

RECORD OF DESIGNATED SUBSTANCE ASSESSMENT

SUBSTANCE: MERCURY (liquid)

DATE: March 13, 2007

COMPANY: McMaster University

DEPARTMENT OPERATIONS: Mechanical Engineering

LOCATIONS: John Hodgins Engineering Building
Rooms: 206

ASSESSMENT PREPARED BY: Dr. Ross L. Judd

TITLE: Professor Emeritus

DATE PREPARED: March 13, 2007

APPLICATION - WORKSHEET 1: IS THE DESIGNATED SUBSTANCE PRESENT?

1. Do any material safety data sheets from your suppliers indicate the presence of the substance?

YES

NO

2. If substance is present, indicate the department where it is used, nature of the use (i.e. Direct or indirect) and the quantity used per month or year:

<u>Product Name</u>	<u>Department</u>	<u>How Used?</u> <u>Direct / Indirect</u>	<u>Quantity</u> <u>Per Month / Year</u>
Mercury Thermometer (5)	Mech Eng JHE 206	Indirect	Continuous no consumption
Barometer (1)	Mech Eng JHE 206	Indirect	300ml no change in volume
Manometer (3)	Mech Eng JHE 107, 206	Indirect	200ml per manometer no change in volume

CONCLUSIONS

Read statements and check applicable box:

Substance not present anywhere in workplace; regulation does not apply
No Assessment needed

Processes / activities have been identified where substance present.
Proceed to worksheet 2.

APPLICATION - WORKSHEET 2: IS WORKER EXPOSURE LIKELY

1. In what form does the substance enter the plant?

Product Title: mercury liquid

Type of Container: glass Size of Container: 250ml (total)

2. Is this form altered during use or in the operation: YES NO

If YES, indicate altered form:

3. Is there a possibility of the substance being released into the workplace environment during normal use? YES NO

If YES, indicate the stage of the operation or areas where this can occur.

4. If YES, to Question 3, specify the job functions and approximate number of employees who might be exposed:

Job Function

Number of Employees

5. If YES, to Question 3, Indicate how workers could be exposed:

Inhalation Ingestion Skin Absorption

Skin Contact

6. If NO, to Question 3, is there a likelihood of escape due to leaks, accidents, etc.?

YES NO

7. Are workers likely to be exposed? YES NO

CONCLUSIONS

Are there any activities / situations where exposure by any route is likely

YES NO

If NO, no further action is necessary. Date Completed _____

If YES, an assessment is necessary – **proceed to Section III**

Note: If protection against exposure has been left up to some engineering control measure which can fail, or deteriorate for any reason, or to a work hygiene practice, an assessment is necessary -**Proceed to Section III**

ASSESSMENT – WORKSHEET 3: PROCESS DESCRIPTION

NAME OF PROCESS: _____

<u>Process Flow</u>	<u>Description</u>	<u>Likely Exposure</u> <u>Yes / No</u>	
1. <div style="border: 1px solid black; padding: 5px; width: fit-content;">Filling of Manometer</div>	Manometers/barometers are held over a dish pan while syringe is used to fill the tube. Use local ventilation.	Yes	
2. <div style="border: 1px solid black; padding: 5px; width: fit-content;">Manometer is mounted</div>		Bolts or hose clamps to hold it to a column	No
3. <div style="border: 1px solid black; padding: 5px; width: fit-content;">Pressure measurements performed</div>		Tubing is attached to manometer and sealed	No
4. <div style="border: 1px solid black; padding: 5px; width: fit-content; height: 30px;"></div>			
5. <div style="border: 1px solid black; padding: 5px; width: fit-content; height: 30px;"></div>			

ASSESSMENT – WORKSHEET 4: EXISTING CONTROLS

<u>Process Flow Stage</u>	<u>Control Description</u>	<u>Problems / Recommendations</u>
Filling of Manometer Manometer is mounted Pressure measurements performed	<u>Engineering Controls:</u> Secondary containment used Manometers/barometers have ends covered <u>Work Practices</u> Disposable nitrite gloves, safety glasses, lab coat worn during time of filling or emptying manometers/barometers	

