Boston Public Health Commission

Biological Laboratory Safety Permit Application

SECTION 14: TERMINATION OF WORK

WITH BSL-4 AND ABSL-4 AGENTS

Boston University

National Emerging Infectious Diseases Laboratories

March 2014

CONTENTS

Boston Public Health Commission

Biological Laboratory Safety Permit Application

SECTION 14: TERMINATION OF WORK

WITH BSL-4 AND ABSL-4 AGENTS

Boston University

National Emerging Infectious Diseases Laboratories

March 2014

1.0 INTRODUCTION

The National Emerging Infectious Diseases Laboratories (NEIDL) is part of a national network of laboratories that conduct research studies on infectious diseases. The studies involve the development of diagnostics, vaccines, and therapeutics against emerging and re-emerging infectious diseases. The research programs at the NEIDL will involve microbiological agents, including Select Agents classified as Risk Group 4 and Biosafety Level-4 (BSL-4) or Animal Biosafety Level 4 (ABSL-4) by the Centers for Disease Control and Prevention (CDC), Animal and Plant Health Inspection Service (APHIS), and the National Institutes of Health (NIH). All research will be permitted by the appropriate regulatory agencies, including CDC and APHIS for working with Select and Overlap Agents and the Boston Public Health Commission (BPHC). In the NEIDL, the BSL-4 laboratories (or suites) employ sophisticated instrumentation to conduct research for the development of new diagnostic tools, vaccines, and drug therapeutics.

The NEIDL is located on the Boston University Medical Campus (BUMC) in the area commonly referred to as BioSquare. The facility is designed and built with state-of-the-art technology and redundancies to ensure safe operations at all levels of containment work.

2.0 PURPOSE AND APPLICABILITY

The purpose of Section 14, Termination of Work with BSL-4 and ABSL-4 Agents, is to outline Boston University's process for terminating or discontinuing research work with BSL-4 and ABSL-4 agents at the NEIDL.

3.0 REGULATORY FRAMEWORK

This Termination of Work plan addresses applicable regulatory requirements and standards at federal, state, and local levels.

Federal Regulations

- 42 CFR Part 73 HHS Possession, Use and Transfer of Select Agents and Toxins
- 9 CFR Part 121 USDA Possession, Use and Transfer of Select Agents and Toxins
- CDC/NIH, *Biosafety in Microbiological and Biomedical Laboratories (BMBL)*, 5th Edition
- NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules

State Regulation

- 105 CMR 480.000 Minimum Requirements for the Management of Medical or Biological Waste (State Sanitary Code Chapter VIII)

City of Boston Regulations

- Biological Laboratory Regulation, Boston Public Health Commission
- Guidelines for the Regulation of Recombinant DNA Use, Boston Public Health Commission

4.0 ROLES AND RESPONSIBILITIES

4.1 Associate Vice President for Research Compliance

The Associate Vice President for Research Compliance (AVP-RC) is responsible for providing oversight for all NEIDL support, operations, and hazardcontrol programs and for ensuring that comprehensive, enterprise-wide programs are in place for the protection of all NEIDL occupants, visitors, the public health, and the environment from the potential hazards associated with NEIDL

research programs. The AVP-RC is the designated Responsible Official for the Boston Public Health Commission..

4.2 Director, Research Safety Division, Environmental Health & Safety

The Director of Research Safety in the Environmental Health & Safety department (EHS) is responsible for the management of the NEIDL Research Safety Program. This responsibility includes oversight of: 1) the development and execution of decommissioning plans for containment suites and systems; 2) the decontamination protocols for preparing the containment suites and systems for decommissioning; and 3) recertification protocols to bring back containment suites and systems that were maintained, repaired, or replaced. The Director of Research Safety is the Responsible Official (RO) for institutional compliance with the Centers for Disease Control and Prevention (CDC) and the Animal and Plant Health Inspection Service (APHIS) Select Agent Rules.

4.3 Principal Investigator

The Principal Investigator (PI) is an authorized individual approved by the Responsible Official (RO). The PI is responsible for the scientific and technical direction of a scientific project or program. The PI is responsible for: 1) informing the RO and the Institutional Biosafety Committee (IBC) of a decision to terminate a research program, work with an agent, or convert the research space for another purpose; 2) terminating all research activities prior to a decommissioning activity; and 3) assisting EHS and Facilities Management & Planning (FMP) in preparing the space for recertification or decommissioning.

