Stephen Morash
9. Page 30 – Revise date of BPHC Disease Surveillance and Reporting Regulation	4/13/16	Stephen Morash
10. Page 49 – Members of NEIDL ERT updated	4/13/16	Stephen Morash
11. Page 60 – Annex D section (d) (i) (2) - Further defined role of Communications Officer	4/13/16	Stephen Morash
12. Throughout – Adjustment of BU positions responsible for functions, update of procedures and elimination of redundant language	03/26/18	Kevin Tuohey

RECORD OF DISTRIBUTION

The NEIDL CEMP has been distributed to the following organizations and positions within those organizations. All changes to this document will be likewise distributed.

Federal Emergency Management Agency
Region 1 Director of Response and Recovery
Massachusetts Emergency Management Agency
Director, Massachusetts Emergency Management Agency
Boston Public Health Commission
Director of Biological Safety
Boston University
Associate VP Research Compliance (Institutional Official)
NEIDL Chief Safety Officer
Senior Vice President of Operations
Executive Director of Research Compliance
Executive Director of Public Safety
Director of Animal Sciences Center
Director of Campus and Clinical Safety
Director of Public Safety
EHS Emergency Planning Program Manager
Radiation Safety Officer / Chief Health Physicist

NEIDL

Chief Safety Officer and Responsible Official (CDC)
Director (Principle Investigator)
Director of Operations
Director of Facilities
Associate Director, Research Safety - NEIDL

SECURITY SENSITIVE INFORMATION

Boston University owns and operates the National Emerging Infectious Diseases Laboratories (NEIDL) at 620 Albany Street, Boston MA. BU intends to maintain and protect security sensitive information relating to the NEIDL.

The term "Security Sensitive Information" shall mean information that, if disclosed, would be an unwarranted invasion of personal privacy, reveal a trade secret or privileged or confidential commercial or financial information, or make it easier for hostile elements to disrupt operations or avoid security controls.

Requests for information related to this document should be directed to the Boston University Office of the Associate Vice President, Research Compliance.

ABBREVIATIONS

ARO	<u>Alternate Responsible Official</u> of the Select Agent Program
BAPERN	<u>Boston Area Police Emergency Radio Network</u>
BSL-3	<u>Bio Safety Level 3</u> or High Containment, as defined in the Biosafety in Microbiological and Biomedical Laboratories (BMBL), 5th Edition.
BSL-4	<u>Bio Safety Level 4</u> or Maximum Containment, as defined in the Biosafety in Microbiological and Biomedical Laboratories (BMBL), 5th Edition.
BUMC CC	<u>Boston University Medical Campus Command Center</u>
BUPD	<u>Boston University Police Department</u>
CEMP	<u>Comprehensive Emergency Management Plan</u>
EHS	Boston University <u>Environmental Health and Safety Department</u>
ERCS	<u>Emergency Response Communications System</u> : Used by Boston University to notify personnel of an emergency situation and possible response actions.
ERT	<u>Emergency Response Team</u> : Boston University personnel who respond to, assess and mitigate emergency incidents on campus.
HAZWOPER	<u>Hazardous Waste Operations and Emergency Response</u> (OSHA 1910.120)
HSEEP	<u>Homeland Security Exercise and Evaluation Program</u> : A capabilities and performance-based exercise program that provides a .. standardized methodology and terminology for exercise design, development, conduct, evaluation, and improvement planning.
IAP	<u>Incident Action Plan</u> : Formally documents incident goals, operational period objectives, and the response strategy defined by incident command during response
ICS	<u>Incident Command System</u> : A systematic tool used for the command, control, and coordination of emergency response.
IC	<u>Incident Commander</u> : The individual responsible for the overall management of the emergency response.
NEIDL	<u>National Emerging Infectious Diseases Laboratories</u>
NIMS	<u>National Incident Management System</u> : A system used in the USA to coordinate emergency preparedness and incident management among various government and non-government agencies. The system was developed under <i>Homeland Security Presidential Directive (HSPD)-5, Management of Domestic Incidents</i> .
NOAA	<u>National Oceanic and Atmospheric Administration</u> , U.S. Department of Commerce
OSHA	<u>Occupational Safety and Health Administration</u> : A federal agency of the USA that regulates workplace safety and health.
POETE	<u>Planning, Organization, Equipment, Training, and Exercises</u> : The elements that support the building and sustaining of an emergency response program consistent with NIMS.
RO	<u>Responsible Official</u> of the Select Agent Program
ROHP	<u>Boston University Research Occupational Health Program</u>

03/26/18

WebEOC A Web-based Emergency Operations Center crisis information management system used by Boston University and the city and state emergency management agencies to share real-time incident information.

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A OVERVIEW

The National Emerging Infectious Diseases Laboratories (NEIDL) is a 7-story, 193,000 square foot building located on Boston University's Medical Campus. The building is owned and operated by Boston University and includes 3 ½ floors of laboratory space, 2 ¼ floors of mechanical space and 1 ¼ floors of administrative space.

The NEIDL's design, construction, and operating and research protocols combine to provide an environment for safe and secure scientific research.

The NEIDL design process included a comprehensive assessment of risks. The assessment included detailed systems engineering specifications and construction quality control measures to mitigate risk. Laboratory safeguards are supported by mechanical and utility systems with redundant, standby systems including onsite utility generation and distribution sized to support full research operations in a secure environment.

NEIDL staffing and emergency response plans are integrated into those of Boston University. While dedicated and specialized staff work within the NEIDL, support, expertise, response capabilities, and regulatory oversight are provided by University-wide services with executive-level oversight.

Incident Command for the NEIDL is designed for the specific type of research activity that will be conducted in the facility. NEIDL Incident Command is fully supported and coordinated with Incident Command for Boston University. Locations to be used as command centers, individuals who will have authority, and resources to be utilized are University-wide.

NEIDL and Medical Campus Public Safety Officers and Boston University Police Officers report to the University's Executive Director of Public Safety. NEIDL Public Safety Officers are Massachusetts State Police academy-trained, armed, and experienced in response to and containment of incidents. NEIDL Public Safety Officers are all trained as first-responders in first aid and CPR, and are supported by BUPD Officers and Medical Campus Public Safety staff.

NEIDL Environmental Health and Safety (EHS) staff are trained and experienced in high and maximum containment operations. They provide oversight, training, and protocol development related to the management of high and maximum containment facilities. These employees all report to the Boston University Office of Research Compliance and are part of the campus-wide EHS Department. EHS includes 24 hour on-call personnel trained extensively in hazardous materials response with expertise in biological, chemical, and radioactive materials response as well as all life safety and environmental response issues. EHS staff will coordinate response to hazards including interacting with responding agencies and will follow up on corrective actions.

EHS coordinates response training for all those assigned to the NEIDL, and given the nature of high and maximum containment work, NEIDL personnel working in those areas are certified in first aid, cardio-pulmonary resuscitation and automatic external defibrillation.

The response capabilities of the departments mentioned above are expected to continuously improve as first responders, external responder guides and support personnel, and, with other participants, regularly exercise and critique the process.

NEIDL response plans recognize the need for support from outside the organization for services including, but not limited to; fire suppression, hazardous materials mitigation and extraction, major medical emergencies, patient transport, explosives disposal, and hostage situations.

Boston University has a long history of providing education and training in laboratory operations and response to external responders in the city of Boston and expects to continue doing so with greater frequency. The coordination of plans through drills and exercises as well as other training resources will serve as a significant part of the plan to address safety issues and public concern over those issues.

This Comprehensive Emergency Management Plan relies on the expertise of internal responders, the support of external resources, and a program of ongoing training and exercises involving users and both internal and external responders. This plan addresses emergency communications with both internal and external responders and compliments notification procedures in place with the Boston Public Health Commission.

B PURPOSE, SCOPE, SITUATION, AND ASSUMPTIONS

a. Purpose and Scope

The purpose of this plan is to describe a comprehensive emergency management program that seeks to mitigate the effects of a hazard, prepare for measures to preserve life and minimize damage, respond during emergencies and provide assistance, and establish a recovery system in order to return to normal operations.

This plan attempts to define who does what, when, where, and how in order to prevent, prepare for, respond to, and recover from natural and manmade emergency incidents.

This plan will be activated when an emergency event occurs at the NEIDL.

b. Situation Overview

Boston University, including the NEIDL, is committed to conducting safe, secure research. Boston University is aware of the potential dangers that are inherent in working with biological agents and has designed the NEIDL to minimize danger to the community and staff.

This NEIDL, the larger campus, and the community could all be exposed to hazards that have the potential for disrupting everyday activities, causing damage, and resulting in casualties. Natural hazards include hurricanes, floods, tornadoes, winter storms, and earthquakes. Emergencies that are seen in the workplace can include, but are not limited to: medical emergencies, fires, power outages, and utility failures. Man-made incidents may include weapons, workplace violence, a terrorist attack, or civil disorder impacting the NEIDL, the larger campus, or the community.

c. Hazard Analysis Summary

Boston University conducts Hazard Vulnerability and Risk Assessments (HVRA) based on the Campus Safety and Health and Environmental Management Association (CSHEMA) model. These assessments have resulted in the specific hazards addressed in the NEIDL Comprehensive Emergency Management Plan.

The Hazard Vulnerability Assessment and Risk Analysis takes into consideration the likelihood that these events may occur at the NEIDL and has weighted them accordingly.

NEIDL Public Safety staff is regularly briefed on real or potential threats. EHS staff is regularly updated on regulations, requirements, and risks associated with hazardous materials. Both groups are regularly trained on response to emergencies involving threats and risks. Information from these regulatory and law enforcement bodies are included in training programs and is incorporated into the NEIDL HVRA.

The NEIDL Hazard Vulnerability and Risk Assessment addresses a comprehensive list of hazards, including cyber security threats, chemical, biological, radiological, nuclear, explosive, and pandemic events and evaluates the potential for events using the hazard-specific scale. It is assumed that each event incident occurred at the worst possible time of day.

Issues considered include, but were not limited to:

- i. Probability: Include known risk, historical data, and manufacturer/vendor statistics.
- ii. Response: Include time to marshal an on-scene response, the scope of response capability, and the historical evaluation of response success.
- iii. Human Impact: Include potential for staff death or injury.
- iv. Property: Include cost of replacement, cost of temporary replacement, cost of repair, and time to recover.
- v. Business Impact: Include business interruption, employees not able to report to work, vendors/suppliers unable to reach facility, NEIDL in violation of contracts/grants, imposition of fines and penalties, interruption of research, reputation and public image, and financial impact/burden.
- vi. Preparedness: Include status of current plans, frequency of exercises, training status, insurance, and availability of alternate sources of critical supplies and services.
- vii. Internal Resources: Include types and volume of supplies on hand, staff availability and expertise, back-up systems availability, ability of internal resources to withstand disasters/survivability.
- viii. External Resources: Include types of agreements with others, coordination with local and state agencies, and coordination with other healthcare and research facilities.

d. Capability Assessment

The NEIDL capability assessment methodology, as described in the CEMP Function Chart, is based upon the POETE model of the Department of Homeland Security's Urban Area Strategy Initiative. The NEIDL CEMP is evaluated by answering the following questions:

- Do we have **P**lans to respond to the hazards identified through the Hazard Vulnerability and Risk Assessment?
- Is there an **O**rganization available to execute those plans?
- Is that organization properly **E**quipped?
- Has the properly equipped organization been **T**rained on the equipment and plans?

- Has the organization **E**xercised those plans while equipped after training?

Boston University uses the POETE model and has the capabilities across the University to respond to most of the hazards on campus, including the NEIDL, with minimal assistance from external response organizations.

e. Mitigation Overview

NEIDL EHS is responsible for conducting a yearly Hazard Vulnerability and Risk Assessment and sharing the results of that assessment with various University and external emergency responders in developing a mitigation strategy for the NEIDL.

Emergency response planning is based on following the simple premise of the Plan-Do-Check-Act management system. This system requires that the program develop a process for planning the response to emergencies that includes ongoing evaluation and drills with a feedback mechanism in the form of after-action reviews designed to check performance and then modify as appropriate.

During the construction of the facility, Boston University worked with the Boston Fire Department to establish the building's fire safety features to ensure a full line of communications. EHS has developed the existing emergency response plans for Boston University with the city of Boston emergency responders. These plans have been reviewed, tested, and revised based upon tabletop and full-scale exercises as well as actual emergency incidents. Joint emergency planning, training, tabletop and full-scale exercises are conducted with Boston University and NEIDL staff and Boston emergency responders.

Training and Exercises: All training and exercises at the NEIDL are conducted following the Department of Homeland Security's Homeland Security Exercise and Evaluation Program. Boston University has been using the HSEEP, as it determines appropriate, since 2005.

Interagency Cooperation: Boston University has developed a solid working relationship with its external emergency responders through the utilization of sound training, exercise, and planning initiatives with the Boston Public Health Commission, including the following agencies: Boston Emergency Medical Services, Fire

Department, Police Department, Brookline Police and Fire Departments, and the Massachusetts State Police.

This interagency cooperation in pre-incident events has shown to be extremely valuable during actual emergency responses to incidents.

Having met the Massachusetts Building Code requirements, the NEIDL is in conformance with earthquake and wind resistance standards.

Fire detection and suppression standards are met throughout the building, lessening the loss of life and property to fire.

The NEIDL meets or exceeds the recommendations of the Fifth Edition of the Biosafety in Microbiological and Biomedical Laboratories Manual.

f. Planning Assumptions

- i. Boston University will manage hazards including Select Agents, and will continue to do so in a safe, secure manner.
- ii. Boston University officials recognize their responsibilities with regard to research and community safety.
- iii. Boston University officials will continue to develop and improve their emergency management plans.
- iv. When properly implemented, these plans will reduce or prevent disaster-related losses.
- v. Personnel assigned to the NEIDL and working in high and maximum containment areas will be certified in First Aid, Cardio Pulmonary Resuscitation, and the use of Automatic External Defibrillation as determined appropriate and necessary.
- vi. Researchers and animal care workers are trained in emergency response procedures for removing a co-worker from the lab in order to deliver a clean patient to responders outside the lab.
- vii. Appropriate personal protective equipment (PPE) will be provided for, and utilized by, all personnel in high and maximum containment laboratory suites.

- viii. In the event of an emergency incident, it is the responsibility of the laboratory researchers and workers to make the initial notification to the Control Center. The Control Center will make subsequent notifications as specified in the appropriate Emergency Response Plan.

C CONCEPT OF OPERATIONS

It is the responsibility of Boston University to undertake comprehensive emergency management planning in order to protect life and property from the effects of hazardous events. Boston University will act as primary responder and when the emergency exceeds the University's capability to respond, assistance will be requested from the local external emergency response agencies.

This plan is based upon the concept that the emergency functions for the various groups involved in emergency management will generally parallel their normal day-to-day functions. To the extent possible, the same personnel and material resources will be employed in both cases.

Those day-to-day functions that do not contribute directly to the emergency operation may be suspended for the duration of the emergency. The efforts that would normally be required for those functions will be redirected to the accomplishment of emergency tasks by those concerned.

A CEMP is concerned with all types of emergencies and hazardous situations that may develop in the NEIDL. As shown below, it is more than an operations plan in that it accounts for activities before and after, as well as during, emergency operations.

Boston University operates under the Incident Command System (ICS) in its response to emergency events. The ICS defines critical roles, responsibilities, and authority to rapidly identify, mobilize, and implement strategies. The ICS establishes four categories of function in response to an emergency (management, operations, logistics, and planning) to manage events and foster communication internally and with other emergency response agencies. Activation of the ICS supersedes any and all norms of practice and authority.

In an incident at the NEIDL's BSL-4, initial notification is made to the Boston University's Medical Campus Control Center at (617) 414-6666, who will notify the NEIDL Emergency Response Team (NEIDL ERT) using the Boston University/ Boston Medical Center Emergency Response Communication System (ERCS), an automated phone/email/page system. This system tracks responses and allows responders to communicate their availability and response time. A fully equipped, pre-designated Command Center has been established to serve as a focal point for decision-making in

response to an incident, and is equipped with information, data lines, and communications equipment. The Command Center is staffed by incident command staff as required by the event.

The initial response to an incident is by the NEIDL ERT. The senior most qualified person onsite is the initial Incident Commander (IC), determining risk to laboratory personnel, responders, and other affected persons. In the absence of the RO or the Alternate RO, the most qualified EHS representative will coordinate the notification and assignments of the NEIDL ERT

The IC, working with the members of the NEIDL ERT, evaluates potential for release, determines PPE and decontamination needs, requests assistance from external agencies as required and notifies the Boston Public Health Commission.

