

## **Inspection Report**

Full Report			
Description			
Туре:	Lab Inspection EHS	Date:	Feb 7, 2019
Room:	ACMAL Shared Facility	Organization:	Vice President for Research
Inspector:	Jeff Lewin	Department:	Vice President for Research
			Shared Facility: Applied
		Facility:	Chemic

Roster	
David Dixon	EHS
Owen Mills	Laboratory Supervisor / PI

Actions and Recommendations		
1. Laboratory Su	pervisor / PI Required	
1.1 Address any ad	dditional concerns listed.	
Completed By:	Owen Mills (Completed: Mar 1, 2019)	Severity: Low
1.2 Dewars must be labeled "warning extreme cold/frostbite hazard" or similar warning.		
Completed By:	Owen Mills (Completed: Mar 1, 2019)	Severity: Medium
1.3 Laboratory should be clean and well organized for safe and efficient use.		
Completed By:	Owen Mills (Completed: Mar 1, 2019)	Severity: Medium
1.4 Please see inspector comments to determine what actions you need to take.		
Completed By:	Owen Mills (Completed: Mar 1, 2019)	Severity: Low

## Question Responses

1. 1. General Safety

1.1 A current Michigan Tech emergency response poster is posted at the entrance to the laboratory. Selection: Yes

1.2 Hazard symbols and warnings are posted as required for radiation, biohazard, high voltage, laser, unattended operations, and other hazards.

Selection: Yes

1.3 Doors controlling access to the laboratory are closed at all times and locked when the laboratory is not occupied. Access is limited to individuals authorized to work in the laboratory. Yes

Selection:

1.4 A hazard/risk assessment has been conducted to identify potential risks associated with laboratory equipment, materials and procedures. Methods to minimize those risks have been implemented. Selection: Yes

1.5 All employees that work in areas with hazardous materials or chemicals have completed Michigan Tech's online (PureSafety) course "Hazard Communication Michigan Tech." Yes

Selection:

1.6 A laboratory-specific safety manual defining laboratory policies, safe practices, and procedures is available and accessible to everyone in the lab. Individuals working in the laboratory agree to follow laboratory defined policies, practices, and procedures.

Selection: Yes

potentially contaminated PPE a	are removed before leaving the laboratory.
Selection:	Yes
1.8 All reusable PPE that is exp	bosed to skin is disinfected prior to being used by another person.
Selection:	Yes
1.9 Laboratory has appropriate	ventilation for the work being performed (chemical fume hood, snorkel,
canopy hood, biosafety cabine	:, etc.).
Selection:	Yes
1.10 A sink is available for han	d washing in areas where hazardous materials are used.
Selection:	Yes
1.11 All laboratory furniture (ch	airs, shelves, benches, cabinets, etc.) is in good condition, is appropriate
for use in the laboratory, and is	capable of supporting anticipated loads.
Selection:	Yes
1.12 Work areas are well lit wit	h all lights in working order.
Selection:	Yes
1.13 All laboratory refrigerators Food storage and preparation a	s, freezers, and microwaves are labeled with appropriate hazard signage. are prohibited.
Selection:	N/A
1.14 A First Aid kit is available	to deal with minor injuries that may be sustained in the laboratory.
Contents are in date. No aspiri	n or other pain relievers.
Selection:	Yes
2. 2. Housekeeping	
2.1 The laboratory is well main	tained, with work and storage areas clean and organized for safe and
efficient use.	
Selection:	Recommendations
Inspector Note:	Does the floor need to be fixed near the liquid nitrogen tank?
2.2 Access to exits and safety	equipment is unobstructed. Floors aisles, work areas, and entry/exits
routes are uncluttered with no	tripping nazards.
Selection:	Yes
2.3 If necessary, an appropriate	e container is available for the disposal of broken glass.
Selection:	N/A
2.4 If necessary, an appropriate	e container is available for the disposal of sharps. Containers are sent for
disposal every 90 days in the s	
Selection:	N/A
2.5 Universal wastes are coned	with the date the first item was placed in the container, and are sent for
recycling within 365 days of th	e date
Selection:	N/A
3 3 Fire Safety	
3 1 Are flammable materials st	ored in the laboratory?
Solaction:	No
3 2 Paner haves and other on	mbustible materials are properly stored and not in overseive amounte
5.2 r aper, buxes, and other co Soloction:	$N/\Delta$
3 3 Are open flamos utilized in	the laboratory or shop?
Solootion:	
3 4 Fire enrinkler heads are up	
must be at least 18 inches belo	by the the plane of the sprinkler heads.

