جامعة خليفة
Khalifa University

Waste Management Procedure

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1. INTRODUCTION

1.1 Purpose

This procedure establishes a structured framework to ensure the effective management of waste at Khalifa University (KU). It promotes compliance with UAE regulations and international standards, minimizes environmental risks, and ensures the safe handling, storage, and disposal of various waste types.

1.2 Scope

This procedure applies to all staff, faculty, students, researchers, contractors and visitors within KU campuses who generate and/or dispose of any type of waste, excluding radioactive waste. (Refer to Radiation Safety Manual).

2. DEFINITIONS

Waste	An unusable or unwanted substance or material.
Hazardous Waste	Residues or ash from the various activities and operations retaining properties of hazardous materials.
Recycle / Reuse	Minimizing waste by recovering and reprocessing usable products that might otherwise be discarded (e.g., aluminum cans, paper, bottles).
Solid Waste	Non-liquid, non-soluble materials that contain complex and sometimes hazardous substances**.**
Sharps	Contaminated Items capable of cutting or piercing (e.g.needles, blades, or broken glass requiring puncture-proof containers.
Safety Data Sheet	A safety data sheet is a form containing data regarding the properties of a particular substance.
Autoclaving	A sterilization process using 121°C, 15 psi, for 30 minutes, used for treating biohazardous waste.
Waste Management Contractor	A licensed entity responsible for transporting and disposing of waste.

3. Abbreviations

- **EHS:** Environment, Health, and Safety
- **KU:** Khalifa University of Science and Technology
- **PPE**: Personal Protective Equipment
- **SDS:** Safety Data Sheet
- **FM:** Facility Management

4. Roles and Responsibilities

- **Environment, Health, and Safety Management**
  - Ensure the issuance, approval, and oversight of the implementation of this procedure.
- **Environment, Health, and Safety Team**
  - Oversee the implementation of this procedure.
  - Conduct regular inspections and audits.
  - Delivers waste management training on segregation, handling, storage, and disposal of waste.
  - Reports on incidents and non-conformities.
  - Collect and analyze the monthly waste generator reports.
- **Lab Personnel / Students / Researchers**
  - Segregate waste using color-coded bins (see Appendix A).
  - Complete Waste Declaration Form (KU – ADFHS – EHS – FOR -70) for hazardous waste.
  - Maintain documentation and records of waste disposal.
  - Ensure availability of Safety Data Sheets (SDS) for hazardous materials.
- **Facilities Management - Cleaning Contract provider**
  - Implement this procedure and allocate necessary resources for waste management.
  - Train staff handling waste to ensure compliance.
  - Coordinate waste collection, storage, and disposal via licensed waste management contractors.
  - Maintain waste disposal receipts/manifest /certificates for 5 years
  - Investigate waste-related incidents
  - Provide waste disposal receipts/manifests/certificates to KU FM -Soft Service Representative.
- **KU Community**
  - Segregate and dispose the waste into correct designated bins.
  - Report unsafe conditions or spills immediately via the EHS incident reporting system or email.

5. Procedure

5.1 Waste Classification

Khalifa University (KU) classifies waste streams into the following:

5.1.1 Hazardous Waste

- **Chemical waste** refers to all waste generated from chemical labs such as flammable, corrosive, reactive, or toxic properties.
- Examples:
  - Chemical residues (e.g., solvents, acids, bases)

