## Office of Safety University of North Dakota 3851, Campus Rd Stop 9031 Grand Forks, ND 58202-9031

Ph. No. 701-777-3341 Fax: 701-777-4132

3.1

3.2

Name:

## **BSL-2 FACILITY INSPECTION FORM**







DATE OF SURVEY:			NDUCTED BY:		BUILDING:				
ROOM N	ROOM NUMBER: DEPARTMENT: PRINCIPAL INVESTIGATOR:								
E-MAIL A	E-MAIL ADDRESS:								
RESPONS	SIBLE PERSON (OTHER THEN P	1):							
PHONE N	IUMBER:		E-MAIL ADDRESS:						
ITEM #			ITEM		YES	NO	CTI	N/A	COMMENTS CTI=CORRECTED AT TIME OF INSPECTION
			SECTION A: GE	NERAL LAB SAFETY					
1.0 SIGN									
1.1	The laboratory door(s) are po emergency contact informati		he current Office of Safety issued sign	nage and display up-to-date					
2.0 DOC	UMENTATION AND TRAI								
2.1	All personnel know how to a	access the Of	ffice of Safety website.						
2.2	All personnel know how to a Safety website.	access UND'	's <b>Bloodborne Pathogens Exposure</b> (	Control Plan on the Office of	f 🗆				
2.3		access UND'	's <i>Institutional Biosafety Manual</i> on	the Office of Safety website.		П	П		
2.4			ersity's Chemical Hygiene Plan on the		<b>-</b>		Ħ		
2.5			ailable inside each laboratory.	<u>,                                      </u>					
2.6	Facility specific emergency	plans are ava	ailable and up-to-date.						
2.7	All personnel have taken the available.	Laboratory	Safety Training Course within the p	past year and documentation is	s $\square$				
2.8		Radiation S	Safety Training within the past 3 year	s (Radiation labs only).	$\vdash$			$\vdash \sqcap$	
2.9			ood, bodily fluids, tissues, cell lines, et						
1			the last year and documentation is av						
	independent of Laboratory			· · · · · · · · · · · · · · · · · · ·					
3.0 SHIP	3.0 SHIPPING TRAINING								

Date:

If your lab ships biological/infectious agents or dry ice, has an individual from the lab taken *Compliance* 

**Training for Shipping Infectious and Biological Substances** with the past 2 years?

If yes, please list the name of the trained person and the last training date below:

ITEM #	ITEM	YES	NO	CTI	N/A	COMMENTS CTI=CORRECTED AT TIME OF INSPECTION
4.0 CHE	MICAL STORAGE					
4.1	All chemicals are labeled with the full chemical name.					
	(Example: Ethyl alcohol - not ETOH).					
4.2	Chemical containers are in good condition (i.e. completely intact and clean on the outside).					
4.3	Legacy / obsolete chemicals (inherited, unused for 10+ years, obvious container deterioration) are collected					
4.4	and given to Office of Safety for disposal.  Chemicals are stored by compatibility (i.e. flammables and oxidizers are separated, acids and bases are					
4.4	separated, etc.).					
4.5	Mineral acids are stored separately from organic acids.					
4.6	Perchloric acid is stored separately from all other materials.			Ħ		
4.7	Chemicals are stored in appropriate locations (i.e. flammables are in a flammables cabinet, corrosives are					
	in a corrosives cabinet, etc.).			ш		
4.8	Corrosives are stored in a secondary container (Example: polypropylene bin).					
4.9	Shelves, cabinets, and counter tops are stable and not overloaded, and containers are placed on shelves in a					
	safe manner.					
4.10	Chemicals are not stored on the floor.					
4.11	Chemicals are stored in such a way as to prevent release to the environment (stored away from sink drains;					
	containers are tightly capped).					
	MMABLE LIQUIDS STORAGE		1			
5.1	Flammables are stored in an approved flammable liquids cabinet. (Contact Office of Safety with					
	questions.)					
5.2	Volatile liquids are stored in an explosion-proof refrigerator when required.			<u> </u>	Щ.	
5.3	Aerosol cans are kept away from heat and ignition sources.					
	CIAL CHEMICAL HAZARDS					
6.1	Acetyl cholinesterase inhibitors are stored securely and in compatibility groups.			Щ.	Ц.	
6.2	Pyrophoric compounds are stored by compatibility groups.					
6.3	Shock sensitive compounds are stored by compatibility groups. For those compounds that require underwater storage (reactive when dry), periodic inspections of the material are conducted.					
6.4	Unstable materials, cryogens, and water-reactive materials are handled properly.					
6.5	Carcinogens, teratogens, mutagens are stored securely and in compatibility groups.					
6.6	Written procedures are in place for the use of acutely hazardous chemicals (i.e. carcinogens, reproductive					
	hazards, highly toxic substances, etc.).					
6.7	Laboratory personnel know the peroxide-forming chemicals used in the lab.			Щ.	Ц.	
6.8	Containers of peroxide-forming chemicals are disposed of properly through Office of Safety.			Щ.	Ц.	
6.9	Peroxide-forming chemicals are labeled with the date received and the expiration date.					
7.0 MER						
7.1	Alternatives to mercury are used, if possible.	<u> </u>	片片	⊢⊢	Н-	
7.2	All mercury thermometers have been replaced with mercury-free thermometers.		$\sqcup$	oxdot	$\sqcup$	
7.3	Mercury containing devices still in use are intact and are not leaking. <i>Mercury leaks or spills are reported</i> to Office of Safety immediately.					
7.4	Unused mercury containing devices (thermometers, thermostats, etc.) are disposed of through Office of					
	Safety.					

