


Emergency Response Plan

Department of Anatomy

FIRE EMERGENCY PLAN



When the **fire alarm** sounds, a prerecorded message will be broadcasted automatically.

All occupants are to remain calm and **standby for further announcement.**

When the situation is under control or it is a false alarm, All clear message or false alarm message will be announced and you can resume your work.

When any fire is detected, the **second fire alarm** will sound and **announcement for total evacuation** will be activated.



Fire in your Lab after office hours:

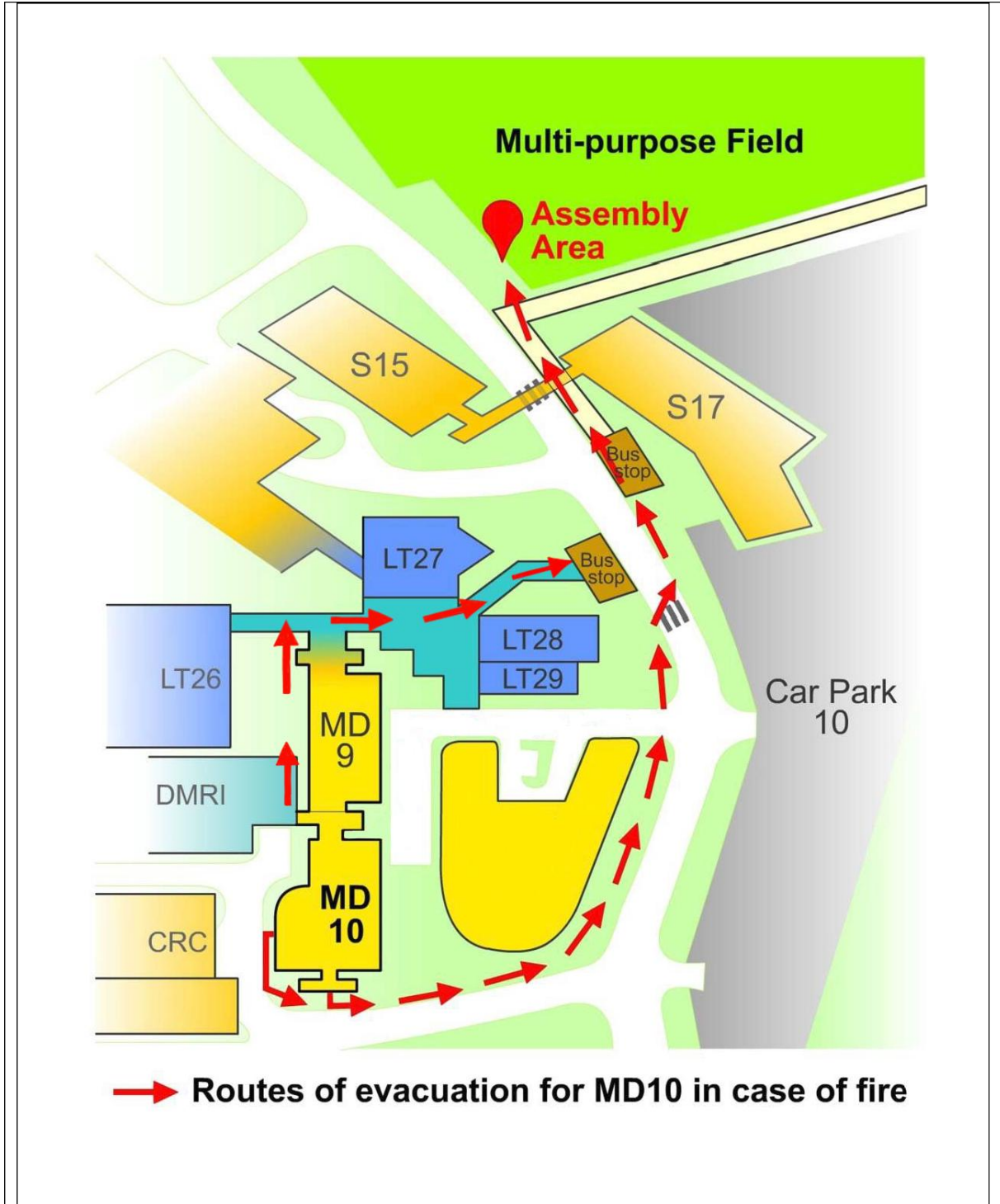
- **Raise the alarm** by activating the nearest fire alarm "break-glass" call point.
- Notify Campus Security (**Tel No: 68741616**) and SCDF (**Tel No: 995**)
- Attempt to extinguish any incipient fire using fire extinguisher (without endangering self).
- If the **Fire out of control**, evacuate immediately using nearest exit.
- The assembly point is located at Multi-Purpose Field.
(Next to S17/carpark 10)