- Contaminated filters (carbon, cartridges)
- Battery acids

- Disposal at source:
  - Dispose and store solid contaminated chemical waste in yellow containers with hazard labels (see Appendix 1).
  - For liquid chemical waste, use leak-proof, labeled containers with secure caps, placed in secondary containment (e.g., spill trays).
  - Avoid mixing chemicals and consult SDS for compatibility.
  - Label the chemical waste containers with:
    - Chemical name(s), lab name, date, hazard symbols and "Caution: Unknown Substance – Do Not Use" for unlabeled waste.
  - Never fill beyond the "fill line" or dispose of liquids in drains.
  - Submit Waste Declaration Form (KU – ADFHS – EHS – FOR -70) to FM Helpdesk for collection.
- **Medical/Clinical Waste** refers to waste generated from clinics and biological laboratories.
- Disposal at source:
  - Dispose and store in yellow containers with biological hazard labels and for anatomical / pathological waste red containers (see Appendix 1).
  - Autoclave infectious waste at 121°C for 30 minutes before disposal.
  - Test the autoclave regularly with building indicators to ensure effective sterilization.
  - Never autoclave waste treated with chemicals (e.g., disinfectants).
  - Infectious waste must be:
    - Store in a locked, air-conditioned room maintained at or below 15°C.
    - Dispose of within 24 hours of storage.
- **Sharps:** Contaminated needles, scalpels, etc….
- Disposal at source:
  - Dispose in approved puncture-proof, labeled sharps containers for sharps (see Appendix 1).
  - Fill only to the "fill line".
  - Seal the container, attach a Hazardous Waste label and place in the designated collection area.
  - Never dispose of sharps in general waste.
- **Broken Glassware:**
- Disposal at source:

- Dispose of broken glassware used in the laboratory in designated labeled cartons with transparent plastic liners (never in general waste)
- Fill only to the "¾ full" mark.
- Seal the carton and contact the FM Helpdesk for collection.

5.1.2 General Waste: Non-hazardous, non-recyclable waste.

- Examples:
  - Office paper, food wrappers, non- hazardous contaminated packaging.
- Disposal at source:
  - Use black-lidded bins (see Appendix 1).
  - Must not contain hazardous, biological, or recyclable materials.

5.1.3 Recyclable Waste: Materials suitable for recovery/reuse.

- Examples:
  - Paper, cardboard, glass, uncontaminated metals, plastics.
- Disposal at source:
  - Segregate into designated bins.
  - Must not contain non-recyclable or hazardous waste.

5.1.4 Construction & Demolition Waste

Debris from construction, renovation, or demolition activities.

- Examples:
  - Concrete, bricks, tiles, wood, insulation.
- Disposal at source:
  - Managed by approved KU contractors.

5.1.5 Compressed Gas Cylinders:

- Disposal at source:
  - Store the empty cylinders in gas storage room with status updated as "Empty."
  - Classify it as hazardous waste if cylinders contain hazardous gas.
  - Lab engineer to contact the supplier to whom gas was purchased for collection.

5.1.6 Radioactive Contaminated Waste

- Refer to Laboratory Radiation Safety Manual - KU – ADFHS – EHS –MAN–03

5.1.7 Non-Medical Electronic Waste (e-Waste):

- Example: Computers, printers, TVs, toasters, phones, microwaves, fridges, freezers
- Disposal at source:
  - Contact FM Helpdesk for collection.

- Never discard in general waste.
- For IT, equipment sends it first to the IT Department for decommissioning (to protect data).

5.1.8 Furniture Waste

- Disposal at source:
  - Space plan team to contact FM Helpdesk for collection.

5.2 Waste Generator

All personnel generating waste at KU must adhere to the following principles to minimize waste:

- **Source Reduction to Minimize Waste Generation**
  - Use digital tools and processes (e.g., electronic forms, online approvals, and digital record keeping) to minimize paper usage and reduce paper waste.
  - In the lab, prioritize the use of reusable equipment (e.g., glassware instead of single-use plastics) to reduce waste.
  - Order materials in bulk to reduce packaging /carton waste.
- **Source Segregation**
  - Use designated color-coded bins to properly dispose of waste according to its type.
  - Never mix waste streams (e.g., hazardous waste in general bins, food waste or used tissues in the recycling bin).

