***STANDARD OPERATING PROCEDURE – B008***

**Disposal of GMO (genetically modified organism) contaminated waste**

1. **Objectives**

The objective of this document is to establish standard operating procedures for the disposal of GMO (genetically modified organism) contaminated waste, ensuring the safety of laboratory personnel by mitigating potential risks associated with hazardous materials, and injuries. Additionally, this SOP aims to enhance the efficiency of experimental workflows.

1. **Personal Protective Equipment**

To ensure the safety of the disposal of GMO-contaminated waste, appropriate personal protective equipment (PPE) must be worn. This includes:

* Long pants and closed-toe shoes to protect against spills and splashes.
* A long-sleeved, buttoned lab coat to minimize skin exposure.
* Disposable nitrile or latex gloves prevent direct contact with hazardous materials.
* For users with long hair, it should be tied back.

1. **Potential Hazards**

The disposal of GMO-contaminated waste poses various hazards that must be managed to maintain a safe working environment. These include:

* **Infection Risk:** Exposure to GMOs may lead to health risks for humans, depending on the organism's pathogenicity.
* **Environmental Release:** Unintentional release of GMOs can impact ecosystems and biodiversity.
* **Biological Hazards:** Improper handling may result in contamination of personnel, equipment, or facilities.
* **Chemical Hazards:** Disinfectants (e.g., sodium hypochlorite) may cause skin/eye irritation or respiratory issues.

Laboratory Workers with **pre-existing conditions,** including but not limited to allergies, immunocompromised states, chemical sensitivities, or those who are pregnant or planning pregnancies should notify their supervisors and medical specialists. Should any concerns be expressed by these workers, this task should be stopped immediately.

**4) Training**

Ensure all personnel have received proper training on their hazards and safe handling techniques. Undergo medical surveillance and register as a biohazard worker prior to the start of work.

* MC06 Biological Safety
* MC03 Chemical Safety II / Hazardous Waste Management
* MC07 Chemical Safety I / Chemical Safety for Laboratory Users

**5) Procedures**

1. Preparation

* For GMO waste **not involving chemicals**: Treat with 1% sodium hypochlorite (bleach) overnight or autoclave the tissues. Place the tissues in a **red plastic biohazard bag** for disposal.
* For GMO waste **involving chemicals**: Treat with 1% sodium hypochlorite (bleach) overnight. Place the tissues in a **Solid with Toxic Chemicals waste container** for disposal.
  + **Note**: leftover GMO should be discarded as hazardous biohazard waste.
* Dispose of sharps (e.g. single-use scalpels) in designated sharp boxes and discard the absorbent bench liners as biohazard waste and clean the work area thoroughly with 70% ethanol.
* Autoclave the biohazard waste which does not contain chemicals and radiation substances before disposal.
* When working with infectious animals in the BSC, ensure the BSC is decontaminated with appropriate disinfectant after use.
* Carefully remove and dispose of PPE and follow with thorough handwashing

**6) Incident Report**

* Notify the Principal Investigator (PI) or departmental safety officer (DSO) immediately of any accidents, spills, or equipment malfunctions.
* For serious incidents, contact the Security Unit immediately by calling the 24-hour hotline on **2358 8999**.

**7) References**

* Smith, T. & Ward, A. (2016). *SOP\_SMB036: Disposal of GMO (genetically modified organism) contaminated waste.* Risk Assessment. The University of Sydney.
* Campbell, L. & Stevenson, G. (2014). *SOP SMB036.2 (LC GS 0614): Disposal of GMO (genetically modified organism) contaminated waste.* Standard Operating Procedure. The University of Sydney.
* Safety and Environmental Protection Manual *- Chapter 9: Biological Safety | Health, Safety and Environment Office - the Hong Kong University of Science and Technology*