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8.0 DEA	CONTROLLED SUBSTANCES					
8.1	Federal <u>DEA License</u> is available.					
8.2	State of North Dakota Board of Pharmacy License is available.					
8.3	DEA-regulated items are secured in a locked container.					
8.4	Expired drugs are disposed of properly.					
8.5	Lab has proper record keeping of stock, usage, and disposal.					
	PRESSED GASES					
9.1	Cylinders secured.					
9.2	Away from heat.					
9.3	Flammable and oxidizing gases separated.					
9.4	Away from exits.					
	TE HOODS					
10.1	Inspected within last year.					
10.2	Undamaged.					
10.3	Used Correctly.					
	LOGICAL SAFETY CABINETS					
11.1	All active BSCs have been certified within the last 12 months by a vendor approved by UND.					
11.2	The certification label is attached and initialed by a vendor approved by UND.					
11.3	Intake and rear grilles are clear of obstructions.					
11.4	Bunsen burners and/or open flames are not used in biological safety cabinets. (Open flames are not					
	permitted inside BSCs; consider an alternative, such as an electrical Bacti-Cinerator).					
11.5	Work surfaces are clean and free of visible biological residue.					
11.6	The sash alarm is not muted.					
	CTRICAL					
12.1	Extension cord use is temporary.					
12.2	Proper grounding is used.	$\perp \perp \!\!\!\perp \!\!\!\!\perp$				
12.3	Cord and equipment in good condition.	$\perp \perp \!\!\!\perp \!\!\!\!\perp$				
12.4	No outlet overloading.	$oxed{oxed}$				
12.5	Outlets near water GFCI protected.	$oxed{oxed}$				
12.6	Electrical Panels Accessible.	$oxed{oxed}$				
12.7	Shock hazards have proper signage.					
	ERGENCY EQUIPMENT					
13.1	FIRE EXTINGUISHER					
	Correct type Fire Extinguisher present.	<u> </u>		$oxed{oxed}$	ugspace	
	Fire Extinguisher easily accessible.	$\perp \perp \perp \perp$		$\Box$	$\Box$	
	Fire Extinguisher tagged within the last year by Office of Safety.					

ITEM #	ITEM	YES	NO	CTI	N/A	COMMENTS CTI=CORRECTED AT
13.2	SAFETY SHOWERS					TIME OF INSPECTION
13.2	Safety showers are unobstructed.					
	Safety showers are tested monthly.	$\vdash \vdash$				
	Safety showers are functional and installed properly.	$\vdash \vdash$				
13.3	EYEWASHES					
13.3	EYEWASHES  Eyewashes are unobstructed.					
	Eyewashes are tested monthly.	$\vdash \vdash$				
	Eyewashes are functional and installed properly.	$\vdash \vdash$				
13.4	SPILL KITS AND FIRST AID					
13.4						
	Spill kits and first aid are stocked appropriately.	$\vdash \vdash \vdash$		┝╠		
	Spill kits and first aid are readily accessible.  Disinfectant available.	<u> </u>		<u> </u>		
		⊢⊢		<u> </u>		
	Broom, dustpan, forceps available.	⊢⊢		<u> </u>		
140 CIT	Calcium gluconate available for HF.	Ш			Ш	
	EMICAL WASTE					
14.1	Office of Safety picks up all chemical waste from the facility.	$\vdash \vdash$		⊢⊢		
14.2	Chemicals are not put down the drain, in the regular trash, or in biomedical waste.			<u> </u>		
14.3	All chemical / chemical waste containers are closed except when in use.		Ш			
14.4	Chemical wastes are compatible with their containers and are stored by compatibility ( <i>i.e. acid waste is not stored with alkaline waste</i> ).					
14.5	Office of Safety picks up all empty P-listed chemical containers from the facility.					
14.6	Office of Safety picks up expired pharmaceutical wastes (excluding DEA controlled substances) from the					
1 1.0	facility.					
15.0 BIO	LOGICAL WASTE					
15.1	Biomedical waste containers are labeled with the Biohazard symbol and the word "Biohazard".					
15.2	An orange / red Biohazard bag is used to dispose of biohazardous waste.					
15.3	Biohazard waste containers are closed except when adding waste.					
15.4	Biohazards are not put down the drain or in regular trash.					
15.5	Biohazard waste is not mixed with chemical waste.					
15.6	Facility-specific SOPs for the treatment and removal of biohazard waste from the facility are available and		П	П		
	adhered to.					
	ARPS HANDLING AND WASTE					
16.1	Sharps are disposed of in a sharps disposal container and the containers are no greater than 3/4 full.					
16.2	Sharps containers are tightly lidded to prevent the contents from spilling.					
16.3	Office of Safety picks up sharps waste for disposal.					