All occupants are to evacuate the buildings by the nearest staircase.
All occupants are to assemble at the **assembly area** which is located at **Multi-Purpose Field**
(Next to S17/carpark 10)

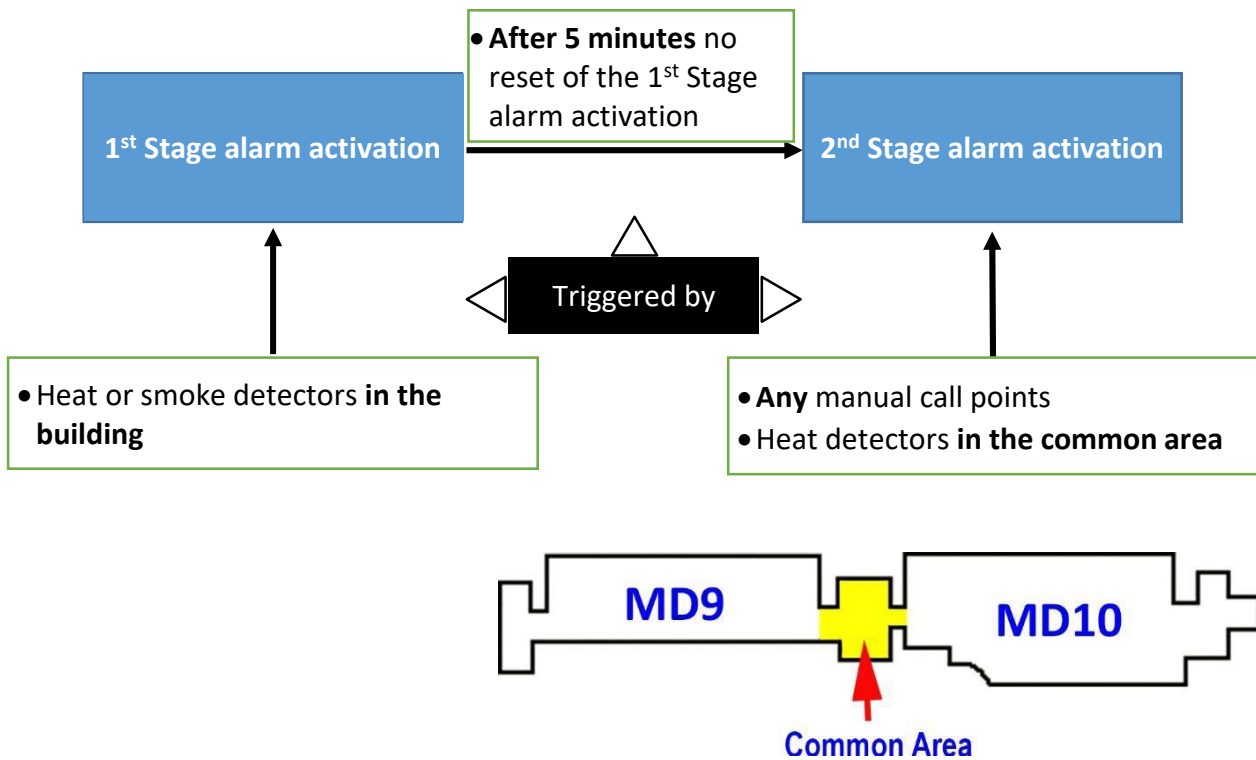
Site plan of assembly point

Multi-Purpose Field

(next to S17/carpark 10)



MD10 FIRE ALARM SYSTEM



<ul style="list-style-type: none"> • Alarm bells will ring for 10 seconds and cut off • The PA will sound off the message simultaneously with the alarm bell • Message is to inform that an alarm is activated and is being investigated • After 5 minutes, the PA system will trigger the next message which is "Evacuate Message" 	Fire Alarm & Public Address (PA) System	<ul style="list-style-type: none"> • Alarm bells will ring for 10 seconds and cut off • The PA system will play message simultaneously with the alarm bell • the message play is the "Evacuate Message"
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Interfacing to Lift, Roller Shutter and Door Controller

Any stage alarm activation will trigger the control function of the respective controller.

1. Lift Control – will home to the escape level.
2. Roller shutter – will be activated for escape purposes.
3. Door Controller – will terminate all electricity supply to all card access doors.
Therefore, all the fail-safe doors will be unlocked and all the fail-secure doors will be locked and allowed exit only.

