Chemical Waste Disposal Procedure

1. Introduction

The University has a legal obligation under the Work Health and Safety Act 2011 to control hazards and risks associated with hazardous chemicals within the workplace. In addition, the University must comply with the requirements of the Environmental Protection Regulation 2019 regarding the disposal of regulated waste.

2. Purpose & Objectives

This procedure applies to all staff, students, volunteers, and visitors that store, use, generate or handle laboratory and other chemical waste while undertaking activities at or for the University.

3. Scope

This procedure outlines the requirements for the disposal of laboratory and other chemical waste to minimize reactivity, toxicity or risk to persons or the environment during collection, storage, and transportation prior to disposal.

4. Definitions and Terms

Dangerous Goods are substances, mixtures, or articles that, because of their physical, chemical (physicochemical) or acute toxicity properties, present an immediate hazard to people, property, or the environment. They are assigned to specific classes in accordance with the Australian Code for the Transport of Dangerous Goods by Road & Rail, (ADG) Code.

5. Procedures

a) Disposal to Sewer via Waste Sinks

In some cases, it is permissible to dispose of chemicals via waste sinks, providing it is in accordance with local wastewater admission standards. Please note that many substances are strictly prohibited from being disposed via the sink such as Organic Solvents, therefore it is important to confirm the appropriate waste disposal method defined by the Safety Data Sheet of the substance. It is also important to ensure that incompatible chemicals are not allowed to mix and that reactivity issues with plumbing/drains, i.e. Polyvinyl Chloride (PVC), High-density polyethylene (HDPE) or metal are considered.

Alkaline and Acidic substances:
Many acids and bases can be safely disposed via sinks using the neutralization and dilution method. It is imperative that persons are appropriately trained before conducting this method.
Neutralize acid solutions cautiously to pH 6 – 10 using an appropriate base solution. Neutralize alkaline solutions cautiously to pH 6 – 10 using an appropriate acid solution. Neutrality must be confirmed using pH test strips, paper, or pH meter prior to discharge.

Other substances:
Some miscible organic and inorganic substances may be disposed of into the sewer (via laboratory sink) subject to compliance with Local Wastewater Admission Standards. Such materials must be water soluble, of low toxicity, non-flammable and in concentrations lower than the permitted maximum levels. Waste which would require excessive dilution to achieve discharge threshold standards, should be bulk stored for disposal by a specialist waste contractor.

A flush of water must follow disposal, to prevent ingress of vapors into the laboratory.

Waste should be discharged via a sink within a fume cupboard if possible. In periods of water shortage, the preferred option is to dispose of the materials via the regular waste collections by the contracted disposal company.

b) Disposal to Holding Tanks via Waste Sinks

In some locations, (e.g., G40 Anatomy) liquid chemical waste is collected in holding tank(s).

The waste tanks are pumped out by a waste contractor on a regular basis. The level of waste in these tanks is monitored via the Building Management System (BMS). Campus Life (CLF) monitors waste levels in the holding tanks via the BMS and arranges collection as required.

c) Disposal to Atmosphere (Evaporation)

It may be possible to dispose of vapors or gases using fume cupboards, depending on the nature of the chemical. Refer to the relevant Safety Data Sheet (SDS).
This method is limited to non-toxic, non-dangerous substances and in minimal quantities, which are not combustible, and do not present health or environmental hazards.

d) Inactivation / neutralization by Chemical Reaction

Some substances can be inactivated or neutralized by chemical reaction. Refer to the SDS or standard chemical methodologies to confirm this procedure. A Risk Assessment and appropriate training must be conducted prior to the activity being carried out.

e) Disposal via Commercial Contractor

Substances that cannot be disposed of via the methods listed above must be appropriately segregated and stored in preparation for collection by a specialist chemical waste contractor.

Notification:

The Senior Specialist - Chemicals and Radiation, within the Health & Safety team coordinates with the waste disposal contractor (at least a month prior to requiring a pickup) for a waste collection. Generally waste collections are undertaken quarterly in the first week of March, June, September, and December from each campus as required.
Upon confirmation that the service is scheduled, the local Chemical Waste Contact Personnel in Schools, Centers, and Institutes at each of the University's campuses are notified by email of the proposed service date. The Local Chemical Waste Contact Personnel in turn notify the technical support and research staff contacts in their areas.

Storage - prior to collection:

Prior to collection the waste should be segregated according to the dangerous goods class or division and chemical compatibility, e.g., flammable, corrosive, or oxidizing agents etc. Depending on the chemical's physical properties and volume you can use either of the following disposal vessels:

a) Dangerous Goods grade plastic drum; and/or
b) Glass Winchester bottles.

When filling flammable waste bottles, ensure there is sufficient vacant head space to allow for volatility and expansion, as containers may explode. Ensure all waste containers are firmly sealed.

Where practicable, waste should be progressively transferred to collection stores when containers are full, to avoid accumulation in laboratories. Once items are transferred to a collection point to await disposal, please send an updated manifest to the Senior Specialist – Chemicals & Radiation to enable accurate records of holdings in these locations to be maintained.

Labelling:

Applicable Australian Dangerous Goods (ADG) labelling must be attached to each container/bottle placed in storage, for collection and disposal (contact the Senior Specialist - Chemicals and Radiation to obtain the latest chemical waste label template).

Manifest:

Persons that generate waste or require disposal of outdated or unwanted chemicals are requested to forward a chemical waste disposal manifest detailing the chemical names and concentration of ingredients of mixtures, with the volume and number of packages one week prior to collection (contact the Senior Specialist - Chemicals and Radiation, to obtain the latest chemical waste manifest template).
Manifests are collated for each campus/collection point and forwarded to the waste disposal contractor via email.

Collection:
On the day of collection, a Chemical Waste Contact Person must be available to coordinate the access to and collection of the campus' chemical waste with the contractor from storage areas and or collection locations.

The contractor provides a copy of the following documents:

i. a Service Advice, and
ii. a Waste Transport Certificate (in duplicate).

The pink copy of the Waste Transport Certificate is forwarded by post (within seven days of the collection service) to the Queensland Department of Environment and Heritage Protection. The green copy is retained by the Waste Generator (GU) and is scanned and saved as a record by the Senior Specialist - Chemicals and Radiation

Pick up Locations:

G24	Loading Dock
G40	Loading Dock
G51	Smart Water Loading Dock
N01	Dangerous Goods Store
N20	Flammable Liquid Store
N27	Flammable Liquid Store
N75	Bin Store
S03	Loading Dock

6. REFERENCES

Health & Safety Policy
Work Health and Safety Act 2011
Work Health and Safety Regulation 2011
Environmental Protection Regulation 2019
Managing risks of hazardous chemicals in the workplace Code of Practice 2013
Australian Code for the Transport of Dangerous Goods by Road & Rail.

7. Document Approval information

Document Owner:	**Dan Shelley -** Senior Specialist - Chemicals and Radiation
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Approving Authority:	Senior Specialist - Chemicals and Radiation
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