ITEM #	ITEM	YES	NO	СТІ	N/A	COMMENTS CTI=CORRECTED AT TIME OF INSPECTION
	DIOACTIVE WASTE					
17.1	Lab has current authorization for ordering, working with, and/or storing radioactive materials.					
17.2	If lab has received an annual letter indicating inactive status, the lab does not have any radioactive					
	materials (RAM) or RAM waste in the lab.					
17.3	Radioisotopes in use are listed on authorization permit.					
17.4	Personnel working with radioactive materials are identified on PI's authorization permit.					
17.5	All personnel listed on the radiation safety permit are up-to-date on their Office of Safety required					
	Radiation Safety Training.					
17.6	Area Geiger meter surveys/wipe tests are performed during the work weeks that radioactive materials are					
	used.	Ш				
17.7	Documentation of wipe tests include a list or map of areas surveyed, model and manufacturer of counter					
	used, date of test, and the initials of the individual who performed the test. The results are either recorded					
	in units of dpm or in cpm with counter efficiency and include a background reading.					
17.8	No unauthorized removal of radioactive material from a facility has occurred. All transport of radioactive					
	materials between facilities is conducted by Office of Safety.					
17.9	"Radioactive Material Laboratory" signs are posted at the lab entrance and on the lab					
	bench/areas/equipment where radioactive material is used.				Ш	
17.10	Use and storage of radioactive materials takes place in the authorized area.					
17.11	Shielding is present and appropriate for type of radiation. Shielding reduces dose rate to 2 mR/hr or less at					
	30 cm from source or surface.					
17.12	All radioactive waste is stored in Office of Safety provided radioactive waste containers.					
17.13	Radioactive material is secured against unauthorized access or removal. Methods include locking					
	unattended laboratories, locking refrigerators or freezers in unrestricted areas or for shared refrigerators or					
	freezers, securing in a lock box attached to the refrigerator or freezer.					
17.14	Radioactive waste is segregated by isotope and waste type (Dry, Liquid, or Liquid Scintillation Vial).					
17.15	Radioactive waste containers are labeled with a provided Office of Safety Radioactive Waste Label					
	complete with PI's name, and isotope.					
17.16	Radioactive waste is not disposed of via sewer without authorization and documentation. Sewer disposal is		П			
	not in excess of authorized limits.					
17.17	Personnel wear badges properly when handling radioactive material.					
17.18	Personnel radioactive exposure records are stored in the lab's Radiation Safety Binder.					
17.19	Personal dosimetry badges and control badges are stored away from radioactive materials.					
17.20	Labels on shipping boxes used for receiving radioactive materials are defaced prior to disposal through					
	housekeeping.					
	TOCLAVE USE					
18.1	A facility specific SOP for autoclave validation is available and adhered to.					
18.2	Documentation of autoclave validation is maintained and made available upon request.					
18.3	Autoclaves are validated at least monthly.					