Emergency Contact Numbers

No	Description	Contact
1	Campus Security Hotline (24 hrs)	6874 1616
	S16 Security Post	6516 2365
	MD6 Security Post	6601 2336
2	Fire/Ambulance	995
	Police	999
	NUH Emergency Hotline (24 hrs)	6772 5000
3	Office of Risk Management and Compliance	rmcsec@nus.edu.sg
4	University Health Centre	6601 5035
	Lifeline NUS (24 hrs for life-threatening psychological emergency)	6516 7777
5	Incident Commander- Mr Bhupinder Singh	6772 3788
6	NUSMed Faculty Safety & Health Officer Dr Lawrence Sie Eng Kean	65161051
7	Research Facilities Management	medresearchfacilities@ nus.edu.sg

Department Key Contact Numbers

No.	Appointment	Name	Contact
1	Head of Department	A/P George Yip	81008616
2	Safety Chairman	A/P George Yip	81008616
3	Safety Coordinator	Dr Wu Ya Jun	96725505
4	Department Safety Committee (secretary)	Ms Anjana	82222964
6	First Aider	Miss Rebecca Auw	91198116
7	First Aider	Mr Eugene Yeo	96686569
8	Fire/Building Coordinator	Ms Pan Feng	91111519
9	Fire Warden L1	Mr Anthony	82048774
	Asst Fire Warden	Miss Wu Guoxiang	81832929
10	Fire Warden L2	Ms Bay Song Lin	97670793
	Asst Fire Warden	Miss Rebecca Auw	91198116
11	Fire Warden L3	Ms Cao Qiong	96381761
	Asst Fire Warden	Ms Poonkodhi	81398040
12	Fire Warden L4	Ms Nuramalina	91905035
	Asst Fire Warden	Mr Eugene Yeo	96686569
13	Spill Response Team CMB	Ms Cao Qiong Miss Rebecca Auw	96381761 91198116
14	Spill Response Team TCL/PCL	Ms Cao Qiong Miss Rebecca Auw	96381761 91198116
15	Spill Response Team Histology Lab	Ms Pan Feng Miss Rebecca Auw	91111519 91198116
16	Spill Response Team Anatomy Level 1	Miss Wu Guoxiang Ms Pan Feng	81832929 91111519

OXYGEN DETECTION SYSTEM

OXYGEN DETECTORS



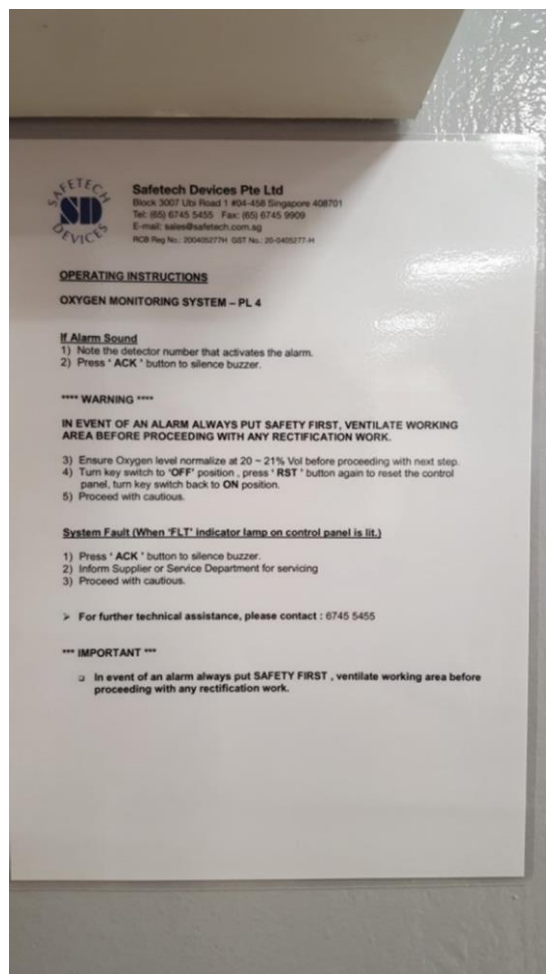
ALARM LIGHT



ALARM CONTROL PANELS



INSTRUCTIONS



OXYGEN DETECTION SYSTEM

1. When the oxygen level in the room is abnormal (>23%, <19.5%, <18.5%), the system will be activated.

*** Normal oxygen level 20-21%

*** *In all cases, always assume the alarm to be valid and must be investigated*

O ₂ (Volume %)	Effects and symptoms on exposed
18-21	No noticeable effect detected by individual. Any source of gas contributing to change in atmosphere should be investigated and assessment carried out to determine whether environment
11-18	Reduced physical and cognitive function without the individual realizing
8-11	Possibility of sudden loss of consciousness. Risk of death below 11%
6-8	Loss of consciousness after a short time period, with resuscitation if carried out immediately
0-6	Almost immediate loss of consciousness and brain damage highly likely

2. If Orange Light is flashing accompanied by alarm beeping, and Warning Signage at both exit show **Low Oxygen level, EVACUATE** the room immediately. Ensure that no one enters the room.