The NEIDL ERT members are personnel representing Facilities Management, Public Safety, Research, Occupational Medicine, Public Relations, and Administration are designated as emergency responders to support response to events.

Note: Entry to the BSL-4 suites is highly restricted and is only granted to individuals who have the necessary security clearances, medical surveillance clearance, and both the didactic and hands-on training provided in the facility's Simulator Training Center. These conditions apply to internal and external staff or responders; there are no exceptions unless the facility has been shut down, BSL-4 agents have been securely stowed away, and the areas have been decontaminated.

D ORGANIZATION AND ASSIGNMENT OF ROLES

Many departments within Boston University have emergency responsibilities in addition to their normal duties and each department is responsible for developing and maintaining their emergency management procedures. Specific responsibilities are outlined below under the section titled Task Assignments and in individual annexes. Responsibilities for organizations that are not part of local government are also presented.

a. NIMS/ICS

Boston University uses the Incident Command System (ICS) as described in Part Three, Annex A of this document and as outlined in the National Incident Management System (NIMS) to manage emergency incidents that occur within the NEIDL.

The Incident Command System specifies that the most qualified person *on site* is the initial Incident Commander until more qualified personnel or resources are available. The NEIDL Director of Operations will assume responsibility as primary Incident Commander when he (she) arrives on site. The Chief Safety Officer will serve as the secondary commander.

The University will utilize the existing Medical Campus Incident Command Structure in the event of a declaration of a Phase B or C event in order to ensure appropriate support from other campus areas is provided. In such a scenario, the primary Incident Commander will be the Executive Director of Research Compliance, the secondary Incident Commander will be the Senior Vice President for Operations, and the tertiary Incident Commander will be the BUMC Executive Director of Support Services, or the Director of Campus and Clinical Safety. These positions are currently held by Kevin Tuohey, Gary Nicksa, Constance Packard and Robert Whitfield, respectively.

When external emergency response agencies are needed to mitigate an emergency situation, a unified incident command will be established with Boston University personnel.

b. NEIDL Emergency Response Organization

- i. Incident Commander: Responsible for managing the response to emergencies.
- ii. Director, Campus & Clinical Safety: Responsible for implementing all decisions relating to the management of emergencies. In the absence of the Director, the EHS Emergency Planning Program Manager will assume the duties of the Director.
- iii. NEIDL ERT: Once notified, will respond to the event, assess the incident, and implement an action plan to stabilize and mitigate the potential hazard. Action plans will include appropriate emergency plan and incident command structure activation.

The NEIDL ERT will assign a team comprised of trained individuals with appropriate clearances who, under the most severe of circumstances, will enter the laboratory suite to implement the NEIDL ERT's action plan. Specific team members are listed on page 50 of this document

- c. NEIDL Department Heads and Core Directors: Responsible for carrying out the tasks assigned to the respective departments.
- d. NEIDL Emergency Response Facilities and Locations
 - i. Boston University's Medical Campus Command Center (CC): The primary site for all emergency operations and is located at in the Moakley Building, 830 Harrison Avenue, Boston.
 - ii. NEIDL Control Room: Is located on the first floor of the building at 620 Albany Street, Boston. Building Automation Systems (BAS) and Public Safety Closed Circuit Television (CCTV) cameras can be monitored from this location in addition to other back-up locations.
 - iii. Alternate Facilities and Locations: In the event that the BUMC Command Center should become unusable, the secondary Medical Campus Command Center, located in the Newton Pavilion 2nd Floor, 80 East Newton Street, may be used as an alternate facility.
- e. External Public Safety Agency Roles and Responsibilities
 - i. Boston Police Department
 - 1. Maintain law and order
 - 2. Traffic control
 - 3. Assist NEIDL Public Safety and BUPD
 - ii. Boston Fire Department
 - 1. Fire control
 - 2. Fire prevention inspections
 - 3. Hazardous materials response
 - iii. Boston Emergency Medical Services
 - 1. Provide basic (BLS) and advanced life support (ALS) treatment for the ill or injured
 - 2. Conduct triage
 - 3. Provide emergency ambulance transportation
 - iv. Boston Public Health Commission
 - 1. Conduct active monitoring of the Public Health Alert Network/Surveillance System
 - 2. Provide public health information announcements

3. Maintain liaison with Massachusetts Department of Public Health and United States Public Health Service and Center for Disease Control
4. Approve/provide steps to be taken in the event of illness or exposure.
5. Permit BSL-3, BSL-4 and Recombinant DNA research

E DIRECTION CONTROL AND COORDINATION

a. Phases of Management

The ultimate responsibility for emergency management is vested in the Boston University Incident Commander. The Boston University Incident Commander is responsible for all policy level decisions. During emergency operations, the Incident Commander will be available to handle non-routine problems.

BU Emergency Management (EM) has the responsibility for coordinating the BU-wide emergency management program. This coordination includes advising the Incident Commander on courses of action available for decision-making.

During an emergency incident at the NEIDL, the Unified Commanders will have tactical and operational control of response assets.

Specific persons and departments are responsible for fulfilling their obligations as presented in the Basic Plan and Annexes. Department Heads and Core Directors will retain control over their employees and equipment. Each department will have its own standard operating procedures for department response operations.

During emergency situations certain departments may be required to relocate their center of control to the BU Command Center. The coordination of all operations will be done through the Incident Command System and will be posted for distribution on the Boston University WebEOC specified incident as the current published NIMS IAP.

Each organization assigned emergency responsibilities in this plan will develop detailed implementing procedures. These procedures will be kept current by each organization.

b. Information Collection and Dissemination

- i. The NEIDL Public Safety Department coordinates threat intelligence information from the Boston Regional Intelligence Center, the Massachusetts Fusion Center, and the Joint Anti-Terrorism Task Force. This information is then made available to the NEIDL leadership for action.
- ii. The NEIDL EHS staff coordinates regulatory notifications and the mitigation/resolution of hazard-related incidents. EHS is responsible for collecting emergency response information, conducting an After Action Report and Corrective Improvement Plan, and disseminating such information to all relevant parties.

c. Communications

Emergency response communications are established and maintained in a variety of ways: first, via hand-held, portable radios; second, through use of the BU ERCS notification system; and third, through the use of WebEOC.

- i. Hand-held portable radios—there are twelve hand-held portable radios for use of the NEIDL ERT.
- ii. Boston University ERCS—this emergency notification system is used to communicate emergency notifications to both internal and external emergency response personnel as well as non-response personnel to keep them informed of an emergency situation at the NEIDL.
- iii. WebEOC—Boston University’s web-based incident management program that is utilized in planned and unplanned events to support and manage large-scale incidents.
- iv. Interoperability—The NEIDL Public Safety Department radios are interoperable with the NEIDL Emergency Response Team radios. BU Police radios are interoperable with the Boston Police Department through BAPERIN. The external Boston response Departments have agency interoperability.

F ADMINISTRATION, FINANCE, AND LOGISTICS

a. Administration

During a Phase C event at the NEIDL, WebEOC will be used to administer the implementation of the Unified Command of the Incident Command System. This administrative function will be performed at the Boston University Command Center serving as the Emergency Operations Center.

Documentation will be captured on various ICS forms, activity boards, and logs on the Boston University WebEOC. In particular, the Incident Action Plans, Significant Event Board, Operations, Planning, Logistics, and Finance sections' boards will have all relevant documentation for the incident.

External response agencies, as well as the internal responders, will all have access to the Boston University WebEOC.

Incident based information and documentation will be used as part of the After Action Report process to critique the incident, identify lessons learned, develop best practices, and ultimately to better prepare for the future by decreasing the re-occurrence of incidents while minimizing losses.

Any and all agencies that respond to the incident will be given the opportunity to participate in the after action meeting process. During the incident, any agency representative may utilize the WebEOC After Action Board to document issues and propose changes.

i. Command Centers (campus-wide)

1. Primary Command Center: Boston University's Medical Campus Command Center is located in the Moakley Building at 830 Harrison Avenue, Boston.
2. Secondary Command Center: Should the primary Command Center become unusable, emergency operations will be relocated to the second floor of the Boston Medical Center's Newton Pavilion, 88 East Newton Street, Boston.
3. Tertiary Command Center: A second backup Command Center, if necessary, is the Boston

University Charles River Campus Command Center
at 25 Buick Street, Boston.

4. Fire Command Center: Located on the NEIDL's first floor near the loading dock, the Fire Command Center will serve as the primary assembly place for all emergency response activities. External emergency responders will be directed there and met by NEIDL Public Safety Officers to serve as escorts through the facility.
5. NEIDL Control Center: Building Automation Systems (BAS) and Public Safety Closed Circuit Television (CCTV) cameras can be monitored from this location.

ii. Reports

The use of reports will vary according to the type of emergency being handled.

1. Incident Management: The Boston University WebEOC will be the incident management system used for all Phase C incidents as described in Part 3, Section A of this document.
2. Increased Readiness Report: All requests for assistance and all general messages will be handled using the procedures and forms found within Boston University WebEOC.
3. Incident Action Plan: An Incident Action Plan will be posted as appropriate on Boston University WebEOC.
4. Security Log: A record of all persons entering and leaving the BUMC CC will be maintained by public safety personnel at the entrance.
5. After Action Report: EHS shall convene a meeting of all involved parties and departments for the purpose of an after action meeting to review the event and to develop Lessons Learned that will result in a formal After Action Report.

6. Corrective Improvement Plan: EHS shall coordinate the development of a Corrective Improvement Plan that addresses the lessons learned from the After Action Report and identifies responsible departments and/or individuals and a timetable to address those action items.

EHS is responsible for the monitoring the implementation of the Corrective Improvement Plan.

- iii. Records

Required reports will be submitted to the appropriate authorities in accordance with individual annexes. Records of NEIDL emergency management activities will be maintained by EHS.

- iv. Preservation of Records

In order to provide normal operations following an emergency, vital records must be protected. The principal causes of damage to records are fire and water; therefore, essential records are protected accordingly.

- b. Logistics

During the POETE Gap Analysis (page 15), equipment necessary to respond to an emergency was identified. This equipment is available and it is the responsibility of EHS to ensure that the equipment and supplies are on hand in a state of readiness.

EHS shall utilize the NEIDL annual Hazard Vulnerability Assessment to identify resources needed to respond to those identified hazards from the. This equipment will be restocked after the incident conclusion and before the affected laboratory space is allowed to be brought back into service.

Any resources that are not available on site at the NEIDL are available by the external response agencies as identified in the Capability Assessment as reflected in CEMP Function Chart. These resources are requested through the Control Center or through the Unified Incident Commanders.

The NEIDL Research and Operations staff are trained and equipped to handle most emergencies from the identified hazards.

They possess the training to effectively mitigate these events. Proper personal protective equipment is available on site to support these operations. NEIDL staff, being first aid and CPR trained and certified, is capable of responding to medical emergencies while awaiting external responders for assistance and transport. It is expected that local external responders have sufficient equipment and personnel to supplement the response to the identified hazards.

Boston University has at least two hazardous materials vendors under contract to support cleanup at its buildings, including the NEIDL. These companies include Triumvirate Environmental Services and Clean Harbors Environmental Services.

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G PLAN DEVELOPMENT AND MAINTENANCE

If a plan is to be effective, its contents must be known and understood by those who are responsible for its implementation. Boston University Environmental Health and Safety (EHS) will brief the appropriate responders concerning their role in emergency management and this plan in particular.

All NEIDL Cores, University Departments, and External Agencies will be responsible for the development and maintenance of their respective segments of the plan as set forth earlier in this document. All NEIDL Cores and University Departments will be responsible for reviewing and updating their portion of this plan annually or as necessary taking into account changes identified by tests and exercises. External Agencies will be provided with changes to this plan through the Boston Public Health Commission.

a. Emergency Preparedness Program Review and Maintenance Cycle

EHS is responsible for conducting an annual review of the NEIDL Comprehensive Emergency Management Plan. The review of the Plan shall include representatives of scientific and operations cores as well as other subject matter experts and will address internal response issues as well as external response issues as identified through the Boston Public Health Commission.

The Plan shall be activated at least once a year in the form of a test exercise in order to provide practical controlled operational experience to those individuals who have Incident Command responsibilities.

EHS is responsible for revising this plan and keeping track of all revisions in the Record of Changes found on page 5 of this document. EHS is responsible for disseminating those changes to NEIDL Cores and the participants listed in the front of this document.

b. Vulnerability Assessments and Mitigation Strategy

The Boston University Office of Research Compliance is responsible for overseeing an annual Hazard Vulnerability and Risk Assessment of the NEIDL and ensuring that a NEIDL Mitigation Strategy based upon that assessment is developed and implemented across the NEIDL Cores.

c. Emergency Response Plans and Training

EHS will ensure that all Emergency Response Plans are reviewed annually and revised as necessary. Revisions will be documented, included in this document if necessary and disseminated to all affected NEIDL Cores and to external emergency response personnel through the Boston Public Health Commission.

- i. Training: Emergency Response, Hazard Specific Response, NIMS/ICS Training Cycle.

EHS is responsible for the maintenance and updating of all Emergency Response training programs including those addressing Hazard Specific Responses, Agent Information Sheets, First Aid and CPR/AED Certification, and NIMC ICS Training for NEIDL employees.

The training cycle will be coordinated through the Office of Research Compliance and will involve those responsible for NEIDL compliance, occupational health, safety, and training.

- d. Exercises: HSEEP Based Approach, Exercise Cycle.

EHS is responsible for developing and coordinating a comprehensive exercise program for the NEIDL. This program is conducted using the Homeland Security Exercise and Evaluation Program (HSEEP). The Exercise Design Team will include internal participants from NEIDL Cores and University Departments as well as the Boston Public Health Commission and other external emergency responders as determined necessary and will be based upon the current hazard Vulnerability and Risk Assessment.

H REGULATORY OVERSIGHT

- a. City of Boston
 - i. Boston Public Health Commission, Biological Laboratory Regulations
 - ii. Boston Public Health Commission: Guidelines for the Implementation and Enforcement of the Boston Public Health Commission Biological Laboratory Regulations
 - iii. Boston Public Health Commission: Disease Surveillance and Reporting Regulation

- iv. Boston Public Health Commission: Regulation for the Isolation and Quarantine of Individuals with Infectious Disease Dangerous to the Public Health
 - v. Boston Fire Department, Laboratory Registration Ordinance
 - vi. Boston Fire Department, Fire Prevention Code, Ordinances of 1979-1
 - vii. Boston Fire Prevention Order 72-1: Regulation and Procedure for Building Evacuation
 - viii. Boston Fire Prevention Order 86-1: Regulation and procedure for Laboratory Safety
 - ix. Boston Inspectional Services Department; Board of appeals Ruling, re: NEIDL Training Requirements
- b. Commonwealth of Massachusetts 105 CMR 300
- i. Massachusetts Department of Public Health, Exposure to Select Agent or Toxin
 - ii. Massachusetts Department of Public Health, Theft, Loss or Release of Select Agent or Toxin
 - iii. CMR: Board of Fire Prevention Regulations 10.0
- c. United States of America
- i. OSHA, 29 CFR, 1910.38
 - ii. OSHA, 29 CFR, 1910.39
 - iii. OSHA, 29 CFR, 1910.120, Hazardous Materials Operations
 - iv. HHS, 42 CFR, Part 73.14, Select Agent Incident Response
 - v. USDA, 7 CFR, Part 331.14, Select Agent Incident Response
 - vi. USDA, 9 CFR, Part 121.14, Select Agent Incident Response
 - vii. CDC, MMWR,
 - viii. CDC, BMBL

I SUPPORT ANNEXES

a. Agreements and Understanding

In the event that Boston University resources prove to be inadequate during an emergency, requests for assistance will be made of the City of Boston. Such assistance may take the form of equipment, supplies, personnel, or other available capabilities.

b. Incident Specific Emergency Response Procedures

Incident Specific Emergency Response Procedures are found in Part Four: Hazard Specific Information.

c. Position Specific Emergency Response Procedures

03/26/18

Position Specific Emergency Response Procedures may be found in Part Three, Section J, Annex A, starting on page 33 of this document.

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J. ANNEX A: DIRECTION AND CONTROL

The purpose of this annex is to provide a description of the procedures used by the NEIDL staff and emergency response personnel during an emergency operation or a planned event, to allow for a centralized, coordinated effort.

Boston University response occurs upon notification from sources including, but not limited to, staff, alarms or detecting devices, CCTV images, mass notification systems, external calls from agencies or others. Procedures developed by Environmental Health & Safety, Public Safety, Facilities, and others in operations and research determine the appropriate response to identified issues.

