Safe Work Procedure
Chemical Release or Spill

WORK UNIT: Southern Cross Plant Science

STEP 1. – WHO IS INVOLVED?

Staff, students

What is the job or process called?

Procedure for Handling a Chemical Spill or Release (liquid, solid, or vapour)

Who does the job?

Appropriately trained and inducted staff.

What is the purpose of the job?

To contain and mitigate hazards from an accidental release of chemical reagents within the laboratory and/or office environment

STEP 2. – WHAT DOES THE JOB INVOLVE? What tasks comprise the job?

Staff and Students: During hours report all chemical releases to a senior staff member. Outside of normal business hours, or in the absence of staff, evacuate area/s and report all chemical releases to security, then contact laboratory manager.

Release of highly caustic, volatile, flammable, or toxic substance, or hazardous substances of 1 litre or more:

1. Immediately notify the Laboratory Manager, emergency wardens, and SCU security, then evacuate area to prevent any further access to the site.
2. Call 000 and break the glass on the red fire alarm panel at the exits
3. Do not enter the area in which the release has occurred or is likely to affect. Ensure where chemical release is contained that area is not opened or accessed prior to clearance from emergency services personnel.
4. Allow emergency services to assess and direct the clean-up efforts.
5. Complete Incident Report and review of incident.

Release of hazardous substance of less than 1L:

1) Alert Emergency Wardens and allow them to control the release site
2) Cordon off area and prevent unauthorised access
3) Access the most recent SDS for proper spill response guidelines
4) Determine if the spill can be safely managed at the local level; assess the nature and extent of the release, and the available resources needed to contain and/or treat the release.
5) Call SCU security and advise them of the exact location of the spill, its nature and extent, and whether First Aid is required, if the situation makes it necessary to do so.
6) Don all necessary PPE before attempting to enter the contaminated area.
7) If the release is of a flammable or combustible substance, do not allow any electrical equipment to be operated in the immediate vicinity of the spill; if the identity of material released is unknown, treat the release as though it is flammable
8) Clean up the released material, if safe to do so, in a manner consistent with SDS guidelines
9) Dispose of all clean up materials as per the SDS
10) Complete Incident Report.

Release of non-hazardous substances:

1. Clean up as per the SDS, including use of required PPE.
2. Where required, report to Laboratory Manager and/or complete Incident Report.

STEP 3. – WHAT IS THE WORK ENVIRONMENT?

Hint: In this step try to identify tasks within the workplace or environment that may present any WH&S problems**.**

Noise, Air Quality/Control, Outdoor Exposure, Traffic, Hazardous, Office etc.

Laboratory environment containing hazardous chemicals. Access restricted to inducted staff. Air Quality/Control,

STEP 4. ASSESSING THE WH&S RISKS (*ALLOCATE A RISK RATING FOR EACH RISK***).**

Hint: What are the safety problems, i.e., hazards presented by the task? Item numbers must correspond with table below.

Item	What is the WHS Risk?	Likelihood	Consequence	Risk Rating
	Exposure to chemical substances. Risk varies with the type and nature of the released materials			
1	Non-hazardous materials (very dilute acids)	4	1	Low
2	Dilute acids and bases	3	2	Low
3	Concentrated acids and bases	3	3	Moderate
4	Flammable liquids; carcinogens; oxidisers	3	4	High
5	Toxic Materials; highly reactive materials; spontaneously combustible; perchloric acid	3	5	High

STEP 5. FINDING SOLUTIONS TO THE WH&S RISKS (*ALLOCATE A <u>NEW</u> RISK RATING FOR EACH RISK).*
How can you reduce the risks, i.e. use of fume hoods, laboratory requirements (PC1, PC2, General), PPE, supervision. Keep item numbers consistent with table above

Item	Risk reduction procedure/process	Likelihood	Consequence	New Risk Rating
1	Induction for all laboratory users Spill safety training for key technical staff Wear proper and appropriate PPE (Safety glasses/googles, full or half face respirator, enclosed chemical resistant boots, lab coat, gloves) Use of fume hoods, extractor fans	3	1	Low
2	Induction for all laboratory users Spill safety training for key technical staff Wear proper and appropriate PPE (Safety glasses/googles, full or half face respirator, enclosed chemical resistant boots, lab coat, gloves) Teflon/PTFE vessel register Use of fume hoods, extractor fans Induction for all laboratory users	3	2	Moderate

3	Spill safety training for key technical staff Wear proper and appropriate PPE (Safety glasses/googles, full or half face respirator, enclosed chemical resistant boots, lab coat, gloves) Teflon/PTFE vessel register Use of fume hoods, extractor fans Induction for all laboratory users No lone work with highly concentrated acids	2	3	Moderate
4	Spill safety training for key technical staff Wear proper and appropriate PPE (Safety glasses/googles, full or half face respirator, enclosed chemical resistant boots, lab coat, gloves) Teflon/PTFE vessel register Use of fume hoods, extractor fans No unsupervised use of flammable or oxidizing reagents	2	4	Moderate
5	Induction for all laboratory users Spill safety training for key technical staff Wear proper and appropriate PPE (Safety glasses/googles, full or half face respirator, enclosed chemical resistant boots, lab coat, gloves) Teflon/PTFE vessel register Use of fume hoods, extractor fans No unsupervised use of high risk materials	2	5	Moderate

6. RESOURCES: PPE, materials needed.	**7. FIRST AID**
As per SDS or as directed by emergency services, including, but not limited to: Spill Kit Safety glasses/googles Full or half face respirator Enclosed chemical resistant boots Lab coat Gloves	As per SDS Remove affected clothing Use safety shower and eyewash solution

8. CLEAN UP AND WASTE DISPOSAL:

As per the SDS for the material(s) released
The most likely spill in SCPS is volatile solvents and the following procedure is the one to be used

<u>Use of spill kit to contain and clean up solvent spills</u>

- Wear PPE (lab coat, gloves, boots and respirator).
- Confine and contain spill using boom or cloths.
- Cover liquid spill with Chemizorb Powder (or similar).
- Mix well using dustpan until completely absorbed.
- Use brush & dustpan to transfer waste to a biohazard bag.
- Clean up area using cloths in spill kit.
- Place all soiled material in hazardous waste bag. Label.
- Place the bag in a hazardous waste holding area

- Notify Lab Manager

Biological Spill – most likely in Biosecurity controlled areas.

Use of Biological spill kit to contain and clean up spill.

- Wear PPE (lab coat, gloves, boots and respirator).
- Confine and contain spill using cloths or paper towel.
- Prepare VIRKON solution (1%, sachet dissolved in 5 litres warm water)
- Use Virkon solution to clean up spill
- Transfer affected cloth/paper waste and clothing to a biohazard bag. Label.
- Place the bag in a hazardous waste holding area
- Notify Lab Manager
- NOTE – do not move Biosecurity waste outside of a Biosecurity controlled area unless the appropriate procedures are used

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9. EMERGENCY ACTIONS: Emergency shutdown processes, chemical release management.

Evacuate and block access to the affected area where required.

Alert security and/or Fire Brigade (Call 000 and break the glass on the red fire alarm panel at the exits) in the event of a spill that cannot be safely contained or if the material is of a toxic, highly corrosive or flammable nature.

Shut off electricity to release site in the event of the release of a flammable material.

10. STORAGE REQUIREMENTS
N/A
11. APPLICABLE STANDARDS/REGULATIONS/RELEVANT DOCUMENTS
Work Health and Safety Regulations 2011 **Southern Cross University Laboratory Safety Manual**

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