4.4 Responsible Official

The Responsible Official is appointed by the Associate Vice President for Research Compliance and acts as the authorized individual with responsibility, authority, and control to ensure compliance with CDC and APHIS Rules and Regulations pertaining to the possession, use, and transfer of Select Agents and Toxins. The Director of Research Safety is designated to serve as the RO. The RO will ensure that termination of work with applicable agents will be reported to the proper agencies, including the CDC/APHIS Select Agent Program.

4.5 BSL-4 Suite Authorized Individuals

Authorized individuals will assist in the preparation of the suite for termination of the work with the agent. Under the supervision of the PI and oversight of Environmental Health & Safety, they will be responsible for cleaning and surface disinfection prior to decontamination of the suite by EHS.

Work includes, but is not limited to, performing surface disinfection of all work surfaces, equipment, and instruments; treatment and disposal of all biological wastes; and securing of agents.

4.6 Associate Director of NEIDL Environmental Health & Safety

The Associate Director is responsible for providing guidance and assistance to the Principal Investigator and authorized users to prepare for terminating the work with the agent. As applicable, the Associate Director will work with the Principal Investigator, Responsible Official, and Facilities Management & Planning staff to assist in the coordination of agent work termination; preparations by the lab in the cleanup and disinfection of work surfaces, instruments, and equipment; decontamination of the suite by EHS; and recertification or decommissioning of the suite, as applicable. The Associate Director will verify that the preparatory work performed by the Principal Investigator and authorized users to clean up and disinfect the suite was successfully completed. The Associate Director works with the research, EHS, and Facilities staff in developing the decommissioning plan and is responsible for documenting all decontamination procedures and validating the results. The Associate Director will provide the results to the Director of Research Safety and the Responsible Official.

4.7 Environmental Health & Safety Staff

Environmental Health & Safety (EHS) is responsible for performing full decontamination of the suite and other equipment, including the Biological Safety Cabinets (BSCs) used for research with the agent. Decontamination will include, but is not limited to, gaseous decontamination. The efficacy of the decontamination will be verified through use of biological indicators. The suite will be turned over to Facilities Management & Planning once the verification with the biological indicators has been cleared.

4.8 Institutional Biosafety Committee

The Institutional Biosafety Committee (IBC) is a University-wide committee responsible for the overall oversight of the Biosafety Program at BU. The IBC carries out these functions pursuant to requirements set forth by the NIH, CDC, the Occupational Safety and Health Administration (OSHA), the City of Boston Public Health Commission (BPHC), the Massachusetts Department of Public Health (DPH), and Boston University. The IBC reviews and approves requests to terminate research work with microbiological agents and submits necessary information to NIH and BPHC as applicable on termination of work.

5.0 AGENT TERMINATION CRITERIA

Terminating the use of a microbiological agent in research has various purposes and outcomes. To clarify the process, the outline that follows clarifies the steps and outcomes for terminating research work with agents at NEIDL. The Principal Investigator is responsible for initiating the request to terminate work and use of a microbiological agent in the research laboratory.

5.1 Termination of Agent Use

Termination of agent use involves the discontinued use of a particular BSL-4 pathogen for research at the NEIDL BSL-4 facilities. The facilities and equipment used will be decontaminated and validated prior to their return to research operations. Facilities that are used in conjunction with other BSL-4 agents not subject to termination shall continue to operate as the agents in these suites share similar risks and hazard criteria, required microbiological techniques, and personal protective equipment. The Associate Director will work with the Director of Research Safety, who is the Responsible Official for the Select Agents Rule, to ensure that all proper steps for decontaminating the facilities and equipment are performed and validated before they are returned to research operations. The Select Agent RO also notify the IBC once the laboratory termination process has been successfully completed and the CDC/APHIS. The Associate VP for Research Compliance acts as the RO under the Boston Laboratory Regulation and will notify BPHC and submit the necessary documentation; and update the agent inventory.

5.2 Termination of Research Work (with Agent)

The termination of research work involves the closure of a research project with the BSL-4 agent by a PI. Facilities and equipment used for the research project will be decontaminated and validated prior to their return to research operations. Facilities that are used in conjunction with similar or other BSL-4 agents not subject to termination shall continue to operate as the agents in these suites share similar risks and hazard criteria, required microbiological techniques, and personal protective equipment. The Associate Director will work with the Director of Research Safety, who is the Responsible Official, to ensure that all proper steps for decontaminating the facilities and equipment are performed and validated before they are returned to research operations. The RO will notify the IBC once the laboratory research termination process has been successfully completed; notify the CDC, APHIS, and BPHC and submit the necessary documentation; and update the agent inventory.