Boston University will notify external emergency responders of incidents or requests for assistance, as normal, through automatic alarm systems or via a telephone call to 911. Requests for assistance from external agencies include, without being limited to those described in Section IV.

Boston University will notify the Boston Public Health Commission when information needs to be shared or assistance is requested within or related to BSL-4 research. These notifications will occur as soon as information is available and will therefore be presumptive until the nature of the incident is confirmed.

Reports to the Boston Public Health Commission include, without being limited to:

- a. Fires (also reported via alarm and/or 911)
- b. Biological Exposure (also reported via 911 if assistance is needed)
- c. Bomb Threat
- d. Biological exposure
- e. Suspicious Package
- f. Investigation of Unauthorized Access/Personnel/Use
- g. Loss of security system integrity
- h. Hazardous Material release
- i. Significant Property/Structural Damage
- j. Concerns related to Anticipated Acts of Nature
- k. Loss of Containment (from internal or external utility failure or other cause)
- l. Loss of systems/equipment resulting in unsafe working conditions (breathing air, HVAC, environmental release, elevator failure, etc.).
- m. Exposure, injury, or fatality.

Reports will be delivered via notification system and will be in addition to alarms or calls notifying 911.

a. Situation and Assumptions

- i. Situation: An emergency event at the NEIDL will be classified under the existing Boston University emergency event classifications: Phase A, B, or C.

Phase A: The initial response to a potential emergency situation or an actual event when the impact on the NEIDL is uncertain. This is a minor, localized emergency and/or an unplanned event that is not likely to adversely impact or threaten life, health, or property. The area of impact is contained to a small, localized area. The duration of incident is short term and does not affect NEIDL operations outside of the immediate incident area. Control of the incident is within the normal scope of NEIDL operations and does not require assistance beyond the NEIDL staff.

Phase B: An actual emergency that impacts the NEIDL and cannot be handled by NEIDL-specific personnel in a routine fashion. At this level, the NEIDL Emergency Response Team (ERT) would be activated to coordinate a response from a single location. This is a medium incident that disrupts NEIDL operations.

Phase C: A large-scale emergency that requires the recall of off-duty personnel or contractors and transfers overall NEIDL coordination to the Command Center. A Phase C Emergency involves the campus and community.

In order to provide the most effective response to an incident or emergency situation, the initial responders must assess the situation, seek needed response resources and mitigate the situation.

- ii. Assumptions: In order to provide the most effective response to an incident or emergency situation, the initial responders must assess the situation, seek needed response resources, and mitigate the situation.

The response activities presented are generally applicable to emergency situations and will provide adequate direction for proper emergency management.

The majority of emergency events at the NEIDL, similar to events in other research facilities, will fall under the category of Phase A events.

Any emergency or training exercise at the NEIDL will be conducted using the Unified Command Model of the National Incident Management System's (NIMS) Incident Command System (ICS).

b. Concept of Operations

The Boston University Command Center (BUCC) is the key to successful response operations during a Phase C event. With decision-makers together at one location, manpower and resources can be utilized more effectively. Coordination of activities will ensure that all tasks are accomplished with little duplication of effort.

The BUCC is the institutional equivalent of a government emergency operations center (EOC) as defined in NIMS. The Incident Command Post is a physical location that provides appropriate resources to administer the on-scene incident command and the other major incident management functions. As defined in NIMS EOC, it is a physical location that is separate from the on-scene Incident Command Post and supports the on-scene response by providing external coordination and securing additional resources.

i. Phases of Management

1. Prevention

- a. Development of the BUCC.
- b. Provide adequate communications capabilities.
- c. Ensure BU CC can be activated on short notice.

2. Preparedness

- a. Train officials on BU CC operations.
- b. Provide for adequate quantities of administrative supplies.
- c. Maintain a constant schedule of testing, maintenance, and repair of equipment to ensure an advanced state of readiness.

3. Response

- a. Activation of the BU CC as necessary.
- b. Initiation of response activity.
- c. Coordination of all operations through the BU CC.

4. Recovery

- a. Continue response operations as needed.
- b. Begin recovery activities.
- c. Release unnecessary personnel and begin to deactivate the BU CC.

ii. Response Operations

Based on the nature and circumstances of the incident, the initial Incident Commander will establish a restricted area to minimize traffic and potential for any cross-contamination. The specifics of each perimeter will depend on the specific location of the incident, its nature, the agents involved, as well as whether or not there are any individuals who require medical attention. However, the overall restricted area will include two basic “compartments:”

1. An Inner Perimeter: The immediate vicinity of the scene of the emergency. Access to the inner perimeter is restricted to those essential emergency personnel actively involved in the occurrence.
2. An Outer Perimeter: A larger area surrounding the inner perimeter. This area will serve as the coordination and assembly point for essential emergency personnel. This area will be designated as the Incident Command Post. Access to the outer perimeter is restricted to essential emergency personnel as determined by the initial or subsequent Incident Commander.
3. Upon notification and as requested, NEIDL ERT members responding according to the NEIDL ERT Incident Notifications List will meet in the first floor loading dock of the NEIDL, 620 Albany Street. In the event that the NEIDL is not available, the first floor lobby of 610 Albany Street Garage will act as the secondary meeting place for the NEIDL ERT.

Once on-scene, the NEIDL ERT will assess the incident, and implement an action plan to stabilize and mitigate the potential hazard.

iii. NEIDL Emergency Response Team (NEIDL ERT)

1. Purpose: The purpose of the NEIDL ERT Protocol is to define the responsibilities and operation of the NEIDL ERT.
2. Team Members – See page 50 of this document
3. The NEIDL ERT has access to personnel with specific training and experience in responding to laboratory incidents, have security clearance for access to the high containment laboratories and appropriate medical clearances as defined by the Research Occupational Health Program.
4. BSL-4 researchers and animal care staff already in the maximum containment laboratory at the time of an emergency incident will conduct response and rescue operations in the BSL-4 space. If necessary, additional BSL-4 staff will be contacted for response.
5. Members of the EHS On Call Team are available to respond to BSL2 incidents or serve as a resource if additional assistance is needed. EHS on Call is not trained to enter high or max containment facilities.
6. NEIDL ERT members will be notified of incidents in the NEIDL based on their ability to support the response needed. They will refer to the NEIDL ERT Incident Notifications List for their response responsibilities.
7. The NEIDL ERT is comprised of individuals with expertise in the following areas:
 - a. BSL-3 and BSL-4 Lab Operating Procedures
 - b. BSL-3 and BSL-4 Emergency Response Plans
 - c. Biological Safety
 - d. Animal Care and Safety
 - e. Security

- f. Hazardous Materials
 - g. First Aid and CPR
 - h. Decontamination Techniques
 - i. Gown Up and Gown Down Procedures
 - j. Building Systems
 - k. Biological Regulations
 - l. Incident Management Systems
8. External agency emergency responders will need to coordinate with BU counterparts and know NEIDL Site Entry procedures. In the event that external resources are required, the NEIDL ERT IC will ensure that the appropriate personnel and resources have the access required to provide assistance. Site Entry procedures will be included as part of the training provided to external responders.
9. Roles and Responsibilities
- a. The onsite Incident Commander will direct the NEIDL Emergency Response Team during an incident while EHS will lead the program and will be responsible for recruitment, training, and exercising of the NEIDL ERT.
 - b. EHS will convene a quarterly meeting of the NEIDL ERT.
 - c. EHS will develop an exercise program for the NEIDL.
 - d. Available NEIDL ERT members will respond to and conduct an initial risk and security assessment of the situation, including, but not limited to: personnel conditions and locations; agent involvement, if any; contamination, if any; and the need to notify and request additional local resources.
 - e. The NEIDL ERT, under the direction of the IC, will develop an action plan to stabilize and mitigate the hazard or situation.

- f. When appropriate or necessary, the IC will activate the NEIDL Entry Team for response efforts in the high containment laboratory.
- g. When applicable and directed by qualified personnel, the NEIDL Entry Team will act to mitigate the situation and rescue from harm and decontaminate any injured personnel.
- h. The NEIDL ERT, under the direction of the IC, will ensure that all notifications to NEIDL and Boston University staff, contractors, and appropriate local, state, and federal agencies are made as required in a timely fashion.
- i. The NEIDL IC will establish Unified Command with the Boston Emergency Responders' IC for any incident requiring a response by City of Boston emergency responders and will provide support in the establishment of such with state and federal responders if necessary and appropriate.
- j. The NEIDL IC will coordinate with the BU ICS structure to ensure that all appropriate communications and coordination occur including but not limited to:
 - i. All appropriate care and follow-up treatment.
 - ii. All regulatory follow-up.
 - iii. Notification and Reports.
- k. The Control Center will notify the incident specific NEIDL ERT Group via the University's automated Emergency Response Command System (ERCS) of any emergency incident in the NEIDL building.
- l. The NEIDL IC will ensure that notifications to Boston University staff, contractors, and appropriate local, state, and federal agencies are made as required in a timely fashion.

- m. The NEIDL IC will insure that all regulatory follow-up occurs.

10. Procedures

- a. Upon notification, NEIDL ERT members responding according to the Action Plan will meet in the first floor loading dock of the NEIDL, 620 Albany Street. In the event that the NEIDL is not available, the first floor lobby of 610 Albany Street Garage will act as the secondary meeting place for the NEIDL ERT.
- b. The NEIDL ERT will conduct a risk and security assessment of the situation, including, but not limited to: personnel conditions and locations; agent involvement, if any; contamination, if any; and the need to notify and request additional local resources.
- c. The NEIDL BUMC Public Safety Supervisor will have a master key for all non-high containment doors in the BSL-4 Suite for use in the event that the security override does not unlock all doors for emergency response entry.
- d. The NEIDL ERT will further develop the action plan initiated on the conference call including actions to isolate and contain the area and stabilize and mitigate the hazard or situation.
- e. When appropriate and necessary and under the direction of qualified personnel, the ERT will assign members for entry and response efforts in the BSL-4 suite.
- f. The entry team members will then proceed to the appropriate entry point of the BSL-4 suite to gather and don their PPE for entry. PPE for Entry Team members will be the same as that of the lab workers.
- g. The entry team may, depending on the circumstances, have a suited back-up team

available and stationed on the 2nd floor of NEIDL prior to entering the BSL-4 suite.

- h. The entry team members will follow the procedures for suiting up, decontamination, and removing suits as per the SOP for the BSL-4 lab.
- i. The entry team will follow all proper decontamination SOPs.
- j. If the ERT determines that additional notification of BUMC personnel and employees is necessary, notifications will take place through the Command Center. If the ERT determines that evacuation of the NEIDL is necessary, that evacuation will take place in accordance with the NEIDL's Emergency Evacuation Plan ERP.
- k. If there is a need for additional emergency response assistance from the city of Boston, the Control Center will make such notification through the respective department's dispatch center. These communications will occur in the absence of alarms (heat or smoke detector) that trigger an automatic notification to the Boston Fire Department.
- l. The BU Select Agent Responsible Official will ensure that all regulatory notifications are made in the manner prescribed in those regulations.

11. External Emergency Responder Access

- a. Vehicle Access shall occur through the Vehicle Access Gate located on BioSquare Drive across from the entrance to the 610 Albany Street Parking Garage. The Public Safety staff at that location will:
 - i. Collect the fire department personnel riding list from all Fire Department

apparatus and immediately direct them to the loading dock.

- ii. Coordinate so that upon arrival of the District Fire Chief, the Incident Command Technician will be posted at the vehicle gate with Public Safety to assist in identification of responding units and apparatus staging.
 - iii. Ensure that external agency emergency responders are subject to emergency response vehicle screening that includes visual inspection of ambulance vehicles entering the site.
 - iv. Ensure that only necessary emergency responders access the site, as determined by the City of Boston's incident commander on scene.
 - v. Request BU Public Safety remove all bystanders from the site entrance.
 - vi. Deny pedestrian egress from this location unless cleared by the NEIDL Public Safety Operations Supervisor.
 - vii. Return the fire department personnel riding list to the Apparatus upon exiting the site; ensuring numbers on board are accounted for.
- b. Pedestrian Access shall occur through the Pedestrian Access Gate House located off East Newton Street and having the address of 620A Albany Street. The Public Safety staff at that location will:
- i. Ensure that only necessary emergency responders are permitted

access to the site, as determined by the incident commander on scene.

- ii. Request BU Public Safety remove all bystanders from the site entrance.
- c. Once inside the NEIDL's outer perimeter, external agency emergency responders will be directed to the loading dock area and the Fire Command Center. At this location, they will be met by a member of the NEIDL ERT who will:
 - i. Provide the external emergency responders with all appropriate incident information.
 - ii. Give the senior member of the external agency an update on the situation and act as an escort for those responders to take them to the incident location as necessary.
- d. Staging Areas for local agency responders
 - i. Boston Fire Department vehicles will be staged on the north side of Biosquare Drive, west of the Vehicle Entrance Gate House to the NEIDL.
 - ii. Boston EMS will be staged on the north side of Biosquare Drive, east of the Vehicle Entrance Gate House.
 - iii. Boston Police Department will be staged in the cutout sections on either side of the East Newton Street Extension on the west side of the NEIDL in front of the Pedestrian Entrance Gate House.
- c. Notifications
 - i. Emergency Event Discovery

1. All NEIDL personnel are trained to contact Boston University's Medical Campus (BUMC) Public Safety Department at 4-4444 for a "public safety" issue.
2. All NEIDL personnel are trained to contact the Medical Campus Control Center at 4-6666 for a "facilities" or "hazardous material" related event.
3. The NEIDL Control Center Technician is notified of building system alarms.
4. Activation of a smoke detector and water flow detector are reported automatically to the Boston Fire Department and the Medical Campus Control Center.

ii. Initial Notifications—NEIDL Emergency Response

1. Event Notification Groups

- a. Initial Notifications—Primary Response Notification Groups
 - i. NEIDL Code Red Team
 - ii. NEIDL Emergency Response Team
 - iii. NEIDL Public Safety
 - iv. NEIDL Facilities
 - v. Boston Fire Department—Alarms
- b. Secondary Notifications—Secondary Response Notification Groups
 - i. Boston Emergency Medical Services (911)
 - ii. Boston Fire Department (911)
 - iii. Boston Police Department (911)
 - iv. Boston Public Health Commission (mass notification system including email, text, etc.)
- c. Tertiary Notifications—Situational Awareness Notification Groups
 - i. Boston Mayor's Office of Emergency Management (by PHC)
 - ii. Massachusetts Department of Public Health (telephone)

- iii. Massachusetts Executive Office of Public Safety (telephone)
- iv. BU Research Event Advisory Group (electronic notification)

iii. Procedures

All employees are instructed to call the BUMC Control Center at 4-6666 in the event of a building emergency.

Boston University emergency responders are notified via an automated multi-nodal (i.e. phone/email/page) system (ERCS).

1. ERCS allows BU/BMC to communicate immediately with hundreds or thousands of people using any device, any modality, at any time, from anywhere.
2. Text and voice messages are simultaneously delivered to multiple contact points for each individual contacted.
 - a. ERCS alerts reach users immediately and provide the ability to receive real-time responses from those recipients. The two-way communication on all modalities tracks outgoing messages and incoming responses, maintaining an audit trail of all alerts sent and of the responses.
 - b. ERCS is capable of targeting pre-defined groups of individuals based on the category of the incident. This feature enables customized messages to be sent to the targeted groups during an emergency response with specific instructions for each group, as appropriate.

d. Organization and Assignment of Roles

During emergency operations, the NEIDL response and the BU CC staff are organized into the standard Incident Command System (ICS) structure. It is expected that when an incident occurs, the

Unified Command model of ICS will be utilized when external agency emergency responders are requested and on site.

- i. Command Staff: Supports the Incident Commander and Unified Commanders.
- ii. General Staff: Develops and implements the Incident Action Plans.
- iii. NEIDL Emergency Response Team
 - 1. Initial incident responders
 - 2. Assesses the situation and develops the initial mitigation plan
 - 3. Stabilizes the incident
 - 4. Calls for additional resources, if necessary
- iv. External Agency Emergency Responders: Upon arrival, external responders work under Unified Command to resolve the emergency situation.
- v. Plan Development and Maintenance

EHS is responsible for the contents of this Annex and for its maintenance. All BUMC CC staff members will be responsible for being familiar with its contents.

e. Crisis Augmentation

Should there be a need for augmenting the Direction and Control staff during an emergency, a request for Boston emergency response assistance will be made through the Boston Police Dispatch Center by contacting 911 and through the Boston Public Health Commission.

i. Response—Scope and Sequence of Planned Events

1. Event Assessment and Classification Process

The NEIDL Event Classification System is a three-phase system consistent with the system that is currently in place at Boston University.