3. Activate the Emergency Air Purge Button for circumstances whereby increase air exchange is needed.

4. Inform Lab-in-charge.

There could be a leakage of gases:

- Level 2-CO₂ , Liquid nitrogen and N₂
- Level 3-CO₂ , Liquid nitrogen and N₂

5. Follow Operating Instruction posted next to the Panel.

- Ventilate the room by opening doors or windows
- Check the Panel to locate the possible leakage/problem by the detector number and the oxygen level indicated
- Press '**ACK**' button to silence the buzzer
- Control the leak source if safe and possible
- When Oxygen level is normalized at 20-21%, turn the key switch to '**OFF**' position, press '**RST**' reset button, turn the key switch back to **ON** position
- **Proceed with caution**


6. If the alarm occurs after office hours, all personnel should stop work and leave the lab immediately. Contact Campus Security (6874 1616) and inform Lab-in-charge.

***Should there be an **emergency**, the purge button in the lab can be activated to help clear the air in the lab. (Once activated only OFM/OED can deactivate it.)**

7. In all cases, **never enter a space while the oxygen deficiency monitor alarm is indicating a hazard or malfunction condition.**

8. In case of System Fault ('FLT' is lit on the control panel)

- Press '**ACK**' button to silence the buzzer
- Inform Supplier or Service Department for servicing

	Department of Anatomy (Yong Loo Lin School of Medicine)	SOP No:	ANT-SR-SOP-002
	Title: Biological Spill Response	Version No:	005
		Issue Date:	1 Dec. 2022
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Prepared By: Cao Qiong/Wu Ya Jun	Approved By: Prof Yip	Review Date: 30 Nov. 2025	

1.0 OBJECTIVE

The purpose of this SOP is to provide the steps of the responsibilities, equipment and procedures required in respond to biological spills occurred inside a centrifuge, a biosafety cabinet (BSC) or outside BSC, using a biological spill kit.

2.0 SCOPE

This SOP is applicable to all laboratory staff and students working with biological agents in Level 2 and 3 laboratories, Department of Anatomy.

3.0 RESPONSIBLE PERSONNEL

3.1 It is the responsibility of the laboratory officer-in-charge to:


- a) Provide and maintain the biological spill kit
- b) Discuss this SOP to all users who work with biological agents in labs.
- c) Ensure the users are well trained to handle biological spills
- d) Report incident to AIMS within 24 hours

3.2 It is the responsibility of the user to:

- a) Know the hazards associated with the biological materials being used in their experiment and review the appropriate SOP.
- b) Perform biological spill response appropriately using a biological spill kit and adhere to the procedures.
- c) Report any spillage to laboratory officer-in-charge.

4.0 ITEMS IN BIOLOGICAL SPILL KIT

- Presept tablets
- Squeeze bottle
- Plastic tongs
- 3 pairs of nitrile gloves
- 2 pairs of shoe covers
- 2 pairs of goggles
- 2 disposable gowns
- 2 Biohazard Bags

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- Absorbent pads
- A “Do not enter” sign
- Tie cable
- Confined tape
- Dustpan and Brush

5.0 HOW TO RESPOND DURING BIOLOGICAL SPILL

5.1 Biological spills can be divided into:


- a) **Minor Spills** - Spills of volume that can be managed by laboratory personnel and does not pose an immediate danger to personnel.
- b) **Major Spills** - Spills of volume that cannot be managed by laboratory personnel or spills that pose potential risk to personnel.

5.2 The minor biological spill response can be handled based on three scenarios:

- a) Biological spill inside a centrifuge
- b) Biological spill inside BSC
- c) Biological spill outside BSC

BIOLOGICAL SPILL INSIDE A CENTRIFUGE


- Switch off the affected centrifuge and close the centrifuge with lid. Leave it closed for 30mins.
- Notify all personnel in the immediate vicinity of the spill and evacuate room.
- Alert surrounding users and inform the lab-in-charge.
- Place a warning signage “DO NOT ENTER” to cordon off the spill area with confined tape to restrict other lab users to access the area.
- open the centrifuge lid after 30mins to let the aerosol settled .
- Locate the biological spill kit. Don PPE- gown, gloves, goggles, mask and shoe covers.
- Prepare disinfectant solution. For cleaning up spills containing human blood samples, dissolve 18 tablets of 0.5g Presept in 500ml of water (10,000 ppm). Other biological sample, dissolve 9 tablets of 0.5g Presept in 500ml of water (5,000 ppm).
- Apply disinfectant (outside-in) to all contaminated surfaces within chamber and stickered with C-fold paper.
- Allow 30 minutes to disinfect the spillage.
- Pick up any sharp objects with tongs and place them into a sharps bin.
- Soak up disinfectant with paper towels (wipe material towards centre).