5.3 Waste Handling

- **Personal Protective Equipment (PPE) Requirements**
  - All individuals handling waste must:
    - Wear water-resistant gloves and protective clothing when dealing with hazardous, medical, or chemical waste.
    - Use puncture-resistant gloves when handling sharps containers or broken glassware.
    - Wash hands thoroughly with soap and water after handling any waste, even if gloves were worn.
- **Prohibited Practices**
  - Do not over-handle or move waste unnecessarily.
  - Avoid unnecessary transfers between containers to reduce the risk of spills or exposure.

5.4 Waste Collection and Labelling

Waste is collected by the cleaning contractor's staff according to the scheduled plan, as outlined in the Soft Services (Cleaning, Waste Handling, Landscaping) Procedure – KU–ADFHS–FMD–SS–SOP–01

- **Laboratory Waste**:

- All waste containers must be clearly labeled with the following:
  - Laboratory name
  - Type of waste (e.g., medical, chemical, sharps)
  - Date and time of collection
  - Color-coded labels to identify waste types and prevent mixing (refer to Color-Coding Chart – Appendix 1)
  - For Infectious Waste
    - Leak-proof, labeled carts must be used.
    - Carts must be disinfected after each use.

- **General Waste:**
  - Cleaning contractor staff must ensure proper segregation before disposal.
  - General waste must be placed in the designated black-lid bins for non-recyclable waste.

5.5 Waste Storage

Proper waste storage is critical for ensuring health, safety, environmental protection, and regulatory compliance. The following requirements must be implemented:

- **Access Control**
  - Waste storage areas must be secured and access restricted to authorized personnel only.
- **Temperature Monitoring and** Environmental Conditions
  - Waste storage areas must be maintained free from direct sunlight, moisture, and extreme temperatures.
  - Waste storage room temperature must be maintained at or below 15°C, as required by ADOSH guidelines and UAE waste regulations.
  - Temperature logs must be recorded by cleaning contractor staff to ensure compliance and detect any deviations.
  - Hazardous waste rooms must be stored in ventilated rooms and equipped with spill containment systems.

5.6 Waste Transfer/Disposal

- Licensed contractors approved by Abu Dhabi's Environment Agency/Centre of Waste Management are used for waste transfer and disposal.
- Waste Transfers shall follow a planned schedule coordinated by Facility team and cleaning contractor team to minimize storage risks.
- Waste disposal manifests and supporting documentation must be maintained for audit purposes.

5.7 Monitoring & Reporting

- Maintain monthly waste disposal weight records to track disposal volumes, identify trends, and support continuous improvement in waste reduction efforts.

6. Review and Update

This procedure will be reviewed and updated triennially to ensure compliance with organizational and regulatory requirements.