The NEIDL Event Assessment Process will begin with the initial notification to the Control Center. Based upon information from the telephone caller and by reviewing the situation, a conference call

will be conducted with key members of the NEIDL ERT to determine the need for a declaration of an emergency phase as described starting on page 34 of this document.

2. Notifications/Event Notification System is as described on page 45 of this document.
3. Response Actions

Are as described in the NEIDL CEMP Function Chart.

The Boston University Command Center (BU CC) is the key to successful response operations during a Phase C event. With decision-makers together at one location, manpower and resources can be utilized more effectively. Coordination of activities will ensure that all tasks are accomplished with little duplication of effort.

The BU CC is the institutional equivalent of a government Emergency Operations Center (EOC) as defined in NIMS. The Incident Command Post is a physical location that administers the on-scene incident command and the other major incident management functions. As defined in NIMS EOC is a physical location that is separate from the on-scene Incident Command Post and supports the on-scene response by providing external coordination and securing of additional resources.

Command Centers are located as described starting on page 24.

Due to its remote camera capabilities, during a large-scale event at the NEIDL the Fire Department Incident Commander may elect to send a representative to the NEIDL Control Room to monitor the situation.

Incident Management: Boston University uses Web EOC as its incident management software. It is utilized in planned and unplanned events to support and manage large-scale incidents. Boston Police, Fire, Emergency Medical Services, and the Public

Health Commission have user accounts into this system to remotely access incident information.

Command Center Operations: While the activation of the BUMC Command Center is mandated under a Phase C Emergency Declaration, the Incident Commander has, at his or her discretion, the ability to activate the Command Center to manage incidents or lower level emergency declarations. Boston University operates its Command Centers under standard protocols and procedures for Emergency Operations Centers and its Command Level Staff are trained in FEMA ICS and NIMS courses on incident command and EOC Operations.

Members of the NEIDL ERT

NEIDL Leadership	Primary	Director, NEIDL
	Alternate	Director, Operations
	Alternate	Chief Safety Officer / Responsible Official
NEIDL EHS Leadership	Primary	Chief Safety Officer / Responsible Official
	Alternate	Associate. Director, Research Safety – NEIDL / Alternate Responsible Official
	Alternate	Scientific Safety Officer / Alternate Responsible Official
NEIDL EHS	Primary	NEIDL EHS Program Manager
	Alternate	NEIDL Biocontainment Program Manager
	Alternate	NEIDL Training Program Manager
NEIDL Facilities	Primary	NEIDL Engineer
	Alternate	NEIDL Facilities Director
	Alternate	NEIDL Controls Manager
NEIDL Public Safety	Primary	NEIDL Public Safety Supervisor
	Alternate	Director, Public Safety
	Alternate	NEIDL Public Safety Officer
NEIDL Research Cores	Primary	Director, Biomolecular Production Core
	Alternate	Senior Research Scientist
	Alternate	Research Scientist
	Alternate	Senior NEIDL Core Technologist
NEIDL Animal Services Center	Primary	Director, Animal Services Core
	Alternate	Manager, Animal Services Core
	Alternate	Director, BU Animal Services Center
Research Occupational Health	Primary	NEIDL Medical Response Director
	Alternate	Occupational Health Officer / Medical Director, ROHP
	Alternate	Nurse Practitioner, ROHP
BU EHS	Primary	EHS Emergency Planning Program Manager
	Alternate	Director, Campus and Clinical Safety
	Alternate	Associate Director, Industrial Hygiene
Other SME resources include		Radiation Safety Officer
		Director, Environmental Management

K. ANNEX B: CONTINUITY OF OPERATIONS

a. Continuity of Operations

All NEIDL departments have Continuity of Operations Plans on file within their own department records, with Environmental Health & Safety (EHS), available as a resource in the Command Centers.

During emergency situations, NEIDL response plans are incorporated into University-wide response plans under the direction of the University Incident Command structure. However it is important to address leadership and succession planning specific to the NEIDL in the event that the incident being addressed results in longer term localized management

b. Executive Succession

In the event of an emergency situation it is essential that operations at all levels be maintained. In order for the NEIDL to continue to function, it is necessary that there be duly authorized persons to operate it. The probability exists that in most emergency situations the NEIDL Director would be readily available to exercise the executive powers and duties of his/her office in support of the Boston University Incident Command System.

However, in order to ensure that a successor is designated and appropriately empowered with authority to act, the emergency lines of succession are:

- i. The automatic interim succession to the NEIDL Director if she/he becomes unavailable to exercise the power and duties of his office is as follows:
 1. Director of Operations, NEIDL
 2. NEIDL Chief Safety Officer/Responsible Official

The successor to the NEIDL Director is authorized to exercise all the powers and duties of the NEIDL Director. The emergency interim successor will obtain neither title nor tenure. He/she will be divested of all authority by the return of the incumbent or filling of the vacancy in the usual manner.

- ii. It is equally important that a succession plan be in place for the chain of command in the event of an emergency. That succession plan as referred to on page 20, Section D (a).

L. ANNEX C: COMMUNICATIONS

This annex provides guidelines for disseminating adequate and timely warnings and updated incident information in the event of an impending or occurring emergency situation. It also provides information about the communications equipment and capabilities that are available during emergency operations.

a. Situation and Assumptions

i. **Situation:** The need to warn the Boston University Community of impending danger could arise at any time. In order to mitigate damage, minimize loss, and most importantly reduce the likelihood for injury or loss of life, adequate and timely warnings must be provided. Appropriate action-oriented information will be supplied from the BU CC.

ii. Assumptions

1. A warning period will be available for most emergency situations although the amount of lead-time will vary from hazard to hazard.
2. This annex will provide direction for the proper coordination of all communications during an emergency situation.
3. Coordinated utilization of warning systems and communications networks may protect property, reduce injuries, and/or save lives, by facilitating quick and timely response actions.
4. Adequate communications equipment is available to provide necessary support for emergency situations.
5. Boston University has appropriate communications equipment to communicate with its emergency response personnel, incident command team, Boston response agency responders, and the greater Boston University community.
6. Boston University will use all methods at its disposal to provide information to external agency responders to allow for their communication with the local community concerning an emergency at the NEIDL.

7. Boston University will communicate through 911 and directly with the Boston Public Health Commission.

b. Concept of Operations

i. General

1. Warnings: The most common warnings are those issued for severe weather and tornadoes. Other natural hazards that call for warnings are floods, hurricanes, etc. A man-caused emergency, such as a chemical spill or a facility related incident, would also necessitate prompt warning to the Boston University community.
2. Communications: After initial reactions to warnings take place, communications then play a crucial role in emergency operations. Extensive communications networks and facilities are already in existence throughout Boston University. When these capabilities are properly coordinated, response activities become more effective and efficient.

Boston University understands the importance of providing updated incident information to the City of Boston and Commonwealth of Massachusetts' agencies when an emergency incident occurs at the NEIDL.

c. Phases of Management

i. Prevention

1. Develop and maintain a warning and communications system.

ii. Preparedness

1. Provide for a constant schedule of testing, maintenance, repair of equipment, and the updating of notification databases.
2. Stock replacement parts for communications equipment in the Command Center and ensure that arrangements are in place for additional repair facilities.
3. Provide for training of personnel on the appropriate equipment as necessary.

iii. Response

1. The primary action point for all warnings is the BU Control Center. Upon notification of an emergency situation, the Control Center technicians will notify the appropriate personnel using the ERCS.
2. Upon receipt of the information, the BU CC technicians and ERP will issue the appropriate warnings using all systems necessary. All communications will continue until such time as they are no longer required.
3. When emergency operations are initiated, the NEIDL ERT IC will determine which communications personnel will be required to report to duty. Staff requirements will vary according to the incident.

iv. Recovery

1. The Boston University community will be informed through the use of the notification system at the conclusion of the incident or emergency situation.

d. Organization and Assignment of Roles

i. Assignments and Responsibilities

1. Boston University Environmental Health & Safety (EHS)
 - a. Coordination with BU Emergency Management on the development, coordination, maintenance, and general oversight of adequate warning and communications systems.
 - b. The design of processes for the issuing of all warning messages.
 - c. Ensuring that updated incident information is communicated to the Boston University community, leadership and incident response command team, and the Boston Public Health Commission.
2. Information Officer (IO)
 - a. Responsible for disseminating warning messages provided by authorized sources to the Boston University community as rapidly

as possible in the event of impending or actual disaster.

- b. Maintaining a constant state of readiness to implement the dissemination of critical information during periods of increased readiness, response, and recovery of disaster.
- c. Activates the BU Alert System (BUAS) when directed by an appropriate officer.
- d. Involved with the Joint Information Center (JIC) if the occasion arises and represent the University in that Center.
- e. Coordinates messages with other PIOs to ensure that the public information speaks in a "single voice" to public and media.

3. Communications Officer (CO)

- a. Responsible for supervision of all communications activities within the BUMC CC.

e. Direction and Control

i. General

1. The warning process may be activated from any of several points in the system including the BUMC Control Center, BUPD Dispatch, or from EHS offices.
2. The BUMC Incident Commander, or designee, is the overall authority for activating the warning system and directing the activities of the BUMC Command Center.
3. Coordination of Communication and Warning Services will take place in the BU Command Center.

ii. Existing Communication and Warning Systems and Use

1. StormReady: Boston University has attained StormReady certification from the National Weather Service. StormReady is a nationwide community preparedness program that uses a grassroots approach to help communities develop plans to handle all types of severe weather, from tornadoes to tsunamis. The program encourages communities to take a new,

proactive approach to improving local hazardous weather operations by providing emergency managers with clear-cut guidelines on how to improve their hazardous weather operations.

2. NOAA Weather radios are located in all Boston University Command Centers, the BUMC Control Center, the Boston University Police Department Dispatch Desk, and the NEIDL Control Center.
3. Emergency Response and Incident Management Systems: Emergency response communications are established and maintained in a variety of ways. First, via handheld portable radios; second through use of the BU ERCS notification system; and third, through the use of WebEOC.
4. Hand-held portable radios: There are twelve handheld portable radios for use of the NEIDL ERT. These radios are interoperable with NEIDL Public Safety radios.
5. Boston University ERCS: Used to communicate emergency notifications to both University and external agency emergency response personnel as well as non-response personnel to keep them informed of an emergency situation at the NEIDL. Communications through the ERCS will be initiated through a Boston University Control or Dispatch Center under the direction of the Responsible Official or the NEIDL IC.

EHS updates the personal information database of all contacts on a quarterly basis.

BU Alert: The BU emergency system (ERCS) is used to communicate emergency notifications to the Boston University community of students, faculty, and staff. The 45,000+ contact database is updated on a daily basis.

6. WebEOC: Boston University's web-based incident management software that is utilized in planned and unplanned events to support and manage large-scale incidents.

Boston Police, Fire, Emergency Medical Service, Public Health Commission, and Mayor's Office of Emergency Management have user access to the Boston University WebEOC system.

7. Boston University has user access to The Boston Urban Area Security Initiative (UASI) Region and the Massachusetts Emergency Management Agency WebEOC systems.

The UASI program consists of Boston, Winthrop, Revere, Chelsea, Everett, Somerville, Cambridge, Brookline, and Quincy areas. It addresses the unique multi-discipline planning, organization, equipment, training, and exercise needs of the high-threat/high-density Boston urban area, and assists them in building and sustaining capabilities to prevent, protect against, respond to, and recover from threats or acts of terrorism.

- iii. Interoperability: The NEIDL Public Safety Department radios are interoperable with the NEIDL Emergency Response Team on the BUMC Disaster Channel. The BU Police radios have the ability to interoperate with the Boston Police Department through BAPERIN.
- iv. Alertus Beacons: Emergency Notification Beacons located in Command Centers, BUMC Control Center, Charles River Campus Facilities Control Desk, Boston University Police Dispatch Desk, and each campus' Environmental Health and Safety Department offices to facilitate initial emergency information notification.

f. Administration and Logistics

i. Warning System

1. All components of the warning and communications systems are tested on a periodic basis.
2. EM is responsible for maintaining and repairing this equipment.

ii. Government Emergency Telecommunications Service

1. The Government Emergency Telecommunications Service (GETS) is a White House-directed emergency phone service provided by the National Communications System (NCS) within the Department of Homeland Security. GETS supports federal, state, local, and tribal government, industry, and non-governmental organization (NGO) personnel in performing their Emergency Preparedness (NS/EP) missions. GETS provides emergency access and priority processing in the local and long distance segments of the Public Switched Telephone Network (PSTN). It is intended to be used in an emergency or crisis situation.
2. Key members of the Boston University Incident Command Response Team have been issued GETS card to facilitate information processing during an emergency.

iii. Training

1. Each organization assigning personnel to the Command Center for communications purposes is responsible for making certain that those persons are familiar with their agency's unique operating procedures so that they may integrate those procedures with Boston University's Plan activations.
2. Additional training on Emergency Management equipment and procedures will be provided by EHS or the IO.

g. Plan Development and Maintenance

EHS in conjunction with the Information Officer is responsible for maintaining and improving this annex.

h. Crisis Augmentation

In the event that augmentation of these communications and warning related services providing emergency public information is required during an emergency, a request for support will be made to the Boston Public Health Commission.

M. ANNEX D: EMERGENCY PUBLIC INFORMATION

The purpose of this annex is to provide for the effective collection, control, and dissemination of emergency public information and for the minimization of confusion, misinformation, and rumors during times of emergency.

a. Situation and Assumptions

i. Situation

During an emergency at the NEIDL, the public will need detailed information regarding actions to be taken for minimizing loss of life and property. There are times, however, when an emergency occurs without warning and the public information system cannot react quickly enough to properly inform the public about the hazard. For this reason it is important that prior to the occurrence of an emergency the public be made aware of potential hazards and the protective measures that can be employed.

ii. Assumptions

An effective program combining both education and emergency information will significantly reduce emergency-related casualties and property damage, as well as confusion and fear.

b. Concept of Operations

Emergency information efforts will focus on specific event-related information. This information will generally be of an instructional nature focusing on such things as warning, evacuation, and shelter. It is also important to keep the public informed of the general progress of events. Rumor control will be a major aspect of the informational program so as to control and reduce the flow of erroneous and misleading information to the public. Along with this will be the use of public feedback as a measure of the program's effectiveness. Education efforts will be directed toward increasing public awareness about potential hazards and response.

c. Phases of Management

i. Prevention

1. Hazard awareness programs
2. Coordination with local officials

3. Coordination with local media
 - ii. Preparedness
 1. Public education programs
 2. Prepare emergency information for release during emergencies
 - iii. Response
 1. Release public information
 2. Coordinate rumor control
 3. Schedule news conferences
 - iv. Recovery
 1. Provide public information
 2. Compile record of events
 3. Assess effectiveness of information and education programs
 - d. Organization and Assignment of Roles
 - i. Task Assignments
 1. NEIDL IC
 - a. Appoint an Information Officer
 2. Communications Officer (CO)
 - a. Provides ongoing communications on behalf of the NEIDL.
 - b. Coordinates with IO so that routine communication outlets are addressing by IC team
 - c. Maintain a working relationship with the media
 3. Information Officer (IO)
 - a. Direct all emergency public information efforts
 - b. Provide news releases for the media
 - c. Check all print media for accuracy of reports
 - d. Maintain a recent record of events
 - e. Coordinate the messages with other PIOs to ensure that the public information speaks in "single voice" to public and media
 - e. Direction and Control

The CO is ultimately responsible for all public education and information programs conducted by the NEIDL. The Emergency Public Information Program will be directed by the CO, in coordination with the Boston Public Health Commission's Emergency Operations Plan "*Public Information & Risk Communication Functional Annex*", and during an emergency, will operate from the BU CC.

i. Educational Programs

There are many activities involved in the educational programs. The media is constantly provided with information on new developments affecting emergency management activities. Thus, much information reaches the public via television, radio, and newspapers. Lectures and other presentations are often requested by various organizations, presenting another opportunity for public education. Educational brochures and films are also distributed to the general public and organizations.

ii. Emergency Public Information

Specific emergency public information will be prepared in advance of an emergency. Information will be contingency-based, that is, specific to various hazards (i.e., agent specific) and will be provided to the Boston Public Health Commission in case it is needed for public distribution during an emergency.