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- Transfer canisters with safety cap and centrifuge rotor to BSC. Open the safety cap inside BSC to confine the aerosol. Decontaminate the centrifuge rotor according to manufacturer's instructions. Discard waste into double yellow biological waste bag.
- Decontaminate the area again with disinfectant.
- Clean up with water and allow to air-dry.
- Doff PPE and dispose into the biohazard bag and tie using a cable tie.
- Dispose double bag biohazard waste.
- Wash hands with antiseptic soap and water.
- Notify PI/supervisor and report incident to ORMC via AIMS within 24 hours.

BIOLOGICAL SPILL INSIDE A BSC

- Leave BSC on.
- Alert surrounding users and inform the lab-in-charge.
- Place a warning signage "DO NOT ENTER" to cordon off the spill area with confined tape to restrict other lab users accessing to the area.
- Locate the biological spill kit. Don PPE.
- Prepare disinfectant solution.
- Do not place your head in the cabinet to clean the spill, keep your face behind the view screen.
- Place paper towel to contain spill. Apply disinfectant (outside-in) to all contaminated surfaces within cabinet.
- Allow 30 minutes to disinfect the spillage.
- Soak up disinfectant with paper towels (wipe material towards centre). Lift front exhaust grille and tray and wipe all surfaces. Discard waste into double yellow biological waste bag.
- Decontaminate the area again with disinfectant.
- Clean up with water to remove any corrosive residues. Allow BSC to run for 15 minutes before resuming work.
- Doff PPE and dispose all contaminated PPE into the yellow biological waste bag.
- Stick the waste labeling with date outside the biological bag and tie with cable tie. Dispose it in the biological bin.
- Wash hands with antiseptic soap and water.
- Notify PI/supervisor and report incident to ORMC via AIMS within 24 hours.


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BIOLOGICAL SPILL OUTSIDE A BSC

- Hold breath and evacuate room.
- Alert surrounding users and inform the lab-in-charge.
- Place a warning signage “DO NOT ENTER” to cordon off the spill area with confined tape to restrict other lab users for entering the area.
- Don PPE. Prepare disinfectant solution.
- Place paper towel to confine spill. Apply disinfectant (outside-in) to all contaminated surfaces.
- Allow the disinfectant to contact the spillage area for 30 mins.
- Handle any sharp objects with tongs. Gently sweep small broken glass pieces into dust pan to avoid generating aerosols. Discard it into sharps container.
- Soak up disinfectant with paper towels (wipe material towards centre). Pick up contaminated materials with tongs. Discard waste into double biohazard bag.
- Decontaminate the area again with disinfectant.
- Clean up with water and allow to air-dry.
- Doff PPE and dispose all contaminated PPE into the biohazard bag.
- Dispose double biohazard waste bag in to biological waste bin.
- Wash hands with antiseptic soap and water.
- Notify PI/supervisor and report incident to ORMC via AIMS within 24 hours.

MAJOR SPILLS

- Stop work and alert all personnel in the lab for evacuation.
- Post a warning sign on the lab door and restrict all personnel to enter the lab.
- Remove any contaminated clothing and put it into a biohazard bag for autoclaving.
- Wash hands and exposed skin with antiseptic soap and water and inform lab officer-in-charge.
- Call Campus Security at Tel: 6874-1616 to report the incident. Provide location of incident, brief description of incident including the type of biological agents involved, name and contact telephone number.
- Campus Security shall notify the Singapore Civil Defence Force (SCDF, Call: 995) of the incident.
- Activate Department Emergency Response plan including notifying Emergency Coordinator and accounting for evacuated personnel.

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- Together with the lab officer-in-charge, report lab accident/incident to AIMS (ORMC) within 24 hours.

6.0 REFERENCES

- 6.1 Biological Spills and Emergency Response (OSHBIO05)
- 6.2 Yong Loo Lin School of Medicine Safety Manual

BIOLOGICAL SPILL CLEAN-UP PROCEDURE

SPILL EVALUATION

(Risk assessment by Principal Investigator & lab personnel)

MINOR SPILL

Spill volume manageable
&
Poses no immediate danger to personnel

**RESTRICT ACCESS
TO CLEAN-UP AREA**

CLEAN-UP PROCEDURE

Prior to re-entering affected area

- Allow aerosols to settle for 30 mins
- Turn off all flames (if used)
- Prepare clean-up materials & disinfectant
- Wear Personal Protective Equipment (PPE)

Upon entering affected area

- Trace splatters
- Lay appropriate absorbents over the spill, from periphery to centre
- Apply disinfectant over absorbents, from periphery to centre
- Allow at least 30 mins contact time
- Pick up sharps & dispose in a sharps bin
- Pick up treated absorbents with tongs & dispose them in double yellow biohazard bag
- Clean treated area with disinfectant/water
- Remove & dispose PPE into biohazard bag
- Label the waste bag
- Wash hands