ITEM	ITEM	YES	NO	CTI	N/A	COMMENTS CTI=CORRECTED AT			
#	I I ICIVI	1123	NO		1 <b>\</b> /A	TIME OF INSPECTION			
SECTION B: BIOSAFETY (These questions are based on the Biosafety level 2 section of Biosafety in Microbiological and Biomedical Laboratories, 5th Edition.									
1.1	Biological Agents used in this laboratory for research.								
1.2	Access to the laboratory is limited or restricted when experiments involving infectious organisms are in								
	progress. Enforcement is the responsibility of the PI/Lab Supervisor.								
1.3	Persons must wash their hands:								
	a) After working with potentially hazardous materials including:								
	i. infectious organism's ii. Organisms with r/syn DNA/RNA iii. Animals.								
	b) Before leaving the lab.								
1.4	Eating, drinking, smoking, handling contact lenses, applying cosmetics, and storing food for human								
	consumption must not be permitted in laboratory areas. Food must be stored outside the laboratory area in								
	cabinets or refrigerators designated and used for this purpose.								
1.5	Mouth pipetting is prohibited; mechanical pipetting devices must be used.								
1.6	Policies for the safe handling of sharps, such as needles, scalpels, pipettes, and broken glassware must be								
	developed and implemented. Whenever practical, laboratory supervisors should adopt improved								
	engineering and work practice controls that reduce risk of sharps injuries. Precautions, including those								
	listed below, must always be taken with sharp items. These include:								
	a. Careful management of needles and other sharps are of primary importance. Needles must not be bent,								
	sheared, broken, recapped, removed from disposable syringes, or otherwise manipulated by hand before	_							
	disposal.								
	b. Used disposable needles and syringes must be carefully placed in conveniently located puncture-resistant								
	containers used for sharps disposal.								
	c. Non-disposable sharps must be placed in a hard walled container for transport to a processing area for								
	decontamination, preferably by autoclaving.								
	d. Broken glassware must not be handled directly. Instead, it must be removed using a brush and dustpan,								
1.5	tongs, or forceps. Plastic ware should be substituted for glassware whenever possible.								
1.7	Decontaminate work surfaces after completion of work and after any spill or splash of potentially					1			
1.0	infectious material with appropriate disinfectant.	_	_	_	_				
1.8	Decontaminate all cultures, stocks, and other potentially infectious materials before disposal using an								
	effective method. Depending on where the decontamination will be performed, the following methods								
	should be used prior to transport:								
	a. Materials to be decontaminated outside of the immediate laboratory must be placed in a durable, leak								
	proof container and secured for transport.								
	b. Materials to be removed from the facility for decontamination must be packed in accordance with								
1.9	applicable local, state, and federal regulations.  A sign incorporating the <i>UNIVERSAL BIOHAZARD SYMBOL</i> must be posted at the entrance to the								
1.9	laboratory when infectious agents are present. Posted information must include: the laboratory's biosafety								
	level, supervisor's name (or other responsible personnel), telephone number, and required procedures for								
	entering and exiting the laboratory. Special precautions for organisms containing r/syn DNA/RNA are also								
	included on door signs.								
1.10	An effective integrated pest (insect and rodent) management program is required.								
1.10	An effective integrated pest (insect and rodent) management program is required.			$\sqcup$		1			

ITEM #	ITEM	YES	NO	CTI	N/A	COMMENTS CTI=CORRECTED AT
						TIME OF INSPECTION
1.11	The laboratory supervisor must ensure that laboratory personnel receive appropriate training regarding their duties, the necessary precautions to prevent exposures, and exposure evaluation procedures. Personnel must receive annual updates or additional training when procedural or policy changes occur. Personal health status may impact an individual's susceptibility to infection, ability to receive immunizations or prophylactic interventions. Therefore, all laboratory personnel and particularly women of childbearing age should be provided with information regarding immune competence and conditions that may predispose them to infection. Individuals having these conditions should be encouraged to self-identify to the institution's healthcare provider for appropriate counseling and guidance.					
1.13	Laboratory personnel must be provided medical surveillance, as appropriate, and offered available immunizations for agents handled or potentially present in the laboratory.					
1.14	A <u>laboratory-specific biosafety manual</u> must be prepared and adopted as policy. The biosafety manual must be available and accessible.					
1.15	The laboratory supervisor must ensure that laboratory personnel demonstrate proficiency in standard and special microbiological practices before working with BSL-2 agents					
1.16	Potentially infectious materials must be placed in a durable, leak proof container during collection, handling, processing, storage, or transport within a facility.					
1.17	Laboratory equipment should be routinely decontaminated, as well as, after spills, splashes, or other potential contamination.  a. Spills involving infectious materials must be contained, decontaminated, and cleaned up by staff properly trained and equipped to work with infectious material.  b. Equipment must be decontaminated before repair, maintenance, or removal from the laboratory.					
1.18	Incidents that may result in exposure to infectious materials must be immediately evaluated and treated according to procedures described in the laboratory biosafety manual. All such incidents must be reported to the laboratory supervisor. Medical evaluation, surveillance, and treatment should be provided and appropriate records maintained.					
1.19	Animal and plants not associated with the work being performed must not be permitted in the laboratory.					
1.20	All procedures involving the manipulation of infectious materials that may generate an aerosol should be conducted within a BSC or other physical containment devices.					
1.21	Properly maintained BSCs, other appropriate personal protective equipment, or other physical containment devices must be used whenever:  a. Procedures with a potential for creating infectious aerosols or splashes are conducted. These may include pipetting, centrifuging, grinding, blending, shaking, mixing, sonicating, opening containers of infectious materials, inoculating animals intranasally, and harvesting infected tissues from animals or eggs.  b. High concentrations or large volumes of infectious agents are used. Such materials may be centrifuged in the open laboratory using sealed rotor heads or centrifuge safety cups.					
1.22	Protective laboratory coats, gowns, smocks, or uniforms designated for laboratory use must be worn while working with hazardous materials. Remove protective clothing before leaving for non-laboratory areas, e.g., cafeteria, library, and administrative offices). Dispose of protective clothing appropriately, or deposit it for laundering by the institution. It is recommended that laboratory clothing not be taken home.					