Special instructions for emergency personnel and other essential workers must be developed on a contingency basis as well; this information will be delivered by the IO staff to each of the emergency service departments.

f. Administration and Logistics

i. Reports

All Public Information releases as well as periodic situation reports should be provided to the NEIDL Director and the Incident Commander.

g. Plan Development and Maintenance

The CO will be responsible for the development and maintenance of the entire education and information programs.

h. Lines of Succession

The line of succession for the Public Information Service will be as follows:

- i. Vice President, Marketing and Communications
- ii. Communications Officer (CO)
- iii. NEIDL Information Officer

N. ANNEX E: EMERGENCY RESPONSE TRAINING

The purpose of this annex is to outline procedures for providing emergency preparedness and operations training for BUMC CC staff members, NEIDL Emergency Response Team personnel, other NEIDL staff, and off-site emergency response personnel.

a. Situation and Assumptions

i. Situation

Emergency situations by any origin will occur. These events may require the assistance of off-site emergency responders. The emergency will be compounded by the fact that a lack of trained personnel would seriously handicap preparation, response, and recovery.

ii. Assumption

Effective training programs, which are scheduled on a regular basis and which encompass the areas of specialized skill requirements, will generate skills necessary to implement effective operations. Increased readiness training during a tension period will provide the emergency forces capable of translating workable plans into essential actions.

Drills and exercises simulate or are based on possible real-life scenarios in order to improve emergency management, and should be based on the vulnerabilities identified in the NEIDL's Hazard Vulnerability and Risk Assessment.

b. Concept of Operations

i. Training

The type and degree of training will vary with the task(s) a person is assigned to do within the total system of preparation, response, and recovery. The following section will detail the training for all NEIDL staff, NEIDL Emergency Response Team and External Emergency Responders. Specific training is addressed.

The Environmental Health & Safety Department will provide annual training to external emergency responders. This training will be offered in three sessions a year, will include internal

responders, and will address both general laboratory safety issues as well as information unique to responding to scenarios and incidents in which the emergency response agency resources are required for incidents including those reflected in Part Four. Training dates will be selected in consultation with the Boston Public Health Commission on an annual basis and will be communicated to external agencies as the Commission deems appropriate.

ii. Drills and Exercises

A critical element of the preparedness cycle is the coordination of discussion and operations-based drills and exercises that are designed, developed, and evaluated in a manner that is consistent with the guidance issued by the Department of Homeland Security in its Homeland Security Exercise and Evaluation Program (HSEEP). BU recognizes that NEIDL personnel and those supporting them should participate in realistic exercises designed to evaluate the performance of personnel in accomplishing the exercise objectives using a pre-determined set of criteria. This evaluation criteria would be used to assess how well personnel understand the training they have received, their adherence to SOPs, the performance of their assigned functions during an emergency situation, and how well resources or specialized equipment performed and supported a simulated response.

1. BU's approach to NEIDL drills and exercises are based on conducting and designing those drills and exercises in a progressive manner, or utilizing the crawl-walk-run approach exemplified by the HSEEP methodology. Utilizing this approach, a discussion-based exercise will be performed before an operations-based exercise so that each new exercise builds upon the lessons learned from the discussion, and then expands the scope of the element of operations or response discussed.
 - a. Discussion-Based Exercises: Normally used as a starting point in the building-block approach to the cycle, mix, and range of exercises. Discussion-based exercises include seminars, workshops, and/or tabletop exercises (TTXs). These types of exercises typically highlight existing plans, policies, and procedures, and are exceptional tools to familiarize agencies and personnel with current or expected departmental or jurisdictional capabilities. Discussion-based exercises typically focus on

strategic, policy-oriented issues, whereas operations-based exercises tend to focus more on tactical, response-related issues. Facilitators usually lead the discussion and keep participants on track to meet exercise objectives. BU will utilize discussion-based exercises consisting of an interactive, simulated scenario-driven discussion conducted between key personnel. The discussion-based exercises will be facilitated in a manner so as to compel the various personnel to communicate and discuss the types of functional responses that could be deployed during a response to an incident at varying stages of escalation and recovery. A discussion-based exercise will evaluate the effectiveness of an organization's emergency management plan and procedures and highlights issues of coordination and assignment of responsibilities. Discussion-based exercises do not physically simulate specific events, do not utilize equipment, and do not deploy resources.

- b. Operations-based exercises: A category of exercises characterized by actual response, mobilization of apparatus and resources, and commitment of personnel; usually held over an extended period of time. Operations-based exercises can be used to validate plans, policies, agreements, and procedures. They include drills, Functional Exercises, and Full Scale Exercises. They can clarify roles and responsibilities, identify gaps in resources needed to implement plans and procedures, and improve individual and team performance. These types of exercises are a more advanced and complex type of exercise that follow after and validate, the lessons learned from discussion-based exercises.

Functional Exercise (FE): Involve conducting and testing different divisions or departments within the NEIDL and/or larger BU organization in response to pre-established scenarios. A FE simulates a disaster in the most realistic manner possible without mobilizing personnel or equipment to an actual site. FEs utilize a carefully designed and scripted scenario with timed messages and communications between players and simulators.

The BU CC, the facility or area from which disaster response is coordinated, is usually activated during a FE and actual communications equipment may be used.

Full Scale Exercise (FSE): Involves conducting and testing different divisions or departments within the NEIDL and/or larger BU organization and may include public safety agencies in response to pre-established scenarios. At all times in its exercise programs, NEIDL ERP will design corrective or improvement action plans to implement based on lessons learned from training and exercises, and either alter, refine, or design new mitigation plans, planning documents, procedures, and future training or exercise programs. A FSE is the culmination of previous drills and exercises. It tests the mobilization of all or as many as possible of the response components, takes place in real time, employs actual equipment, and tests several emergency functions. Controllers maintain order and ensure that the exercise proceeds according to plan, are also usually used. FSEs are generally intended to evaluate the operations capability of emergency management systems and to evaluate interagency coordination when responding to research related risk such as exposure.

2. BUMC NEIDL EHS develops, conducts, and evaluates three separate exercise series each year that entail using separate scenarios for each exercise series. The following are the classes of scenarios that would be utilized to drive the exercise development each year:
 - a. Research-related risk such as exposure
 - b. Building-related risk such as utility loss
 - c. Security-related risk such as theft/loss of agent

Two scenarios (example: scenario A and B) are selected for the development of internal exercises and one scenario (example: scenario C) is selected for a joint or internal and external exercise series. In this manner, NEIDL EHS and Boston University are able to focus on developing, conducting, and evaluating both internal and joint (internal and external) exercises each year. The type of risk-based scenarios identified above will be presented to the Boston

Public Health Commission each year. The Boston Public Health Commission will select one of the three scenarios/risks and will participate in the design of the exercise. The exercise will be a full scale or functional, HSEEP compliant exercise involving all potential participants. Participating external departments will provide subject matter experts to perform the roles of participants, controllers and evaluators for the exercise.

3. The Typical Annual Exercise Schedule for the NEIDL would include the following activities:
 - a. Annual Exercise Design meeting (BU and BPHC) to discuss exercise scenarios.
 - b. Review of all scenarios and determination of two scenarios (example: scenario A and B) to be used for the internal TTX and FE or FSE and the one scenario (example: scenario C) to be used for the joint internal and external TTX and FSE.
 - c. Invitation to BPHC to attend all NEIDL drills and exercises.
 - d. Determination of Exercise Schedule including:
 - i. Development, conduct and evaluation of all scenarios (A, B, and C).
 - ii. Development of After Action Report and Improvement Plans for all scenarios (A, B, and C).
 - iii. Annual Post Exercise Discussion meeting with BPHC.
 - e. Development of exercise to be used for the joint internal and external FE or FSE.
 - f. Review of other two scenarios to be conducted internally.

4. The After Action Report and Improvement Plan is the final stage of the exercise process and includes a post-exercise review to assess the effectiveness of the response, and to develop an After Action Report and Improvement Plan (AAR-IP). The AAR-IP is a critical component of BU's exercise program that is used following preparedness drills and exercises, such as those outlined above and enable BU to:
 - a. Identify problems and successes during emergency operations.
 - b. Analyze the effectiveness of the different components of ICS, including the coordination with

external agencies in the exercise that they participate in.

- c. Describe and define a plan of corrective action for implementing recommended improvements to existing emergency response efforts, regardless of participation of external agencies.
- d. Determine the causes of the incident and corrective actions required to prevent their reoccurrence.
- e. Provide a work plan for how these improvements can be implemented.
- f. Provide a schedule for the completion of corrective actions and/or reporting on status or corrections to be reviewed and distributed internally and with BPHC.

5. The Exercise Director will:

- a. Conduct an After Action evaluation of the various exercise participants, controllers, and evaluators immediately after the exercise to gain immediate feedback on the exercise.
- b. Convene an After Action Report Meeting, within one week, with the exercise controllers and evaluators. Typically, the meeting includes a general discussion of the overall exercise and the evaluations, followed by a discussion session for suggestions of ideas for improvement.
- c. Prepare the draft After Action Report, which is distributed to participants and final comments are incorporated.
- d. Prepare a Corrective Improvement Plan, as part of the After Action Report, outlining the corrective actions, responsible parties, and timeline for the completion of those corrective actions. EHS is responsible for monitoring the progress of the Corrective Improvement Plan.

There are a number of Training Tracks that will be available to each category of employee and responder.

c. Training Tracks

i. All NEIDL Employees

All employees will need to have Orientation training; Incident Response for Non-Laboratory Personnel; First Aid, CPR and Automatic External Defibrillator training

for those working in high and maximum containment; as well as Emergency Response Preparedness training.

1. General Orientation

a. Learning Objectives

- i. Understand the role of the NEIDL as a national resource that will enable the conduct of basic and translational research and the development of vaccines and other products related to emerging infectious diseases.
- ii. Understand the basic principles of biosafety.
- iii. Understand how personnel and physical security requirements prevent unauthorized persons from gaining access to the NEIDL.
- iv. Awareness of Institutional and Regulatory Oversight.
- v. Awareness of the NEIDL Disease Surveillance Program.
- vi. Understand individual responsibilities for access control, reporting requirements, and response to emergency incidents.
- vii. Describe how persons outside of the laboratory and the public health are protected from research hazards.

b. Course Content

- i. Introduction to the NIAID Biodefense Program; role of National Biocontainment Laboratories
- ii. NEIDL building design concept.
- iii. Principles of biosafety—risk assessment, microbiological practices, primary containment, and secondary containment.
- iv. Personnel and physical security measures—DHHS and USDA access authorization, safeguards that prevent unauthorized access, security plan.

- v. Brief description of BU, CDC, and NIH/BPHC oversight functions.
 - vi. Review of the HVRA
 - vii. Safeguards for protecting the public health—safe practices, containment, compliance oversight, emergency response planning.
2. Incident Response for Non-laboratory NEIDL Personnel
- a. Learning Objectives
 - i. Describe the types of incidents that could occur in the NEIDL.
 - ii. Describe site evacuation procedures.
 - iii. Describe individual responsibilities in responding to an incident involving a shutdown of a secondary barrier.
3. Emergency Response Preparedness
- a. Learning Objectives
 - i. Describe the types of emergencies that could occur in the NEIDL.
 - ii. Describe site emergency procedures.
 - iii. Describe individual responsibilities in responding to an emergency.
 - b. Course Content
 - i. Emergency Response Procedures.
4. First Aid, CPR and Automated External Defibrillator (AED) for High and Maximum Containment
- a. Learning Objectives
 - i. Demonstrate proficiency in First Aid.
 - ii. Demonstrate proficiency in CPR.
 - iii. Demonstrate proficiency in AED.
 - b. Course Content
 - i. An accepted certification program.

ii. Facility Management, Building Operations, and Maintenance Staff

In addition to the All Employees Training listed above, initial training will include the following topics. The Operations and Maintenance Training Track includes several courses that provide a broader understanding of the principles of biosafety, biosecurity, facility operations, and equipment that maintain containment, as well as incident response with an emphasis on work assignments, duties within the NEIDL, and emergency response preparedness. This track is designed specifically for facility operations staff that has assigned duties in the NEIDL, but do not have authorization to access operating BSL-4 suites.

1. Introduction to Microbiology and the Control of Infectious Diseases

a. Learning Objectives

- i. Become familiar with the types of living organisms that cause infection.
- ii. Understand what “the chain of infection” means.
- iii. Describe the ways that biosafety can break the chain of infection.
- iv. Learn how the work of operations and management staff supports biosafety.

b. Course Content

- i. Basic characteristics of bacteria, viruses, fungi, parasites.
- ii. Modes of transmission.
- iii. Causes of laboratory infections; the chain of infection; breaking the chain of infection.
- iv. Preventing laboratory associate infections;
- v. The role of the operations and management staff in infection control; health surveillance program.

2. NEIDL Emergency Response Team Incident Response Procedures

- a. Learning Objectives
 - i. Describe the basic elements of the NEIDL Incident Response Procedures.
 - ii. Describe the onsite coordinating roles between the NEIDL Emergency Response Team and the public safety emergency responders.
- b. Course Content
 - i. NEIDL BSL-4 Select agent incident response procedures.
 - ii. Drills and Exercises that test NEIDL ERT response readiness.

iii. NEIDL Emergency Response Team Training

The NEIDL Emergency Response Team (ERT) training track includes the General Orientation Course and additional training in biosafety, biocontainment, and biosecurity; NEIDL ERT incident response procedures and protocols.

1. Introduction to Microbiology and the Control of Infectious Diseases

—As described on page 69

2. NEIDL Emergency Response Team Incident Response Procedures

—As described on page 70

iv. External Emergency Responders NEIDL Emergency Response Team Training.

First due companies of the Boston Fire Department, Boston Police District 4 supervisors and superior officers and Special Operations personnel and Boston EMS supervisors should undergo general building and emergency response orientation training.

1. General Orientation

- a. Learning Objectives

- i. Understand how personnel and physical security requirements prevent unauthorized persons from gaining access to the NEIDL and the process for authorized personnel entering and exiting including external emergency responders.
- ii. Describe how persons outside of the laboratory and the public health are protected from research hazards.

2. NEIDL Emergency Response Team Incident Response Procedures

a. Learning Objectives

- i. Describe the basic elements of the NEIDL Incident Response Procedures.
- ii. Describe the onsite coordinating roles between the NEIDL Emergency Response Team and the public safety emergency responders.

b. Course Content

- i. NEIDL incident response procedures.

3. NEIDL Incident Response Procedures

a. Learning Objectives

- i. Describe the types of emergencies that could occur in the NEIDL.
- ii. Describe site emergency procedures.
- iii. Describe individual responsibilities in responding to an emergency.

b. Course Content

- i. NEIDL Emergency Response Procedures.
- ii. Drills and Exercises that test coordination for emergency response.

d. Drills and Exercises

Drills and exercises are valuable training tools and provide an opportunity for staff to practice their skills and to identify future areas for training as addressed starting on page 63 of this document.

e. Organization and Assignments of Roles

i. Task Assignments

1. Chief Safety Officer or designee: Responsible for the overall NEIDL specific emergency response Training.
2. The Director, Campus & Clinical Safety: Responsible for BU general emergency response training that would provide support to the NEIDL.

f. Direction and Control

To ensure effective emergency operations, there will be a continuous and detailed training program that covers all aspects of NEIDL emergencies.

g. Administration and Logistics

- i. Training Materials: Training materials, which include but are not limited to medical self-help, individual survival, rescue skills and techniques, fire service, law and order training, industrial emergency management, shelter development, radiological monitoring, increased readiness, radiological defense and control of communicable diseases are kept on hand at the EOC. Additional aids will be gathered as they become available.
- ii. Reports: A report of current status of the training service should periodically be made to the Executive Director, Research Compliance.

h. Plan Development and Maintenance

The Director of EHS will be responsible for the contents of this Annex and for its maintenance. All BU CC staff will be responsible for being familiar with its contents.

i. Crisis Augmentation

If additional assistance is required, a request should be made to EHS.

j. References

- i. NEIDL Comprehensive Emergency Management Plan.