MAJOR SPILL

Spill volume NOT manageable
OR
Poses potential risk to personnel

LAB EVACUATION


**RESTRICT ALL LAB
ENTRY POINTS**

IMMEDIATE RESPONSE

- Call SCDF (995) and Campus Security (6874 1616)
- Activate fire alarm for building evacuation

REPORT

Report lab accident/incident to AIMS (ORMC) within 24hrs
https://inetapps.nus.edu.sg/osh/portal/eServices/ehs360_aims.html

	Department of Anatomy (Yong Loo Lin School of Medicine)	SOP No:	ANT-SR-SOP-001
	Title: Chemical Spill Response	Version No:	003
		Issue Date:	1 Dec. 2022
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Prepared By: Cao Qiong / Wu Ya Jun	Approved By: Prof Yip	Review Date: 30 Nov. 2025	

1. OBJECTIVE

This document provides details of the chemical spill response procedure to all lab users, when a chemical spill occurs in the Laboratory.

2. SCOPE

This SOP is a guideline for all laboratory staff, chemical spill response team and lab users to take action, once the chemical spill occur.

3. RESPONSIBILITIES

Chemical response team:

- a) Maintaining chemical spill kit.
- b) Providing appropriate PPE.
- c) Obtain & update SDS of chemicals every 5years for chemical list.

4. PROCEDURE


4.1 Spills involving chemicals can be divided into:

A. Minor Spills – Spills of volume less than 2.5 litres and accessed as manageable by laboratory personnel.

B. Major Spills- Spills of volume more than 2.5 litres, flammable, explosive, corrosive, toxic, hazardous or unknown chemical, not manageable by laboratory personnel or may pose immediate or potential danger.

A. Minor Spills


- Alert people in the immediate area of the spill.
- Condon off area around the spill with confined tape and display the “**Do Not Enter**” sign.
- If the spilled material is flammable, control sources of ignition to turn off all ignition and heat sources.
- Refer to the Safety Data Sheet of the spilled chemical for emergency response and first aids procedures.
- Wear appropriate PPE

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- If corrosive toxic or hazardous chemicals is spilled, Wear appropriate Personnel Protective Equipment (PPE): respirator, protective eye-wear, gown, shoe cover and appropriate double gloves.
- Surround spill using booms.
- Pick up broken glass with tongs and dispose into sharps bin or a box for broken glass.
- **For liquid spills:**
 - 1). Take the bottle of Ampho-Mag powder and pour around the spill to prevent the spill from spreading. (Then pour over the spill, be careful not to splash).
 - 2).When the powder has caked up, use the brush to sweep all the contents onto the dustpan and then pour into the plastic bag and tie up.
 - 3).If Ampho-mag powder not required (accessed as low hazard), soak up spill with absorbent pads.
- **For solid spills:**
 - 1) Use brush to sweep the contents onto the dustpan and pour into plastic bag and tie up.
- Place all contaminated pads, pillow, booms and PPE into the disposable bag and seal it tightly with a tie cable.
- Label the chemical waste bag and dispose as chemical waste.
- Clean the surface where the spill had occurred, using a mild detergent and water.
- Wash hands and exposed skin areas with soap and water.
- Together with the lab officer-in-charge, report lab accident/incident to AIMS (ORMC) within 24 hours.

B Major / Hazardous Spills

- Alert all personnel in the laboratory to stop working.
- Evacuate the area and close the door. Put a warning sign to prevent other persons from entering the spilled area.
- Assess any injured persons and attend to any people who may be contaminated.
(Contaminated clothing must be removed immediately and the skin flushed with water for at least fifteen minutes).
- Call Campus Security at Tel: 6874-1616 to report the incident.
(Provide details location of lab, which spill occurred; what type of chemical is involved in and number of injured person is involved in this incident).
Campus Security will notify Singapore Civil Defence Force (SCDF) Tel: 995.

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- Activate Department Emergency Response plan including notifying Emergency Coordinator and account for evacuated personnel.
- Together with the lab officer-in-charge, report lab accident/incident to AIMS (ORMC) within 24 hours.