6.0 ADMINISTRATIVE TERMINATION PROCEDURE

The termination of research work or use of a microbiological agent in the NEIDL BSL-4 and ABSL-4 laboratories requires the notification of the IBC, RO, and regulatory agencies.

6.1 IBC Notification and Closeout

The PI is responsible for notifying the IBC of their intention to terminate the research work or use of a microbiological agent. The PI will notify and submit a request to the IBC 30 days prior to the termination of work with the agent. The IBC reviews and verifies the successful completion of all laboratory termination requirements with the RO. Upon verification, the IBC accepts the termination request, and updates the records for closeout of the research project.

6.2 RO Notification

The PI is responsible for notifying the RO 30 days prior to the termination of research work or use of a microbiological agent. The RO or his or her designee will work with the PI, IBC, Associate Director, and EHS staff to facilitate the termination request to a successful completion. The RO will update all appropriate records.

6.3 CDC/USDA Select Agent Program Notification

The RO or Assistant Responsible Official (ARO) will notify and update CDC and USDA upon termination of use of Select Agents and update records.

6.4 BPHC Notification

The Associate Vice President for Research Compliance will notify and update the BPHC upon termination of work or use of an agent.

7.0 TECHNICAL TERMINATION PROCEDURE

A BSL-4 laboratory or ABSL-4 facility used for research work with the agents terminated will need to be cleaned, decontaminated, and prepared for a similar or other purpose.

7.1 Preparation of BSL-4 Laboratory or ABSL-4 Facility by PI

The PI is responsible for ensuring that all suites assigned and used for research work with terminated agents are prepared for room decontamination by following the Decontamination Plan. An important initial step is to develop and plan for the decontamination of the room and equipment. The planning shall be performed with assistance from the RO, Associate Director of NEIDL EHS, and EHS staff.

The following steps are taken by the PI and authorized users:

- Autoclave and dispose all wastes.

- Prepare fresh chemical disinfectant.
- Spray and wipe down all work surfaces (i.e., bench tops, floors, etc.) with chemical disinfectant.
- Spray, wipe down, and clean equipment (i.e., Biosafety Cabinet, centrifuge, etc.) with chemical disinfectant.
- Empty out, clean, and disinfect storage equipment, as necessary.
- Pour chemical disinfectant in drains and sinks.
- Complete and post Laboratory and Equipment Decontamination form on the door and submit a copy to the RO or ARO.

7.2 Verification of Process by RO

The RO or ARO will verify that the following steps are accomplished to complete the termination of work or use of the agent in the suite:

- Verify and ensure that the PI has completed all of the required termination steps.
- Review and verify completeness of agent inventory and log.
- Work with the Associate Director and oversee suite decontamination (i.e., gaseous decontamination with VHP) by EHS.
- Review and ensure that the suite decontamination was successful by reviewing validation test results.
- Work with the Associate Director, EHS, and approved vendor to complete decontamination, testing, and recertification of Biological Safety cabinets, as necessary.

8.0 AGENT DISPOSITION

The final disposition of the agent after the termination of work depends on different requirements including: preservation of agent for future use, collaboration with another laboratory approved by CDC/USDA, and collaboration with internal PIs at NEIDL. NEIDL will comply with all regulatory requirements during final disposition of the terminated agent.

8.1 Agent Destruction

The RO or ARO will notify CDC/USDA if an agent is destined for destruction. Inactivation and destruction of the agent will be in accordance with the BSL-4 Biosafety Manual. The procedures and records of destruction will be kept in the files. The agent inventory will be updated upon completion of destruction.

8.2 Agent Transfer

Certain agents that will no longer be used at NEIDL may need to be transferred to another facility approved for Select Agents. The RO or ARO will work with the receiving facility and secure approval for agent transfer with CDC/USDA. Transfer of Select Agents will be in accordance with Section 16, Transportation Plan. The agent inventory will be updated upon transfer of the agent.

8.3 Agent Archive

Agents that are no longer used for research will be archived at the NEIDL. The agents will be stored in the approved BSL-4 facility. The agent inventory will be updated upon transfer of the agent in archive.