O. ANNEX F: POPULATION PROTECTION ACTIONS

This Annex describes the actions that may be taken to protect the population of the NEIDL during an internal or external event.

a. Situations and Assumptions

i. Situations

1. There are two types of protective actions that will be taken to protect the staff and visitors of the NEIDL—Shelter-in-Place, and Evacuation.
2. Shelter-in-Place protection has been adopted by many organizations as a realistic measure to replace mass evacuations. Shelter-in-Place can be used in response to shootings, hostage situations, minor chemical spills, or natural disasters where evacuation is not required.
3. NEIDL personnel have been trained on Shelter-in-Place procedures.
4. There are several emergency situations, which might require an evacuation of the NEIDL, such as a fire or a hazardous materials incident.
5. NEIDL personnel have been trained on evacuation procedures and the location of their rally points outside the NEIDL.
6. A medical extraction from a containment laboratory may be necessary when a laboratory worker is injured and non-ambulatory.

ii. Assumptions

1. All protective actions listed in this Annex are for NEIDL staff and visitors only.

2. Evacuation may not be the best course of action for an external hazardous materials release, particularly one that is widespread such as a local chemical company explosion. If the area is enveloped by the plume of hazardous material, the use of sheltering-in-place should be considered.
3. The advantage of sheltering-in-place is that it can be implemented more rapidly than evacuation. The protection sheltering in place provides is variable and diminishes with the duration of the emergency.
4. Shelter-In-Place Operations outside the NEIDL on Boston University's Medical Campus property will be the responsibility of the IC Response Team.

b. Concept of Operations

i. Shelter-In-Place

1. The issuance of a shelter-in-place order will be made by the Incident Commander or the Senior NEIDL Public Safety Official.
2. The shelter-in-place order will be given for an event that may impact the safety of NEIDL staff and visitors.
3. NEIDL visitors will follow the instructions of their escorts if a shelter-in-place order is issued during their visit.
4. NEIDL Public Safety Officers will implement their Lockdown Procedure.

ii. Evacuation

1. Partial

- a. The primary objective during an evacuation is to get personnel out of the NEIDL as quickly as possible while maintaining biosafety procedures to maintain containment within the building.
- b. The high-rise procedures for the NEIDL are the same as any other high rise in the city of Boston. Evacuations are given for impacted floors as well as the floor above and below upon activation of a

detector, device, or resulting from an actual fire.

2. Full

- a. A full evacuation of the NEIDL will take place as the partial evacuation except that the entire building will be evacuated.
- b. Personnel shall report to their rally points.
- c. Once an evacuation of a containment suite is ordered, the personnel in containment will begin the evacuation process. They cannot simply leave the containment laboratory.
- d. Each protocol will require various steps to safeguard the laboratory before the researcher can safely leave the lab. There may be circumstances where animals may need to be returned to cages and holding areas or euthanized. Biological materials may need to be either secured or neutralized. The objective remains the same: get out safely and as fast as possible, while maintaining biosafety and biosecurity.

PART FOUR—HAZARD- OR THREAT-SPECIFIC ANNEXES OR APPENDICES

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This Annex describes the actions that may be taken in response to hazard or threat-specific incidents. These operating procedures will be maintained within the NEIDL and available for ongoing review with both internal and external responders. Specific procedures include without being limited to the following:

NATURAL HAZARDS

- Earthquakes
- Flood
- Hurricane
- Severe Weather

HUMAN-CAUSED HAZARDS

- Medical Emergencies
 - Minor Injuries
 - Serious Injuries
 - Sudden Death
- Suicide Threat or Attempt
- Workplace Violence
- Bomb Threat, Suspicious Package or Mail, Bomb or Suspicious Device
- Dangerous Person On Site
- Hostage Situation
 - On Site
 - Off Site
- Security Breach
- Protest
 - On Site
 - Off Site
- Information Technology Incidents
 - Cyber Attack
 - Information Systems Failure
- Terrorism
- Civil Unrest

TECHNOLOGICAL HAZARDS

- Fire or Explosion
- Hazardous Materials
- Chemical Agents
 - Chemical Spill
 - Chemical Spill on Body
- Radiological Incident
 - Radioactive Spill
 - Radioactive Spill on Body
 - Gamma Irradiator Failure
- Biological Emergencies
 - Biological Spill
 - Biological Pathogen Exposure

CRITICAL SYSTEMS HAZARDS

- Equipment Related Incidents
 - Bio Safety Cabinets
 - Supplied Air Failure
 - Effluent Decontamination System Failure
 - Alkaline Hydrolysis System Failure
 - Broken Glass
- Utility Failure
 - Loss of Gas
 - Loss of Water
 - Loss of Electricity
 - Water Leak
 - Gas Leak
 - Loss of Safety Systems
- HVAC Failure
- Elevator Failure/Entrapment
- Transportation Incident



Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
Natural Events	Specific Vulnerability Assessment	Description of Natural Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
The type or name of the event	A description of the specific vulnerability that was identified for the NEIDL regarding this event. While some natural events such as earthquakes strike without warning, other natural events typically allow for advance planning and preparation.	A description of the event and the potential impacts specific to the local area.	A description of the mitigation measures that have been taken, including: Facility design, equipment redundancy, plans and procedures developed, and training of personnel. In addition, the University is designated as StormReady by National Weather Service. Weather alerts, watches, and warnings are received via email, NOAA weather radio, and private weather forecasting service. Further, each of the NEIDL response plans have actions that will be taken in advance	A description of the specific impact to NEIDL operations caused by this event regarding systems, equipment, or personnel and resulting in effect to operational capabilities. The impact to the NEIDL will be dependent on many factors such as, wind speed, storm track, water content and duration.	An estimation of the anticipated severity and range of the Event Phases that this particular event may generate from its origin through escalation. With advance warnings of a storm, or other natural events, the University will escalate	The emergency response actions expected to be undertaken by the NEIDL ERT. The BU Incident Command Team and response personnel will mobilize to conduct response and recovery operations in a timely fashion. The University's	Community Safety: The outcome of this event regarding safety of the surrounding community. External Response: The emergency response actions expected to be undertaken by the

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
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			of a storm that may impact BU.		and deescalate its emergency phases from A to B to C as conditions demand.	Public Safety, Facilities and EH&S Departments will perform damage assessments of facility and peripheral systems and determine what level of operations would continue.	public safety agencies.
Earthquake	The NEIDL vulnerability assessment for a seismic event considers that an earthquake of Modified Mercalli Intensity VIII-IX, or	Moderate to major damage to ordinary, unreinforced construction. Chimneys and walls collapse. Minor damage to specially designed buildings.	The NEIDL has been designed and constructed to the Earthquake Standards Class D of the Massachusetts State Building Code.	Only minor damage is expected to the NEIDL with minor impact to NEIDL operations.	A seismic event is anticipated to result in an event classification of	NEIDL ERT will perform damage assessments of facility and peripheral systems and determine what	Community Safety: No expected outcome regarding safety of

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	magnitude 5.75 to 6.75 may occur in the Boston area.		However, the surrounding buildings and supporting infrastructure may not be designed to these standards.	However, the surrounding buildings and supporting infrastructure may not be designed to these standards and if damaged by the event, may result in an impact to NEIDL operations.	Phase A, B, or C given anticipated damage to surrounding areas.	level of operations will continue.	surrounding community. External Response: Public safety agencies may be called upon for assistance.
Flood	The NEIDL does not fall into any special flood zone within the city. However, the area has experienced street flooding during heavy	A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties (at least one of which is the policyholder's property) from: Overflow of inland or tidal	BU has a Flood Response Plan: Laboratories are on the second through sixth floors, there is no basement in the building that mitigates flooding into the building through rising groundwater. Emergency generators are located on the roof with	Minor flooding to first floor office spaces.	Phase A, B, or C.	NEIDL ERT will implement the BU Flood Response Plan and NEIDL Continuity of Operations Plan.	Community Safety: No expected outcome regarding safety of surrounding community.

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
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	rains as late as 1998. While floods in the Boston area have not approached the level of the Midwest floods, we anticipate this type of event.	waters; or unusual and rapid accumulation or runoff of surface waters from any source.	utilities that support the NEIDL on Floors 3 and 7. BU Facilities has the capability to fill and place sandbags at entrances to exterior first floor doors to prevent water seepage from street flooding.				External Response: No anticipated emergency response actions expected from Public Safety agencies.
Hurricane	Although a CAT 5 hurricane is possible, a CAT 2 or 3 is most likely. The most severe hurricane in New England history was the Hurricane of 1938, a CAT 3.	CAT 1, 74-95 mph: Very dangerous winds. Extensive damage to power lines and poles will likely result in power outages. CAT 2, 96-110 mph: Extremely dangerous winds. Extensive damage; near-total power loss is expected that could last into weeks. Potable water	Building construction should allow for survival during a major hurricane; building power redundancies should allow for power and water continuity. BU has an exercised Hurricane Response Plan.	Due to construction standards and building design, we believe the building is safe from major damage from a hurricane.	Phase A, B, or C.	NEIDL will conduct critical emergency repairs as quickly as possible and conduct damage assessment and begin recovery operations as	Community Safety: No expected outcome regarding safety of surrounding community.

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
Natural Events	Specific Vulnerability Assessment	Description of Natural Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
	The region has experienced CAT 3 storms in the 1950's and 60's, but Cat 1 or tropical storms have been the recent experience.	could become scarce as filtration systems fail. CAT 3, 111-130 mph: Devastating damage; electricity and water unavailable for up to a few weeks after storm passes. CAT 4, 131-155 mph: Catastrophic damage; power outages up to possibly months. Long-term water shortages increase human suffering. CAT 5, > 155 mph: Catastrophic damage; power outages up to possibly months. Long-term water shortages will increase human suffering.	Building design specifications and specialized construction will allow the NEIDL to withstand the effects of a major hurricane. Building power redundancies are designed for the loss of water and power up to 10 days. Further, BU has an exercised Hurricane Response Plan. Based upon intensity and track, select agent stocks may be neutralized as a precaution to an impending and catastrophic hurricane. Preparatory actions for hurricane as defined in the BU Hurricane Response Plan.	No significant impact to NEIDL Operations. Due to the design and construction standards utilized for the NEIDL, the building is designed to minimally withstand a CAT 3 hurricane. However, the surrounding buildings and supporting infrastructure may not be designed to these standards and if damaged by the event, may result in an		soon as storm has passed.	External Response: Public safety agencies may be called upon for assistance.

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
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				impact to NEIDL operations.			
Severe Weather	Historically, a variety of severe weather has occurred in this area including: severe thunderstorms, downbursts or micro bursts, and winter storms.	The National Weather Service defines a severe thunderstorm as having large hail, at least 3/4 inches (0.75 inches) in diameter, and/or damaging winds, at least 58 mph. A severe thunderstorm watch is issued when severe thunderstorms are possible. It generally covers a large area, perhaps several states. A severe thunderstorm warning is issued when a severe thunderstorm is occurring or expected to occur within a matter of minutes. A downburst or microburst is a sudden rush of cool air	BU has an exercised Severe Weather Response Plan. In addition, BU has been certified by National Weather Service as being StormReady for 2010–2013. Based upon intensity and track, select agent stocks may be neutralized as a precaution to an impending severe weather system. Preparatory actions for severe weather as defined in the BU Severe Weather Response Plan.	No significant impact to NEIDL Operations. Due to the design and construction standards utilized for the NEIDL, the building is designed to withstand severe weather and is safe from major damage from these types of events. However, the surrounding buildings and supporting	Phase A, B, or C.	NEIDL will conduct critical emergency repairs as quickly as possible and conduct damage assessment and begin recovery operations as soon as storm has passed.	Community Safety: No expected outcome regarding safety of surrounding community. External Response: None anticipated, but public safety agencies may be called upon

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
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		toward the ground that can impact with speeds greater than 70 mph and produce damage similar to that of a tornado. Viewing the damage from the air does not reveal a twisting motion or convergence toward a central track, as in a tornado. For the purpose of this analysis, winter storms are categorized as Severe Weather.		infrastructure may not be designed to these standards and if damaged by the event, may result in an impact to NEIDL operations.			for assistance.

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
Technological Events	Specific Vulnerability Assessment	Description of Technological Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
The type or name of the event	A description of the specific vulnerability that was identified for the NEIDL regarding this event.	A description of the event and the potential impacts specific to the affected area of the NEIDL.	A description of the mitigation measures that have been taken including: facility design, equipment redundancy, plans procedures developed, and training of personnel.	A description of the specific impact to NEIDL operations caused by this event regarding systems, equipment, or personnel and resulting in effect to operational capabilities.	An estimation of the anticipated severity and range of the Event Phases that this particular event may generate from its origin through escalation.	The emergency response actions expected to be undertaken by the NEIDL ERT.	<p>Community Safety: The outcome of this event regarding safety of the surrounding community.</p> <p>External Response: The emergency response actions expected to be undertaken by the public safety agencies.</p>

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
Technological Events	Specific Vulnerability Assessment	Description of Technological Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
Bio Safety Cabinets Power Failure - BSL-3	A Critical Power Failure may cause a potential loss of Primary Containment associated with the BSL-3 Bio Safety Cabinet.	A Critical Power Failure may cause a potential loss of Primary Containment under the following conditions: Due to a slight delay in switching over to emergency power, the BSC will go to static at that time (no air flow). The individual working in the cabinet must secure their agents and decontaminate the cabinet. However, since the air in the cabinet will be momentarily static, there is the small chance that movement of the worker's arms within the cabinet may cause potentially contaminated	Response Protocols for Bio Safety Cabinets are in place and BSL-3 personnel have been trained to respond to this event.	Cease work in affected BSL-3 Bio Safety Cabinet, secure agents, decontaminate the area, and investigate possible breach in containment.	Phase A	NEIDL ERT will conduct an Exposure/ Contamination Assessment. If this event results in a select agent loss of containment, then the appropriate notifications will be performed associated with the Select Agent Program.	Community Safety: No expected outcome regarding safety of surrounding community. External Response: BPHC, Select Agent Program (any potential release of select agents must be reported to the SAP).

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
Technological Events	Specific Vulnerability Assessment	Description of Technological Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
		<p>air to be drawn out of the Bio Safety Cabinet.</p> <p>Potential impact to affected area is the possible contamination outside of the Bio Safety Cabinet.</p>					
Bio Safety Cabinets Power Failure—BSL-4	A Critical Power Failure may cause a potential loss of Primary Containment associated with the BSL-4 Bio Safety Cabinet.	<p>A Critical Power Failure may cause a potential loss of Primary Containment under the following conditions:</p> <p>Due to a slight delay in switching over to emergency power, the BSC will go to static at that time (no air flow). The individual working in the cabinet must secure their agents and decontaminate the cabinet. However, since the air in the cabinet will</p>	In BSL-4, the laboratory serves as the secondary containment. Response Protocols for Bio Safety Cabinets are in place and BSL-4 personnel have been trained to respond to this event.	Cease work in affected BSL-4 Bio Safety Cabinet, secure agents, decontaminate the area.	Phase A	NEIDL ERT will conduct an Exposure/Contamination Assessment. If this event results in a select agent loss of containment, then the appropriate notifications	<p>Community Safety: No expected outcome regarding safety of surrounding community.</p> <p>External Response: BPHC, Select Agent Program (any potential</p>

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
Technological Events	Specific Vulnerability Assessment	Description of Technological Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
		<p>be momentarily static, there is the small chance that movement of the worker’s arms within the cabinet may cause potentially contaminated air to be drawn out of the Bio Safety Cabinet.</p> <p>Potential impact to affected area is the possible contamination outside of the Bio Safety Cabinet.</p>				will be performed associated with the Select Agent Program.	release of select agents must be reported to the SAP).
Rapid Transfer Cart —Failure	A Rapid Transfer Cart Fan failure in conjunction with a simultaneous glove leak.	<p>If the fan fails during transport there is no impact (air is static). The only indication that a leak may have occurred would be the blower ceasing to function.</p> <p>In the event of a blower failure, the cabinet would be unloaded (in the animal</p>	The Rapid Transfer Cart (RTC) and the integrity of the gloves are inspected prior to each usage. Any time the gloves are replaced the RTC is leak-tested. The RTC is designed with its own independent blower (powered from an on-board	Contamination of common space could lead to cross contamination and compromise research. May require decontamination, leading to a	Phase A	NEIDL ERT will conduct an Exposure/Contamination Assessment. If this event results in a	Community Safety: No expected outcome regarding safety of surrounding community.

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
Technological Events	Specific Vulnerability Assessment	Description of Technological Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
		<p>housing space), decontaminated, and then leak-tested.</p> <p>Potential impact to affected area is the possible contamination of immediate environment.</p>	<p>rechargeable battery), a HEPA filter on the exhaust side and a gauge to indicate negative pressure in the cabinet. Even if a glove comes off, the air will flow into the cabinet provided the blower unit is functioning. The only time a leak could possibly cause contamination of the environment is during transport of an infected animal in which the blower stops working and there is a breach of a glove (or other source for air to flow out of the cabinet).</p> <p>Response protocols (no opening of cabinet until unit is in animal facility with</p>	suspension of ongoing activity.		select agent loss of containment, then the appropriate notifications will be performed associated with the Select Agent Program.	External Response: BPHC, Select Agent Program (any potential release of select agents must be reported to the SAP).