5. CONTENTS IN CHEMICAL SPILL KIT

- 2 four-pound containers of Ampho-Mag powder
- 3 pairs of nitrile gloves
- 2 pairs of latex gloves
- 2 pairs of shoe covers
- 2 disposable gowns
- 2 pairs of safety goggles
- 1 "Do not enter" sign
- 2 large disposal plastic bags
- 1 dustpan
- 1 brush
- 1 pair of plastic tongs
- 6 pieces of absorbent pads
- 1 tie cable
- Confined tape

CHEMICAL SPILL CLEAN-UP PROCEDURE

SPILL EVALUATION

(Risk assessment by Principal Investigator & lab personnel)

MINOR SPILL

Spill volume manageable
&
Poses no immediate danger to personnel

RESTRICT ACCESS TO CLEAN-UP AREA

CLEAN-UP PROCEDURE

- Wear Personal Protective Equipment (PPE)

- Turn off all flames (if used)

- Trace splatters

Liquid Spill

- Lay absorbents around parameter of spill
- Pick up sharps & dispose in a sharps bin
- Cover spill with absorbents

Solid Spill

- Pick up sharps & dispose it in a sharps bin
- Use a plastic scoop or broom and dustpan to collect the spilled solids

- Dispose used absorbents/spilled solids in a chemical-resistant bag
- Clean spill surface
- Remove & dispose PPE appropriately
- Label the waste bag
- Wash hands

MAJOR SPILL

Spill volume NOT manageable
OR
Poses immediate/potential danger
OR Unknown chemicals OR
Explosion or fire risk
OR
Air or water reactive chemicals
OR
Mercury \geq μ L volume or near heated surface

LAB EVACUATION

RESTRICT ALL LAB ENTRY POINTS

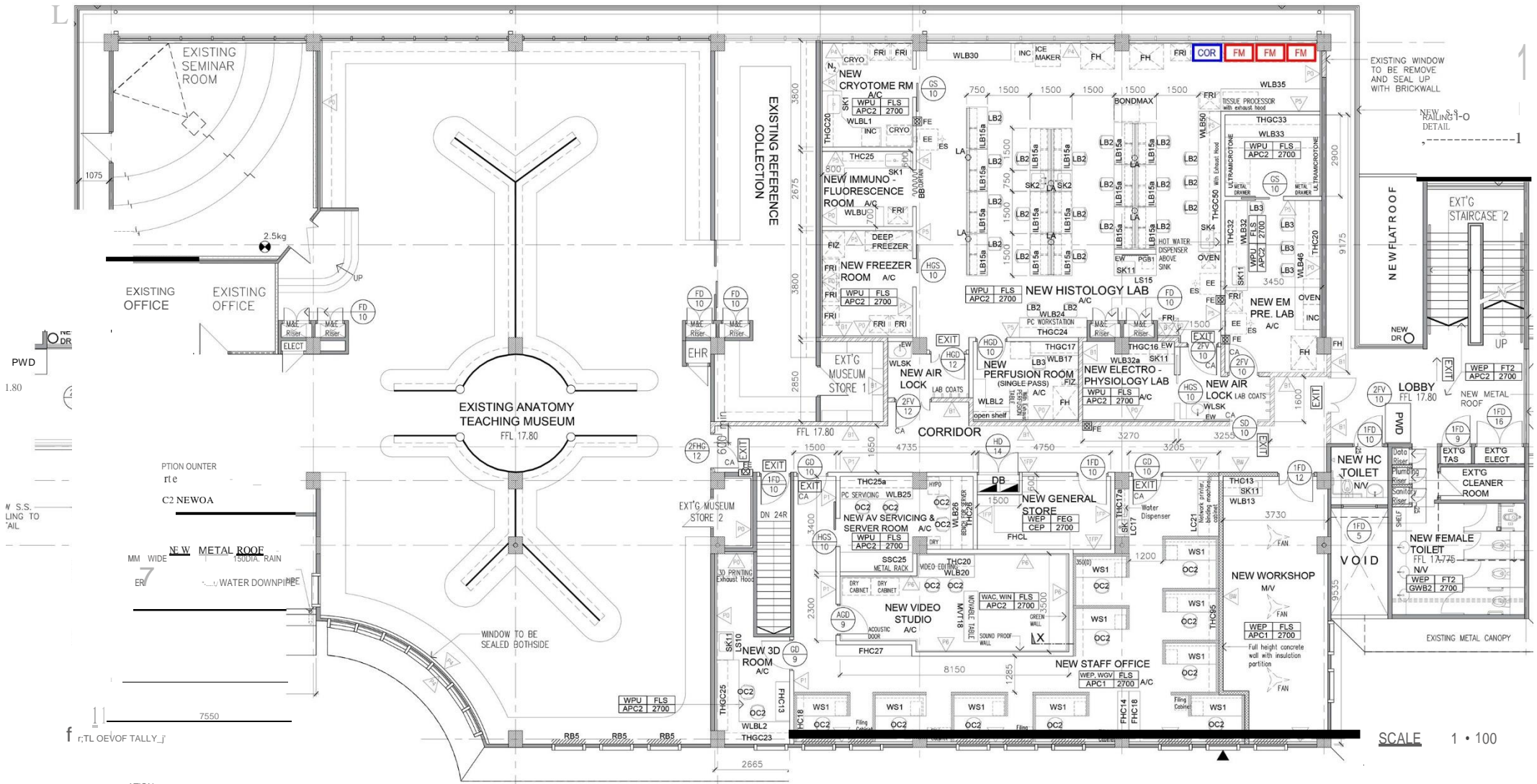
IMMEDIATE RESPONSE

- Call SCDF (995) and Campus Security (6874 1616)
- Activate fire alarm for building evacuation