7. Related Documents

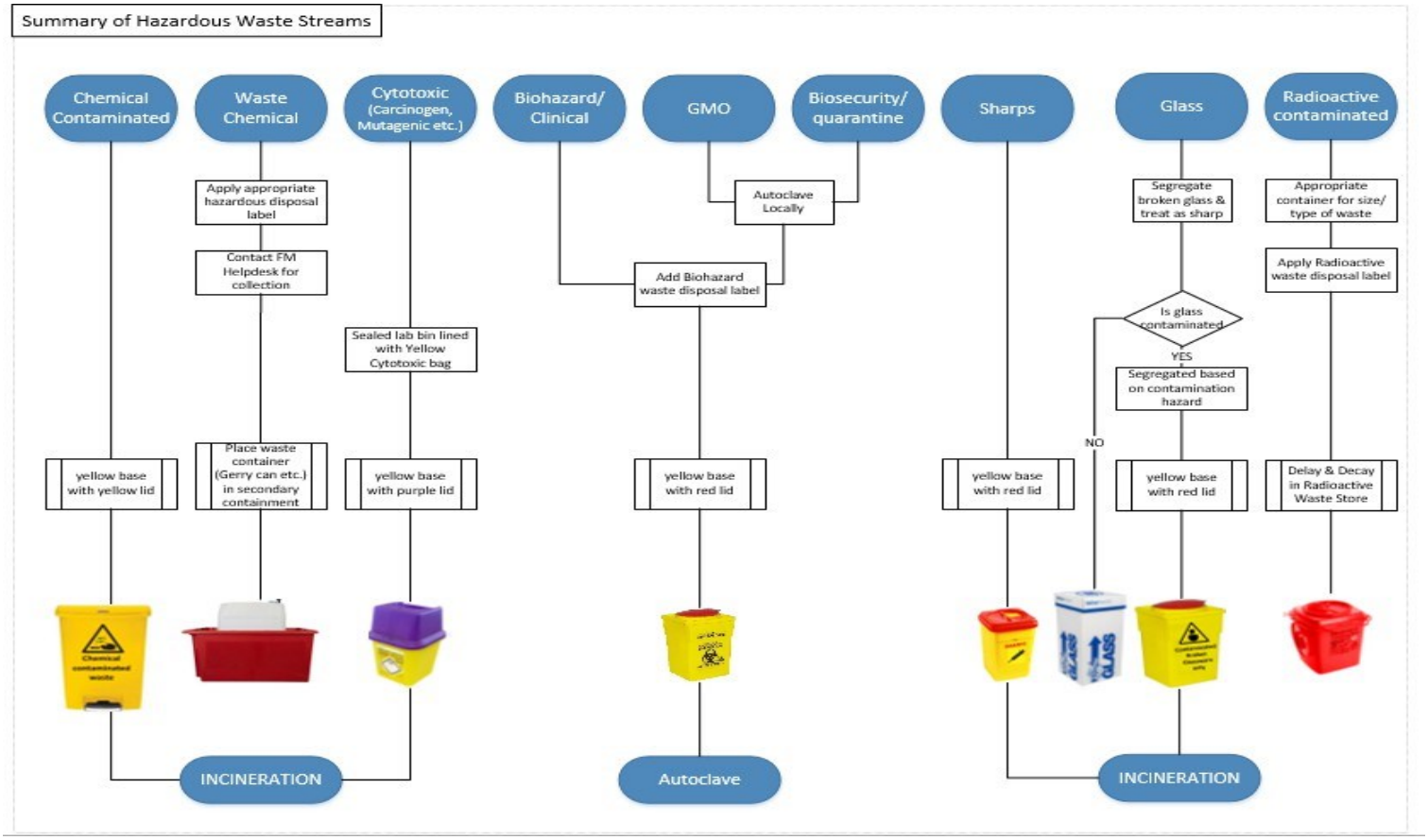
- Waste Declaration Form
- EHS Risk form
- Incident Reporting & Investigation procedure
- First Aid Procedure
- Personal Protective Equipment Procedure
- Monthly waste data records

8. Reference Standards:

- ADOSH-SF – Codes of Practice CoP 54.0 - Version 4.0 – 15th July 2024
- ADOSH-SF – Codes of Practice CoP 1.0 - Version 4.0 – 15th July 2024
- ADOSH-SF – Codes of Practice CoP 17.0 - Version 4.0 – 15th July 2024
- Law No. (21) of 2005 Concerning Waste Management in Abu Dhabi Emirate.
- Clinical Laboratory Waste Management; Approved Guideline—Second Edition, GP5-A2, Vol. 22 No. 3
- AS/NZS 2243 Safety in laboratories (series).
- AS 2243.2 - 2006 : Safety in laboratories - Chemical aspects
- ISO 45001:2018 Occupational health and safety management systems – Requirements.
- ISO 14001:2015 Environmental Management System – Requirements

9. Appendix

Appendix 01: Color codes bins



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REVISION HISTORY RECORD

REV.	REVISION DATE	DESCRIPTION OF REVISION		REVIEWED BY	APPROVED BY
		PAGE NO	COMMENT		
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		Throughout	Change from KUSTAR to KU	Roberto M.	Belal I.
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