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
Technological Events	Specific Vulnerability Assessment	Description of Technological Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
			room doors closed) are in place and personnel have been trained to respond to this event.				
Bio Safety Cabinets Exhaust Failure—BSL-4	An Exhaust Fan Failure may cause a potential loss of Primary Containment associated with the BSL-4 Bio Safety Cabinet.	Working with agent in BSC. Positive pressurization possible is active aerosolization (if using supplied air) contamination. Potential impact to affected area is the possible contamination outside of the Bio Safety Cabinet.	There are two types of fans exhausting air from the bio safety cabinet. First, there is a blower on the BSC, and second, the BSC duct is connected to a HEPA filtered exhaust in the mechanical space on the floor above (before exhausting the air from the building). If the blower on the BSC were to fail, there would remain some exhaust within the building exhaust system. If the building exhaust system were to fail, there are backup fans that would take over. The worst	Cease work in affected BSL-4 Bio Safety Cabinet, secure agents, decontaminate the area.	Phase A	NEIDL ERT will conduct an Exposure/Contamination Assessment. If this event results in a select agent loss of containment, then the appropriate notifications will be performed associated	Community Safety: No expected outcome regarding safety of surrounding community. External Response: BPHC, Select Agent Program (any potential release of select agents must be

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
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			<p>case scenario is outlined in the table: if both the blower on the BSC and the redundant backup fans fail, the response protocol is for the BSL-4 worker to cease work in the cabinet, shut down all equipment and secure any agents—the BSC air would become static but remain contained in the BSC.</p> <p>In BSL-4, the laboratory serves as the secondary containment. Response Protocols for Bio Safety Cabinets are in place and BSL-4 personnel have been trained to respond to this event.</p>			with the Select Agent Program.	reported to the SAP).
Breathing Air System	A Total Compressor	A Total Compressor Failure or Total Power	The breathing air system is equipped with two fully	If all primary compressors were	Phase B or C	NEIDL ERT will perform	Community Safety:

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
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Failure—BSL-4	Failure or Total Power Failure may cause a loss of the BSL-4 Breathing Air System.	Failure may cause a potential life safety condition for BSL-4 personnel utilizing the Breathing Air System.	<p>redundant compressors. In this case the system is n+2. In addition there is a stored backup volume of breathing air on site, separate of the main compressors to provide full egress capability from the laboratory.</p> <p>Inspections and Checks, Daily Safety Meetings, Maintenance SOPs, Alarms, Emergency Response Plans, and Response Protocols are in place and BSL-4 personnel have been trained to respond to this event.</p>	compromised the laboratory would require evacuation under the backup air system. The laboratory would remain out of service until such time a required volume of reserve and primary compressors is returned.		evacuation and accountability of affected laboratory personnel.	<p>No expected outcome regarding safety of surrounding community.</p> <p>External Response: None anticipated.</p>
Powered Air Purifying Respirators (PAPR) Failure—BSL-3	A Battery Failure, Blower Failure, Clogged Filter or Breach of	A Battery Failure, Blower Failure, Clogged Filter or Breach of Hose may cause a loss of supplied air to the individual utilizing a PAPR	Daily checks and maintenance, spare batteries, and Response Protocols are in place and BSL-3 personnel have been	PAPR failure may result in a loss of supplied clean air and potential exposure to the	Phase A or B	NEIDL ERT will perform possible decontamina	Community Safety: No expected outcome regarding

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
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	Hose may cause a failure of a BSL-3 PAPR.	and working in a BSL-3 laboratory environment.	trained to respond to this event.	individual working in a BSL-3 laboratory environment.		tion if required.	safety of surrounding community. External Response: None anticipated.
Effluent Decontamination System (EDS) Failure	An Equipment Failure, Power Failure, Tank Failure, or Loss of Steam may cause a failure of the EDS.	An Equipment Failure, Power Failure, Tank Failure, or Loss of Steam may cause a Minor or Catastrophic Failure of the Effluent Decontamination System and result in the cessation of BSL-4 work, potential loss of containment and a shutdown of water system.	The EDS system is equipped with three redundant units. The cycle is auto resetting and will reinitiate a sterilization cycle if during a run a parameter fails to be maintained. The system is not gravity drain and requires a completed cycle to initiate a pumped discharge. Secondary decontamination, as primary, is accomplished	The throughput of the laboratory can be impacted by a reduction of cycle time. Use of the laboratory would be restricted in volume in coordination with the ability for the EDS to operate.	Phase A, B, or C.	NEIDL ERT will perform cleanup and assessment of possible exposures; assist in evacuation, accountability and decontamination.	Community Safety: No expected outcome regarding safety of surrounding community. External Response: None anticipated.

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
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			prior to disposal to EDS. The EDS has n+2 redundancy and uses a validation program to ensure proper operation.			NEIDL ERT will coordinate with private contractor for assistance if utilized.	
Tissue Digester Failure	An over pressurization of the vessel or failure of equipment may cause a failure of the Tissue Digester.	An over pressurization of the vessel or failure of equipment may cause a Minor or Catastrophic Failure of the Tissue Digester and result in the inability to dispose of sterilized organic materials as well as the release of high pH chemicals and personnel exposure.	Maintenance and validation programs, isolated room design, and PPE/protocols. Response Protocols are in place and BSL-3 personnel have been trained to respond to this event.	The ability to dispose on site of the material would be impacted. The materials would require storage until the tissue digester is returned to service, or offsite disposal is arranged. Suspension of animal research operations,	Phase A, B, or C.	NEIDL ERT will perform possible extraction of injured or chemical exposed personnel and subsequent clean-up operations.	Community Safety: No expected outcome regarding safety of surrounding community. External Response: The BWSC, BPHC, EPA, MWRA,

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
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				possible personnel exposure (chemicals), environmental release of high pH chemicals		If this event results in a release of high pH chemicals to the sanitary sewer, then appropriate notifications will be performed to BWSC, EPA, MWRA, and/or MEPA.	and/or MEPA may receive notifications if high pH chemicals are released to the sanitary sewer.
Broken Glass	Breakage of equipment or lab supplies.	Breakage of equipment or lab supplies may cause personal injury and potential exposure to agent.	Training, EHS approval for glass usage (with substitution if possible), cleanup protocols in place, sharps handling.	Possible medical incident response protocol, with potential exposure to agent.	Phase A	Cleanup will be performed by lab personnel.	Community Safety: No expected outcome regarding safety of

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
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							surrounding community. External Response: None anticipated.
Loss of Gas	Loss of gas is considered a highly unlikely event.	A loss of gas to the NEIDL would be a temporary interruption and have minimal to no impact on NEIDL operations or research.	The natural gas boilers are backed up by the Veolia city steam grid and vice versa. Loss of gas to the building will transition boiler operations to District steam. Transition should be seamless to the end user, as a loss of boiler pressure will be picked up by the district. If we are operating on district steam and service is interrupted we would need to transition to the boilers.	The building's ability to heat and sterilize would be interrupted during the outage window. Sterilization cycles would be aborted and would restart upon utility restoration; in the meantime waste would need to be stockpiled for future decontamination.	Phase A	NEIDL personnel would coordinate with Facilities to bring the boilers on line.	Community Safety: No expected outcome regarding safety of surrounding community. External Response: None anticipated.

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
Technological Events	Specific Vulnerability Assessment	Description of Technological Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
			This would not be seamless, the building would be without steam until either the grid is restored or the boilers could be brought on line.	The building’s ability to heat and sterilize would be interrupted during the outage window. Sterilization cycles would be aborted and would restart upon utility restoration. In the meantime waste would need to be stockpiled for future decontamination.			
Loss of Water	Loss of water is considered a highly unlikely event.	A loss of water service to the NEIDL would be caused by a breakdown in the delivery of water from MWRA and if a sustained interruption, would result	The water service is a loop service with feeds separated by city blocks. If service is interrupted on one end it may be isolated and full service from the other end.	A total loss of water service would impair the ability to provide potable water, fire suppression	Phase B or C	NEIDL ERT will coordinate and work with state and city	Community Safety: No expected outcome regarding safety of

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
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		in impact to the NEIDL's operations.	Note: The disinfection site storage is enough for full exit of the facility without the need to replenish.	systems, and process loads. Upon a sustained interruption, the facility until restored would not have the ability to provide life safety systems, cooling and process water to sustain operations eventually requiring the suspension of operations		officials for safe restoration of service and resumption of research.	surrounding community. External Response: Limited to restoration of services and Inspectional Services Department requirements.
Loss of Life Safety Systems	Life Safety Systems are reliant on electrical power and water supply. A loss	The Loss of the NEIDL's Life Safety Systems would be caused by the failure of the MWRA to deliver water to the building and the failure of the primary	The water service is a loop service with feeds separated by city blocks. If service is interrupted on one end it may be isolated and full service from the other end.	A total loss of water service would impair the ability to provide fire suppression systems, and	Phase C	NEIDL ERT will conduct building operation assessments.	Community Safety: No expected outcome regarding safety of

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
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	of all life safety systems is considered unlikely.	electrical power provided by NSTAR and a subsequent failure of both emergency generators.	Note: The disinfection site storage is enough for full exit of the facility without the need to replenish. The electrical service has four independent feeds from the utility company. Each one is capable of serving the facility's critical needs. The utility service is backed up by two generators, each sized to carry the critical loads.	process loads. Upon a sustained interruption, the facility until restored would not have the ability to provide life safety systems, cooling and process water to sustain operations eventually requiring the suspension of operations. If the both utility and onsite generation were to fail, and Life Safety Systems were not able to operate, laboratory			surrounding community. External Response: Inspectional Services Division will need to inspect life safety systems before reoccupying building.

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				operations would need to be curtailed and the building evacuated of non-critical personnel.			
Loss of Electricity	Loss of electricity is considered a highly unlikely event.	No electrical supply available from public utility. While a loss of electricity into the building is possible and anticipated, the building's electrical service as defined in column four, makes a total electrical failure in the building extremely low.	The electrical service has four independent feeds from the utility company. Each one is capable of serving the facility's critical needs. The utility service is backed up by two generators, each sized to carry the critical loads.	If the both utility and onsite generation were to fail, the containment operations would be suspended and the laboratories left in a static state of no ventilation.	Phase A or B	NEIDL ERT will conduct building operation assessments and ensure continued replenishing of generator fuel supply.	Community Safety: No expected outcome regarding safety of surrounding community. External Response: None Anticipated.
Water Leak	Water leaks may result from	Water damage to NEIDL facility resulting in loss of	The water services within the facility are designed	The standing water would need to be	Phase A or B	NEIDL ERT will perform	Community Safety:

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	broken piping or human error.	workspace and possible mold.	with both system floor level and end device isolation. If a leak is detected and found un-repairable the piping will be isolated and the water service impaired until a full repair can be made.	contained and disposed of accordingly. In the period between isolation and final repair the system past the isolation valve will be without service.		containment, control, cleanup, damage assessment and monitoring of water leak conditions.	No expected outcome regarding safety of surrounding community. External Response: None Anticipated.
Gas Leak	Gas leaks may result from broken piping or human error.	Failure of gas supply piping or human error causing explosion or fire, injuries, asphyxiation and building evacuation resulting in cessation of research at NEIDL.	The gas services within the facility are designed with both system floor level and end device isolation. Response Protocols are in place and personnel have been trained to respond to this event.	The detection of a gas leak will initiate an investigation dependent on its potential size. Minor leaks such as lab spigot valves may be isolated until repaired. A major leak would	Phase A, B, or C.	NEIDL personnel will shut off gas, assist in evacuation and personnel accountability.	Community Safety: No expected outcome regarding safety of surrounding community. External Response:

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				initiate a building evacuation, the utility isolated from outside the facility and emergency response from outside agencies.			Response by City of Boston agencies in accordance with 911 protocol.
HVAC Failure	A critical power failure, equipment failure, or duct collapse (through pressure event) may cause a failure of the HVAC System.	A critical power failure, equipment failure, or duct collapse (through pressure event) may cause a loss of directional airflow and result in the potential for a biological agent release and result in suspension of NEIDL activities.	The HVAC systems are equipped with n+1 redundant fan sets (3 each BSL-3 and 4 each BSL-4). Each system is designed to operate in parallel where the loss of a fan is compensated by the remaining fans. Upon the loss of multiple fans the pressure relationships are maintained with reduction of air exchange. Upon loss of all exhaust fans the HVAC	The laboratories may be restricted in operations with the loss of redundancies and shutdown upon complete loss of HVAC. Work may be suspended, personnel may be evacuated from affected spaces.	Phase A, B, or C.	NEIDL ERT will assist in evacuation and personnel accountability. NEIDL ERT will conduct an Exposure/Contamination	Community Safety: No expected outcome regarding safety of surrounding community. External Response: BPHC, Select Agent Program (any

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			<p>fails, leaving the laboratories in a static airflow state. Additionally, the HVAC system has redundant fans, BAS/alarms, and backup generators. Response Protocols are in place and both research and facility staff personnel have been trained to respond in the event of an HVAC failure.</p>			<p>Assessment. If this event results in a select agent loss of containment, then the appropriate notifications will be performed associated with the Select Agent Program.</p>	<p>potential release of select agents must be reported to the SAP).</p>
Elevator Failure	Elevators occasionally fail in their operations.	An elevator car can stop working. Occupants would be made to use other elevators.	Multiple elevators per service area are provided to ensure traffic flow if a unit is out of service. The university has a service contract with emergency response windows for	Minor impact to NEIDL operations, the affected elevator will be out of service until repaired and the	Phase A	NEIDL personnel would coordinate with Facilities to address the	Community Safety: No expected outcome regarding safety of

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			events such as entrapments and dangerous conditions. The maintenance staff has the ability to remove a car from service if it is operating sporadically.	remaining elevators will be utilized.		affected elevator.	surrounding community. External Response: None Anticipated.
Elevator Entrapment	Occupied elevators in buildings have stalled, trapping its occupants.	If an elevator stops between floors with occupants, they will be trapped until set free.	The University has a service contract with emergency response windows for events such as entrapments and dangerous conditions.	Minor impact to NEIDL operations. NEIDL personnel will respond to an elevator entrapment and will assist occupants.	Phase A	NEIDL personnel will respond to an elevator entrapment and will assist occupants.	Community Safety: No expected outcome regarding safety of surrounding community. External Response: Response by City of Boston agencies in

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							accordance with 911 protocol.
Transportation Incident involving transport of select agent	While highly unlikely, an incident could occur during a select agent transport.	A shipment could be compromised by an accident, theft, or release resulting in the delay or loss of the select agent.	BU has implemented a Transportation Materials Management Policy that ensures that only certified transporters are used to safely transport and track select agents to the NEIDL. Transporters are limited to state and federal highway systems where possible. These plans have been used and exercised with Boston public safety agencies.	Delay in shipment or loss of select agent.	Phase C with required regulatory notifications.	NEIDL ERT will perform notifications as per SOP. NEIDL ERT will conduct an Exposure/Contamination Assessment with emergency responders. If this event results in a select agent loss of	Community Safety: There should be no to limited environmental outcome regarding community safety. External Response: Response by City of Boston agencies in accordance with 911

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						containment, then the appropriate notifications will be performed as outlined in the Select Agent Program.	protocol, as well as BPHC, Select Agent Program (any potential release of select agents must be reported to the SAP). In addition, response by first responders in jurisdiction having authority upon notification by transporter and BU.

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Information Systems Failure	While highly unlikely, an information systems failure may occur due to equipment failure and/or personnel error.	An equipment failure and/or personnel error may result in the information system or data not being available.	Redundant Systems are in place in multiple sites to prevent an information systems failure.	Information stopped, data recovery necessary, cessation of research, BAS recovery.	Phase A	NEIDL personnel would coordinate with IS staff to address information system failure.	Community Safety: No expected outcome regarding safety of surrounding community. External Response: None Anticipated.
Cyber Attack	While highly unlikely, connectivity to the internet results in vulnerability to cyber attacks.	Security hardware and software intercepts the attacks. Not stopping the attack triggers additional security measures.	BU Intrusion Response Team (BUIRT) monitors networks (10. And 155 networks), BAS is a closed network within the building, additionally monitored at BUMC CC.	Suspension of use of server and computer until attack has been identified and stopped.	Phase A	BU IRT monitors traffic and disconnects either server or compute until attack is identified or stopped.	Community Safety: No expected outcome regarding safety of surrounding community.

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Technological Events	Specific Vulnerability Assessment	Description of Technological Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
							External Response: None Anticipated.