ASSESSMENT – WORKSHEET 4: - EXISTING CONTROLS (cont'd)

<u>Process Flow Stage</u>	<u>Control Description</u>	<u>Problems / Recommendations</u>
<p>Filling of Manometer/ barometer</p> <p>Manometer/ barometer is mounted</p> <p>Pressure measurements performed</p>	<p>Hygiene Facilities and Practices:</p> <p>No Food or drink in the lab. Use proper safety equipment Wash hands after work is complete</p> <p>Training / Information:</p> <p>Read MSDS sheets before using mercury</p> <p>Emergency Procedures / Equipment</p> <p>If spill occurs mercury clean up kit and vacuum are available from Leah Allan x22486 in ABB rm. 107, if she is not available contact the office staff in ABB rm. 156 or after hours contact security x88 instructions on its operation are with the unit Evacuate and Post signs. Sprinkle sulphur; vacuum the area after 4 hours (at least). See SOP for flow loop, page 2, for mercury spill response. Risk Management must be notified of all spills and an incident report must be filled out.</p> <p>Personal Protective Equipment</p> <p>Disposable Nitrile gloves Lab coat Safety glasses</p>	

ASSESSMENT – WORKSHEET 5: JOB EXPOSURE ANALYSE

Process Flow Stage	Job Title	Total Number of Employees	Tasks Where Exposure Likely	Duration Hrs per Week	PPE Req'd To Be Used
1.	1.				

CONCLUSIONS

Jobs/ tasks to be noted during walk through survey:

ASSESSMENT – WORKSHEET 6: HEALTH EFFECTS

1. Any reported health effects? If so, describe.

No

2. Any current Medical Program? If so, describe.

No

3. Previous exposure monitoring results? If so, describe.

No

CONCLUSIONS

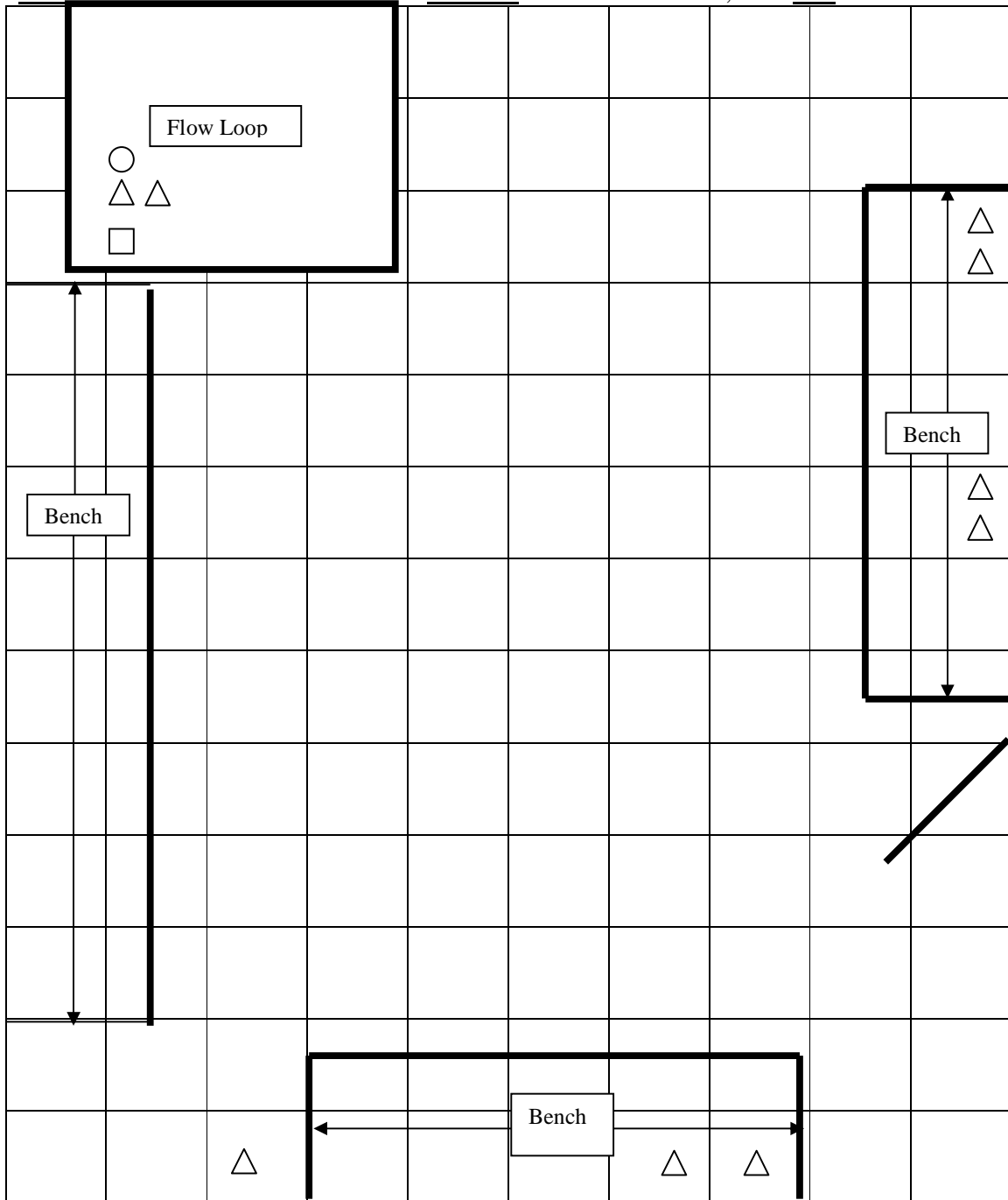
Health effects known at this stage: YES NO