REPORT

Report lab accident/incident to AIMS (ORMC) within 24hrs
https://inetapps.nus.edu.sg/osh/portal/eServices/ehs360_aims.html





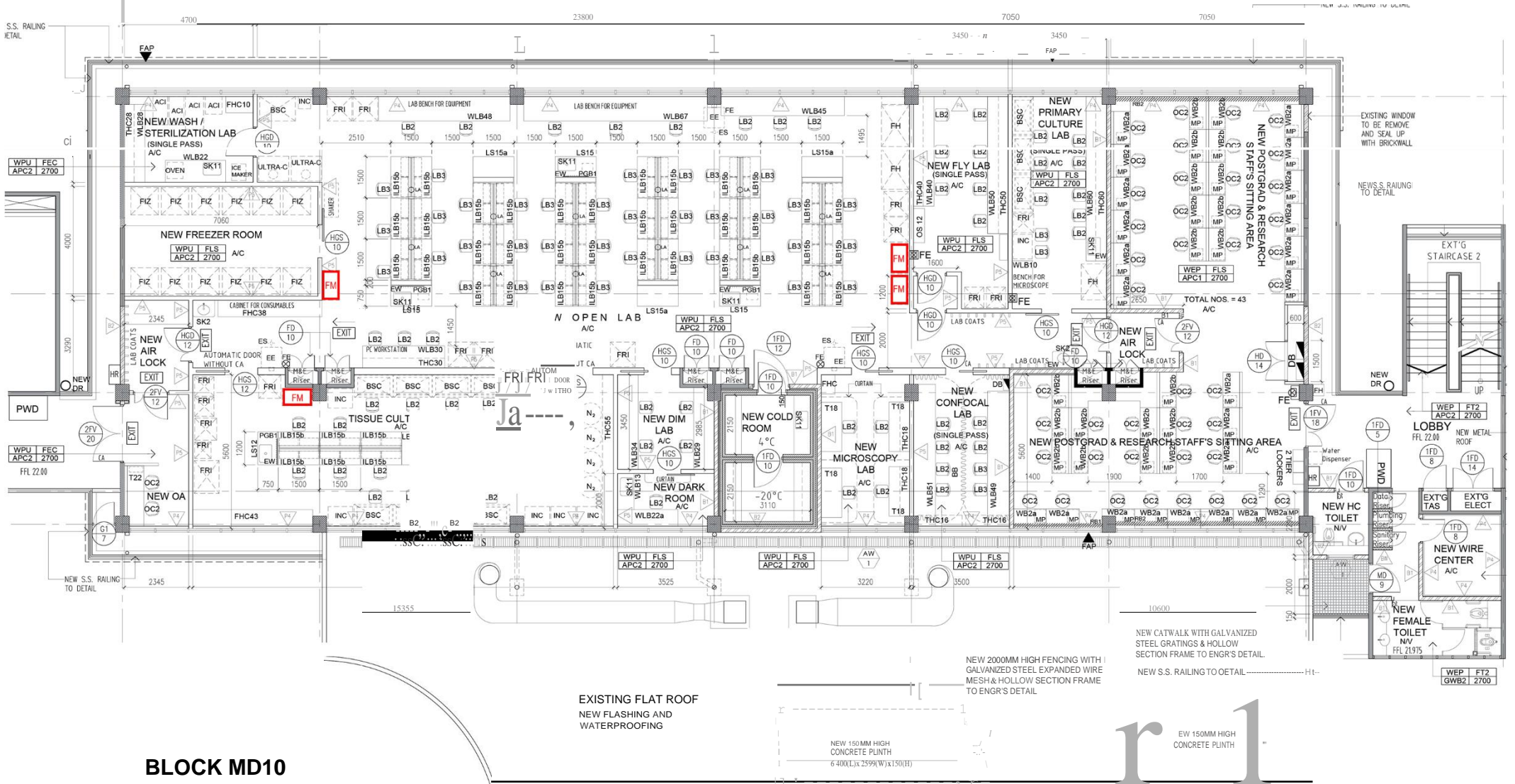
SCALE 1 • 100

BLOCK MO W

2ND STOREY PLAN

DATED: 6 MAY - 2015

FAP



**BLOCK MD10
3RD STOREY PLAN**

SCALE 100