ITEM #	ITEM	YES	NO	CTI	N/A	COMMENTS CTI=CORRECTED AT TIME OF INSPECTION
1.23	Eye and face protection (goggles, mask, face shield or other splatter guard) is used for anticipated splashes or sprays of infectious or other hazardous materials when the microorganisms must be handled outside the BSC or containment device. Eye and face protection must be disposed of with other contaminated laboratory waste or decontaminated before reuse. Persons who wear contact lenses in laboratories should also wear eye protection.					
1.24	Gloves must be worn to protect hands from exposure to hazardous materials. Glove selection should be based on an appropriate risk assessment. Alternatives to latex gloves should be available. Gloves must not be worn outside the laboratory. In addition, BSL-2 laboratory workers should:  a. Change gloves when contaminated, glove integrity is compromised, or when otherwise necessary.  b. Remove gloves and wash hands when work with hazardous materials has been completed and before leaving the laboratory.  c. Do not wash or reuse disposable gloves. Dispose of used gloves with other contaminated laboratory waste. Hand washing protocols must be rigorously followed.					
1.25	Eye, face and respiratory protection should be used in rooms containing infected animals as determined by the risk assessment.					
1.26	Laboratory doors should be self-closing and have locks in accordance with the institutional policies.					
1.27	Laboratories must have a sink for hand washing. The sink may be manually, hands-free, or automatically operated. It should be located near the exit door.					
1.28	The laboratory should be designed so that it can be easily cleaned and decontaminated. Carpets and rugs in laboratories are not permitted.					
1.29	Laboratory windows that open to the exterior are not recommended. However, if a laboratory does have windows that open to the exterior, they must be fitted with screens.					
1.30	Laboratory furniture must be capable of supporting anticipated loads and uses. Spaces between benches, cabinets, and equipment should be accessible for cleaning.  a. Bench tops must be impervious to water and resistant to heat, organic solvents, acids, alkalis, and other chemicals.  b. Chairs used in laboratory work must be covered with a non-porous material that can be easily cleaned and decontaminated with appropriate disinfectant.					
1.31	BSCs must be installed so that fluctuations of the room air supply and exhaust do not interfere with proper operations. BSCs should be located away from doors, windows that can be opened, heavily traveled laboratory areas, and other possible airflow disruptions.					
1.32	Laboratory windows that open to the exterior are not recommended. However, if a laboratory does have windows that open to the exterior, they must be fitted with screens.					
1.33	Vacuum lines should be protected with liquid disinfectant traps.					
1.34	An eyewash station must be readily available.					
1.35	Facility should consider mechanical ventilation systems that provide an inward flow of air without recirculation to spaces outside of the laboratory.					
1.36	HEPA filtered exhaust air from a Class II BSC can be safely recirculation back into the laboratory environment if the cabinet is tested and <i>certified at least annually</i> and operated according to manufacturer's recommendations. BSCs can also be connected to the laboratory exhaust system by either a thimble (canopy) connection or directly exhausted to the outside through a hard connection. Provisions to assure proper safety cabinet performance and air system operation must be verified.					
1.37	A method for decontaminating all laboratory wastes should be available in the facility (e.g., autoclave, chemical disinfection, incineration, or other validated decontamination method).					