Further information required: YES NO

ASSESSMENT – WORKSHEET 7: FLOOR PLAN

LOCATION: JHE-206

DATE: Revised March 13, 2007



DIMENSIONS: L20_ W14_ H10_

○ WORK STATION – enter number form job title – Worksheet 5

△ EXPOSURE SOURCE – enter number from Process Flow – Worksheet 3

□ VENTILATION – enter L for local exhaust & G for general ventilation

ASSESSMENT – WORKSHEET 8: WALK THROUGH

Evidence of Contamination:

None

Hygiene Facilities and Work Practices:

No food or drink in the lab

Ventilation Systems:

A/C

Storage Facilities:

Stored in glass containers (manometers or thermometers), located at the flow loop and over the bench at the left side of the door.

ASSESSMENT – WORKSHEET 8: WALK THROUGH (cont'd)

Dispensing Procedures:

Devices are attached and do not move.

Housekeeping:

Room is clean (no obstacles)

Personal Protective Equipment:

None required

Emergency Facilities / Procedures:

If spill occurs mercury clean up kit and vacuum are available from Leah Allan x22486 in ABB rm. 107, if she is not available contact the office staff in ABB rm. 156 or after hours contact security x88 instructions on its operation are with the unit

ASSESSMENT – WORKSHEET 9: WALK THROUGH CONCLUSIONS

1(a). Were any areas found where controls are required or where existing controls may require improvement?

YES NO

1(b). If YES, indicate the areas where the controls may be required or where existing controls may require improvement.

AREA

SUGGESTED IMPROVEMENTS



2(a). Personal exposure monitoring is required. YES NO

2(b). If YES, Indicate where:

3. Indicate any workers for whom medical testing and / or examinations may be required.

CONCLUSION: WORKSHEET 10: IS A CONTROL PROGRAM NECESSARY?

CONCLUSION 1: NO WORKER'S HEALTH MAY BE AFFECTED.

CONCLUSION B: A WORKER'S HEALTH MAY BE AFFECTED.

OVERALLL CONCLUSION

A control program is necessary. YES NO

Improvements needed in existing program:

DATE: _____

SIGNED _____