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
Man Caused Events	Specific Vulnerability Assessment	Description of Man Caused Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
The type or name of the event	A description of the specific vulnerability that was identified for the NEIDL regarding this event.	A description of the event and the potential impacts specific to the affected area of the NEIDL.	A description of the mitigation measures that have been taken including: Facility design, equipment redundancy, plans/procedures developed and training of personnel.	A description of the specific impact to NEIDL operations caused by this event regarding systems, equipment, or personnel and resulting in effect to operational capabilities.	An estimation of the anticipated severity and range of the Event Phases that this particular event may generate from its origin through escalation.	The emergency response actions expected to be undertaken by the NEIDL ERT.	Community Safety: The outcome of this event regarding safety of the surrounding community. External Response: The emergency response actions expected to be undertaken by the public safety agencies.
Minor Injury	Possible equipment	Personnel injury, no loss of consciousness, ambulatory.	The University has instituted a culture of safety	Temporary disruption of work.	Phase A;	NEIDL personnel	Community Safety:

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	failure, human error, minor animal bite/scratch.		throughout to reduce injuries and accidents. Lab Safety Training is mandatory for all personnel working in laboratories. First aid training is also required of all personnel working in high and maximum containment as well as all personnel assigned to the NEIDL.		animal bites or scratches are a potential exposure and notification must be made by ROHP to BPHC.	would coordinate with BEMS response and transport if required.	No expected outcome regarding safety of surrounding community. External Response: Response by City of Boston agencies in accordance with 911 protocol;. report to BPHC.
Minor Injury in Containment	Possible equipment failure, human error, minor	Personnel injury, no loss of consciousness, ambulatory.	The University has instituted a culture of safety throughout to reduce injuries and accidents. Lab	Temporary disruption of work, injured party must be decontaminated	Phase A; animal bites or scratches are a potential	NEIDL personnel will provide assistance	Community Safety: No expected outcome

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	animal bite/scratch.		Safety Training is mandatory for all personnel working in laboratories. First aid training is also required of all personnel working in high and maximum containment as well as all personnel assigned to the NEIDL.	and removed from containment.	exposure and notification must be made by ROHP to BPHC.	decontaminating the injured party if required. NEIDL personnel would coordinate with BEMS response and transport if required.	regarding safety of surrounding community. External Response: Response by City of Boston agencies in accordance with 911 protocol; report to BPHC.
Serious Injury	Possible equipment failure, human error, severe animal bite/scratch,	Personnel injury, loss of consciousness, non-ambulatory.	The University has instituted a culture of safety throughout to reduce injuries and accidents. Lab Safety Training is mandatory for all personnel	Suspension of work, administration of first aid/CPR/AED (if appropriate).	Phase A or B; animal bites or scratches are a potential exposure and notification	NEIDL personnel would coordinate with BEMS response and	Community Safety: No expected outcome regarding safety of

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
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	resulting in a medical emergency.		working in laboratories. First aid and AED/CPR training is also required of all personnel working in high and maximum containment as well as all personnel assigned to the NEIDL		must be made by ROHP to BPHC.	transport if required.	surrounding community. External Response: Response by City of Boston agencies in accordance with 911 protocol;. report to BPHC.
Serious Injury in Containment	Possible equipment failure, human error, severe animal bite/scratch, medical emergency.	Personnel injury, loss of consciousness, non-ambulatory.	The University has instituted a culture of safety throughout to reduce injuries and accidents. Lab Safety Training is mandatory for all personnel working in laboratories. First Aid and AED/CPR	Suspension of work, administration of first aid/CPR/AED (if appropriate), decontamination of injured party, removal from	Phase B; animal bites or scratches are a potential exposure and notification must be made	NEIDL personnel will provide assistance decontaminating the injured party if required.	Community Safety: No expected outcome regarding safety of surrounding community.

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			training is also required of all personnel working in high and maximum containment as well as all personnel assigned to the NEIDL.	containment, transfer to medical care.	by ROHP to BPHC.	NEIDL personnel would coordinate with City Responders to transport if required.	External Response: Response by City of Boston agencies in accordance with 911 protocol; report to BPHC.
Sudden Death	Cardiac arrest or other acute cause of death.	Loss of life.	All NEIDL personnel are medically screened upon hiring, as well as annually checked by ROHP. Personnel working in containment are trained and certified in first aid, CPR and AED. AED units are installed on every floor.	First Aid treatment by internal staff and/or NEIDL public safety.	Possible Phase A or B.	NEIDL personnel would treat as a medical emergency. Public Safety would secure scene.	Community Safety: No expected outcome regarding safety of surrounding community.

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							External Response: Response by City of Boston agencies in accordance with 911 protocol; notify BPHC
Suicide Threat or Attempt	While a highly unlikely event due to psychological screening prior to hiring and daily security screening, a suicide threat or attempt may occur.	Serious psychological impact to staff.	ROHP conducts pre-employment and annual psychological screening.	Serious psychological impact to staff. Possible loss of research space.	Phase B	NEIDL personnel would perform a site assessment and implement security dependent on location of incident.	Community Safety: No expected outcome regarding safety of surrounding community. External Response:

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
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							Response by BUPD and City of Boston agencies in accordance with 911 protocol..
Workplace Violence	Possible, but unlikely event.	Workplace violence could result in threats, assault, blackmail, domestic violence, injuries or death hostile work environment, loss of work or agent.	Security screening, 100% access control, multiple layers of security barriers, employees' assistance programs.	Injuries or death hostile work environment, loss of work or agent.	Phase A, B, or C; Code Green Declaration.	NEIDL personnel would coordinate to shelter in place, assist with cleanup, conduct employee support, implement site security determined	Community Safety: No expected outcome regarding safety of surrounding community. External Response: Response by BUPD and City of

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
Man Caused Events	Specific Vulnerability Assessment	Description of Man Caused Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
						necessary by NEIDL Public Safety.	Boston agencies in accordance with 911 protocol and FBI, If select agent involved.
Bomb Threat	Possible, but unlikely event.	A bomb threat could result in work stoppage, possible evacuation and securing the building.	Building is secured at all times.	Implement Bomb Threat Response Plan and put building in “safe mode.” Notification to occupants to search their areas; common areas are searched by NEIDL Public Safety.	Phase A	NEIDL personnel would investigate and determine if the event is a false threat or escalate to an actual found device.	Community Safety: No expected outcome regarding safety of surrounding community. External Response: Notifications to BUPD and BPD.

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
Man Caused Events	Specific Vulnerability Assessment	Description of Man Caused Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
Suspicious Package or Mail	Possible, but unlikely event.	A package or piece of mail is received that meets the definition of "suspicious."	All incoming packages and mail are screened. All deliveries are known prior to arrival and are received at the loading dock.	Possible evacuation, building put in "safe mode."	Phase B or C.	NEIDL Public Safety would take lead on suspicious package or mail event.	Community Safety: No expected outcome regarding safety of surrounding community. External Response: Notifications to BUPD and BPD.
Bomb or Suspicious Device	Possible, but unlikely event.	Bomb or Suspicious Device is found on property.	All incoming packages and mail are screened. All deliveries are known prior to arrival and are received at the loading dock. All bags carried in by employees are screened.	Possible evacuation, building put in "safe mode."	Phase C	NEIDL ERT would assist in evacuation and accountability.	Community Safety: Community may be impacted by road closings and media interest.

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Man Caused Events	Specific Vulnerability Assessment	Description of Man Caused Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
							External Response: Response by BUPD and City of Boston agencies in accordance with 911 protocol..
Dangerous Person Onsite	Possible, but unlikely event.	A dangerous person onsite may result in threats, assault, blackmail, domestic violence, injuries or death, hostile work environment, loss of work or agent.	100% access control, Visitor Access Policy in place, limited access through building.	Shelter in place, building put in "safe mode."	Phase B or C.	NEIDL Public Safety would coordinate response and implement site security as determined necessary.	Community Safety: No expected outcome regarding safety of surrounding community. External Response:

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Man Caused Events	Specific Vulnerability Assessment	Description of Man Caused Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
							Response by BUPD and City of Boston agencies in accordance with 911 protocols.
Hostage Situation	Highly unlikely event.	A hostage situation would result in someone held against his/her will. Threats, assault, blackmail, domestic violence, injuries or death, hostile work environment, loss of work or agent.	100% access control, Visitor Access Policy in place, limited access through building.	Shelter in place, building put in "safe mode."	Phase B or C.	NEIDL ERT response is location-dependent. NEIDL Public Safety has lead (advice needed due to technical hazards in location).	Community Safety: No expected outcome regarding safety of surrounding community. External Response: Response by BUPD and

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
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							City of Boston agencies in accordance with 911 protocol..
Security Breach	Possible, but unlikely event.	Security breach occurs when someone defeats existing security measures. This may result in theft, loss or release of a select agent inventory or record and result in cessation of select agent research.	Pre-employment screening, PATRIOT ACT requirements, access control, inventory control, video surveillance.	Cessation of select agent research, loss of agent, loss of reputation.	Phase C	NEIDL ERT will conduct inventory audit and access investigation and notify all required agencies such as CDC, FBI, BPHC and possibly BPD.	Community Safety: Possible community outcome. External Response: Response by CDC, FBI, BPHC and possibly BPD as necessary.

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
Man Caused Events	Specific Vulnerability Assessment	Description of Man Caused Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
Protest	Possible	Rallies, demonstrations on Albany Street. Possible traffic impact on South End streets.	Security Plan is always in effect through physical security, informational technologies, and facility design. BU receives intelligence reports from Boston Regional Intelligence Center, MA Fusion Center and the DHS Anti-Terrorism Advisory Council.	Building put into “safe mode” Heightened awareness of staff.	Phase C	NEIDL ERT response is activity-dependent; NEIDL Public Safety has lead addressing trespass activity and monitoring CCTV for perimeter control.	Community Safety: Possible community outcome Traffic, Police presence, media, crowds. External Response: Response by BPD for crowd control on public ways.
Terrorism	Possible	Terrorism may take the form of any man-caused event previously listed in this form.	Security Plan is always in effect through physical security, informational	Increased security; Building put into “safe mode.”	Phase C	NEIDL ERT response is activity-dependent.	Community Safety: Possible community

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			technologies, and facility design. BU receives intelligence reports from Boston Regional Intelligence Center, MA Fusion Center and the DHS Anti-Terrorism Advisory Council.	Appropriate response to event.		NEIDL Public Safety has lead on appropriate response to event.	outcome; Traffic, Police presence, media, crowds. External Response: Response by City of Boston agencies in accordance with 911 protocol and FBI as necessary.
Civil Unrest	Possible	Rallies, demonstrations on Albany Street. Possible traffic impact on South End streets.	Security Plan is always in effect through physical security, informational	Building put into "safe mode" Heightened awareness of staff.	Phase C	NEIDL ERT response is activity-dependent.	Community Safety: Possible community

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			technologies and facility design. BU receives intelligence reports from Boston Regional Intelligence Center, MA Fusion Center and the DHS Anti-Terrorism Advisory Council.			NEIDL Public Safety has lead addressing trespass activity and monitoring CCTV for perimeter control.	outcome. Traffic, Police presence, media, crowds. External Response: Response by BPD for crowd control on public ways.
Fire or Explosion	Possible	Loss of space, injuries and fatalities.	Fully sprinklered building, fire response and evacuation plan in place. Yearly fire drills conducted.	Loss of space, injuries and fatalities, cessation of research.	Phase B or C.	NEIDL ERT will assist in off-site response, evacuation and personnel	Community Safety: No expected outcome regarding safety of surrounding community.

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						accountability.	External Response: Response by City of Boston agencies in accordance with 911 protocol and notification of BPHC.
Chemical Spill	Human error and/or equipment failure.	Possible personnel exposure and/or environmental impact.	Training, PPE, Spill response/spill kit usage.	Momentary disruption of laboratory activities.	Phase A, B, or C, as event conditions warrant.	NEIDL ERT will assist in spill cleanup.	Community Safety: No expected outcome regarding safety of surrounding community.

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Man Caused Events	Specific Vulnerability Assessment	Description of Man Caused Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
							External Response: Response by City of Boston agencies in accordance with 911 protocol; report to BPHC.
Chemical Spill on Body	Human error and/or equipment failure.	Possible personnel exposure and/or environmental impact.	Training, PPE, Spill response/spill kit usage.	Momentary disruption of laboratory activities.	Phase A, B, or C, as event conditions warrant.	NEIDL ERT will assist in personnel extraction, decontaminating personnel (for transfer to medics) and	Community Safety: No expected outcome regarding safety of surrounding community. External Response:

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
Man Caused Events	Specific Vulnerability Assessment	Description of Man Caused Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
						spill cleanup.	None Anticipated. Report to BPHC.
Radioactive Spill	Even under the best of training and conditions, a radioactive spill may occur in a laboratory.	Based on our BSL-2 experience, Typical quantities used during BSL-2 research are less than 0.05 millicurie and with volumes varying from 0.1ml to 20 ml, Minimal impact is expected during the spill.	Lab design, training and SOPs, and radiation protection safety controls. All work with volatile compounds will be done in biosafety cabinets or functioning ducted hoods.	Momentary disruption of laboratory activities.	Phase A; RSO notification.	NEIDL RSO will oversee cleanup of spill area and approve continuation of research.	Community Safety: No expected outcome regarding safety of surrounding community. External Response: Notification of DPH.
Radioactive Spill on Body	While highly unlikely due to PPE, a failure in laboratory	A researcher not properly attired in PPE and not following SOPs might cause a radioactive spill on	PPE, equipment design, SOPs and radiation safety controls.	Radiation skin contamination, potential internal exposure, research	Phase A; RSO notification.	NEIDL RSO will oversee response and evaluation;	Community Safety: No expected outcome

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Man Caused Events	Specific Vulnerability Assessment	Description of Man Caused Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
	equipment may cause a spill in very small amounts on a body part.	exposed skin. This may also happen due to an equipment failure. The impact depends on the type of radioactive material resulting in radioactive skin contamination.		cessation, containment, control and decontamination.		cleanup of area, decontamination of exposed area. RSO will determine, and if necessary, make any and all required regulatory notifications.	regarding safety of surrounding community. External Response: None Anticipated Notification of DPH and BPHC.
Gamma Irradiator Failure	Equipment failure may cause Gamma Irradiator to fail.	This event may be due to a failure of the compressor or the door interlock mechanism or a source jam. The door may open and not close, resulting in the irradiator being	The equipment is designed in a fail-safe mode.	The irradiator is out of order. Any research requiring irradiation will stop until the irradiator is repaired.	Phase A; RSO notification.	NEIDL RSO investigates and has repairs made by manufacturer.	Community Safety: No expected outcome regarding safety of

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
Man Caused Events	Specific Vulnerability Assessment	Description of Man Caused Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
		inoperable or the source may jam in the up or down position with no elevated radiation levels.					surrounding community. External Response: None Anticipated.
Biological Spill	Human error and/or equipment failure.	Environmental contamination.	Training, PPE, Spill response/biohazard spill kit usage.	Momentary disruption of laboratory activities.	Phase A, B, or C, as event conditions warrant..	NEIDL ERT will assist with spill cleanup. NEIDL ERT will conduct an Exposure/Contamination Assessment. If this event involves a select agent, then the appropriate	Community Safety: No expected outcome regarding safety of surrounding community. External Response: BPHC, Select Agent Program (any potential

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
Man Caused Events	Specific Vulnerability Assessment	Description of Man Caused Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
						notifications will be performed associated with the Select Agent Program.	release of select agents must be reported to the SAP).
Biological Exposure	Human error and/or equipment failure., and animal bite/scratch.	Personnel exposure, possible contamination of space or equipment.	Medical surveillance, immunizations (if available).	Possible illness or death could result from biological exposure. Laboratory activities suspended, exposed person, decontaminated, first aid administered and then the exposed person removed from containment,	Phase B	NEIDL will assist with extraction, decontamination and transfer to medical care. ERT will conduct an Exposure/Contamination Assessment. If this event	Community Safety: No expected outcome regarding safety of surrounding community. External Response: BPHC, Select Agent Program (any

Threat and Vulnerability Assessments			Threat/Hazard Mitigation Strategy	Potential Event Internal Impact	NEIDL Event Classification and Notification Level(s)	POETE Gap Analysis	
Man Caused Events	Specific Vulnerability Assessment	Description of Man Caused Event and Potential Impact	Specific Mitigation Measures	Impact to NEIDL	Possible Event Classification / Notification Level	Internal Response	External Response
				transferred to medical care.		involves a select agent, then the appropriate notifications will be performed associated with the Select Agent Program.	potential release of select agents must be reported to the SAP).