Research SOP & ERP

Laboratory Room Number: Add Room Number
SOP & ERP Name: Name of Research Project
SOP & ERP Creator: Name & Contact Number
Area Supervisor: Name & Contact Number
Date of Latest Revision: Add Date

CBE Laboratory SOP & ERP Template – June 2016

(See Appendix for Instructions and Additional Information)

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GENERAL INFORMATION

Research Synopsis

Add here (or cut and paste)

Known Hazards

List Physical Hazards:

Heavy items, work at heights, over water, moving components, high temperature, high pressure, glassware, etc.

List Chemical Hazards:

Compressed gases, high hazard, toxic, flammable, explosive (list all hazardous chemicals)

List **Biological Hazards:**

Biological hazards, Level I Permit, Level II Permit, any human pathogens (delete if not applicable)

List Radiological Hazards:

Radiation hazards (delete if not applicable)

Safety Data Sheets Location

Note readily available location of Safety Data Sheets (or equivalent MSDSs or PSDSs)

Emergency Response Equipment Location

Equipment:	Location:
First Aid Kit	Add location
Fire Extinguisher	Add location
Spill Kit	Add location
Emergency Gas Shutoff	Add location (as applicable)
Eyewash and Shower	Add location

Required Training

Formal: Lab Safety Course, Lab Orientation, WHMIS, other formal training (high voltage, biosafety, radiation safety)

Lab-specific: using this SOP and ERP, nanomaterials training form, other lab-specific training

Additional: first aid, respirator fit testing

Required Personal Protective Equipment

Standard laboratory attire (long pants and closed-toe shoes, hair back, no jewelry)

Hardhat in Pilot Plant (1D04)

Eye protection: add type

Gloves: add type

Other: hearing protection, fall protection, type of respirator

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STANDARD OPERATING PROCEDURE

(Cut and paste existing SOP(s); or follow steps below)

Description of Required Equipment

Fumehood: or other controlled environment required

Lab equipment: bench-top or mobile equipment used, note location of logbook

Compressed Gases: note compressed gases used and location

Procedural Steps

1) **Set up:** add chronological steps (include things to watch for, calibrations, etc.)

2) **Experimental procedure:** add chronological steps (note critical steps in detail)

3) **Monitoring or data acquisition:** add chronological steps

4) **Clean up:** add chronological steps (note issues to inspect and report before next time)

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EMERGENCY RESPONSE PROCEDURE

(Cut and paste existing ERP or Experimental Set-up Showdown Procedure; AND complete sections below)

ERP for Scenario #1

Describe emergency response when NO audible alarm is sounding

ERP for Scenario #2

Describe emergency response when audible alarm IS sounding

Minor Spill Response Plan and Procedure

Describe spill response procedure (AS APPLICABLE)

Containing Hazardous Materials

Describe plan for safely containing all hazardous materials

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Local Responsibilities and Contact Information

NAME	TITLE & DEPARTMENT	WORK (OFFICE) PHONE	HOME (CELLULAR) PHONE	PRIME DUTIES & TASKS
ADD	Researcher	ADD	ADD	• Develop and use Lab/research-specific ERP and experimental set-up shutdown procedures • See responsibility list
ADD	Supervisor or Principal Investigator	ADD	ADD	• Review and approve Lab/research-specific ERP and experimental set-up shutdown procedures • See responsibility list
ADD	Lab Occupants	ADD	ADD	• Use Lab/research-specific ERP and experimental set-up shutdown procedures • See responsibility list
Richard Blondin	CBE Safety Committee Representative	306-966-**4711**		• Provide advice
	Safety Resources	306-966-**4675**	306-966-**5555** (afterhours)	• Provide advice
Facilities Management Division	Customer Service Centre (FMD)	306-966-**4496**	306-966-**5555** (afterhours)	• Verify ventilation system operation • Verify emergency power operation
Local Emergency Dispatch	Protective Services	306-966-**5555** (call 24/7)		• Initiate and support emergency response • Establish perimeter
Municipal Emergency Responders	• Ambulance • Fire • Police	**911 from mobile or 9-911 from U of S landline**		• Emergency responders
Andrea Book	Chief Building Warden (CoE)	306-966-**5388**	See Building ERP for cellular	• Help coordinate building evacuation
Veronica Bendig	Building Coordinator (CoE)	306-966-**5104**	See Building ERP for cellular	• Coordinate college response • Provide status updates to building occupants • Confirm WCC notified

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APPROVAL & ACKNOWLEDGEMENTS

Principal Investigator (Supervisor) Approval of this SOP and ERP

Name	Title	Signature	Date

Researchers & Students who have Reviewed, Understand & Use this SOP and ERP

Name	Supervisor	Signature	Date

APPENDIX

Instructions

1) Complete all **yellow highlighted** areas in all sections, and delete if not applicable.
2) Use Resources below for assistance.
3) Area Supervisor (PI) must review and sign to approve this SOP & ERP prior to commencing related work.