4. 4. Electrical Safety	
4.1 Electrical panels have a 36 inch clearance in fi	ront of the panel. Breakers and disconnects are labeled.
Selection:	Yes
4.2 Electrical outlets within 6 feet of sinks and oth	er wet areas are protected by a ground fault circuit
interrupter.	
Selection:	N/A
4.3 Power cords on equipment and tools are in go	od condition (no exposed wires or frayed cords).
Electrically powered tools and equipment are grou	nded or double insulated.
Selection:	Yes
4.4 Extension cords are used appropriately and or	nly for temporary applications.
Selection:	Yes
4.5 Battery terminals are protected to prevent electronic electronic de la seconda de	ctrical shocks or potential shorts.
Selection:	N/A
4.6 Power strips are only used with computers or	other low amperage equipment. Power strips are not
"daisy chained" or plugged into an extension cord	
Selection:	Yes
4.7 All concerns about electrical safety have been	addressed.
Selection:	Yes
5. 5. Chemical Safety	
5.1 Are chemicals used in the laboratory?	
Selection:	N/A
5.2 Does the laboratory require a Chemical Hygien	e Plan?
Selection:	N/A
5.3 All concerns about chemical safety have been	addressed (also see section 7. Chemicals Requiring
Special Precautions).	
Selection:	Yes
6. 6. Compressed Gases and Cryogenic Liqui	ds
6.1 Cryogenic liquids are used in the laboratory.	
Selection:	Yes
6.1.1 The room where dewars or cylinders are use	d has appropriate ventilation. The space has been
evaluated to determine if an oxygen sensor is req	uired.
Selection:	Yes
6.1.2 Dewars are rated for the cryogenic liquids us	sed in the laboratory.
Selection:	Yes
6.1.3 Dewars are labeled with the cryogenic liquic	I name and "warning extreme cold/frostbite hazard" or
similar warning.	
Selection:	Recommendations
Inspector Note:	Label dewar with appropriate signage.
6.1.4 Appropriate personal protective equipment is	s available and used when handling cryogenic liquids.
Written procedures are available.	
Selection:	Yes
6.2 Chemicals in the gas phase are used in the factor	cility (supplied by cylinders, gas generators, or storage
	Vaa
Selection:	
o.2.1 Gases are listed on the emergency response	poster.
Selection:	res

6.2.2 The room where cylinders are us	sed has appropriate ventilation. The space has been evaluated to
determine if an oxygen sensor or a sp	ecific gas sensor is required.
Selection:	Yes
6.2.3 All gas lines, including those fee	from compressed and liquid cylinders or from gas generators, are
labeled (in English), compatible with t	the gases they carry, appropriately connected or welded, and
adequately supported.	
Selection:	Yes
6.2.4 Highly toxic gases are contained	d in a properly designed cabinet or stored and used under an
appropriate engineering control.	
Selection:	N/A
6.2.5 Gas cylinder storage areas are I	abeled with the names of the gases in storage. (Does not include a
spare).	
Selection:	N/A
6.7 All concerns about compressed ga	ases and cryogenic liquids have been addressed.
Selection:	Recommendations
Inspector Note:	Helium tank should be disposed of if it is not needed.
7. 7. Chemicals Requiring Special	Precautions
7.1 Hydrofluoric acid is used in the la	boratory.
Selection:	N/A
7.2 Peroxide forming chemicals are us	sed in the laboratory.
Selection:	N/A
7.3 Controlled substances are used in	the laboratory.
Selection:	N/A
7.4 Concentrated phenol is used in th	e laboratory.
Selection:	N/A
7.5 Perchloric acid is used in the labo	ratory.
Selection:	N/A
7.6 Ethidium bromide is used in the la	aboratory.
Selection:	N/A
7.7 Elemental mercury (including then present in the laboratory.	mometers, barometers, or other mercury containing devices) is
Selection:	N/A
7.8 Pyrophoric chemicals are used in	the laboratory
Selection:	N/A
8. 8. Biological Safety	
8.1 Biological materials are used in th	nis laboratory.
Selection:	N/A
8.2 This a biosafety level 2 (BSL-2) la	boratory.
Selection:	Ň/A
8.3 All biological safety concerns are	covered by the questions in this section.
Selection:	Yes
9. 9. Equipment Safety	
9.1 Confined spaces are properly ider	ntified and labeled.
Selection:	N/A
9.2 Is there any noise hazard produci	na equipment?
Selection:	N/A
9.3 Pinch points, rotating shafts and	other mechanical hazards are appropriately guarded.
Selection:	N/A
percetton	

9.4 All ladders are ir	n good condition and rated for the weight of the user and their equipment. Ladders
used for servicing ec	quipment are fiberglass.
Selection:	N/A
9.5 Are respirators u	sed in the facility? This includes N95 respirators and dust masks.
Selection:	No
9.6 Written lockout p	procedures are available or referenced when repairing and servicing equipment.
Employees who perf	orm these tasks can verbally explain where to find the written lockout policy.
Selection:	N/A
9.7 Compressed air	nozzles are equipped with a safety tip that reduces dead end pressures below 30
PSI.	
Selection:	N/A
9.8 Are any of the fo	llowing stationary power tools present: table saw, band saw, grinder, or drill press?
Selection:	No
9.9 All equipment sa	fety concerns are covered by the questions in this section.
Selection:	No
Inspector Note:	What is the exhaust switch for? Does it need to be on during normal use?

Images	
	Dewars are labeled with the cryogenic liquid name and "warning extreme cold/frostbite hazard" or similar warning Notes: Label dewar with appropriate signage.
	The laboratory is well maintained, with work and storage areas clean and organized for safe and efficient use Notes: Does the floor need to be fixed near the liquid nitrogen tank?
	All concerns about compressed gases and cryogenic liquids have been addressed Notes: Helium tank should be disposed of if it is not needed.
EXHAUST 2 2 4 4 4 4 4 4 4 4 4 4 4 4 4	All equipment safety concerns are covered by the questions in this section Notes: What is the exhaust switch for? Does it need to be on during normal use?