Resources

- For assistance please talk to your supervisor, or email Safety Management System Specialist
- Link to Access to Building Emergency Response Plan and other college safety/security resources: http://engineering.usask.ca/service-and-support/safety-security.php
- Link to University Safety Resources: http://safetyresources.usask.ca/

Sample Emergency Scenario A – NO High Level Alarm Sounding

Emergency Conditions:

- A hazardous gas smell has been detected
- There is an unusual or strong smell of H_2S gas (rotten egg) originating from the pilot plant.
- The H_2S alarm is NOT sounding.

Emergency Response Procedure:

1) Evacuate all except two research personnel, including one standing by an open door and restrict entry to the lab.
2) Should the researcher in the lab appear to be in distress, the person on watch is to proceed with "Scenario B: High Level Alarm Sounding", pull the alarm and evacuate the building. They are NOT to attempt a rescue.
3) The person by the open door is to notify all members of the following call-out list: SEE CALL OUT LIST
4) If a personal multi gas detector reads more than 10 ppm H_2S, experimental systems are to be shut down immediately. Instructions for reactor shut down are contained in Appendix 1.
5) If the reason for the gas release is because of exhaust system failure or leaking in the experimental set-up, the system should be shut down immediately.
6) If the High Level H_2 or H_2S or CO Alarm activates at any time, proceed with "Scenario B: High Level Alarm Sounding", pull the alarm and evacuate the building.

Sample Emergency Scenario B – High Level Alarm IS Sounding

Emergency Conditions:

- The high level alarm is sounding indicating greater than _____.

Emergency Response Procedure:

1) Close all doors and evacuate the laboratory immediately.
2) Leave the building **PULLING A FIRE ALARM** on the way out.
3) On building exit, proceed directly to the front main entrance of the Engineering Building.
4) Report all known information about the incident to attending Emergency Response Personnel. Additionally, provide instructions on reactor shutdown.

ERP Responsibilities

The following responsibilities are delineated to ensure that emergency situations arising from work performed in any laboratory are minimized and responded to properly:

Supervisor or Principal Investigator

- Ensure the development, maintenance and periodic revision of Standard Operating Procedures for safety systems and laboratory operations
- Ensure the development, maintenance and periodic revision of the Emergency Response Plan
- Ensure inspection and maintenance of laboratory equipment containing hazardous substances, or that otherwise pose a hazard to health or safety
- Ensure the provision of PPEs for all employees as necessary
- Ensure access to MSDSs for all hazardous substances in the laboratory
- Ensure the provision of training for all laboratory occupants and users with regard to:
    - SOPs
    - The ERP
    - MSDSs
    - PPE use and maintenance
    - Safety systems parameters and operation
    - Equipment use and maintenance
- Ensure that documentation and log books are kept for all training, safety systems monitoring, equipment inspection and calibrations
- Personally inspect training records and logs periodically to ensure compliance with SOPs

Researchers and Laboratory Occupants

- Read, ensure understanding of, and follow all laboratory SOPs specific to your work and general laboratory safety
- Read and ensure understanding of the ERP
- Read MSDSs for all hazardous substances in the laboratory prior to use of the substances
- Inspect and ensure adequacy of PPE and use them as required
- Attend all prescribed safety training
- Keep accurate records per prescribed frequencies in the laboratory SOPs
- Perform duties in a safe manner to protect the life and health of yourself, your coworkers and other occupants of the laboratory and the Engineering building

Chief Building Warden

- Ensure evacuation of the building if the situation dictates
- Liaise with laboratory, facility, University and emergency response personnel, ensuring that pertinent information is passed

Related Documents

Ensure the **College of Engineering Orientation Checklist** is completed.

As necessary, ensure the **Compressed Gas Use SOP** and/or **Nanomaterials Training Form** is used and readily available whenever applicable.