NMSU Lab (JHA) Hazard Assessment (Questions EH&S -http://safety.nmsu.edu or 575-646-3327) Sept.2012

Are the following activities performed in the lab?		**Chemical Hazards**	
Activity	Y/N	Potential Hazard	Applicable PPE
Working with small volumes (<4 liters) of corrosive liquids.	If yes	Eye or skin damage.	Safety glasses or goggles. Light chemical-resistant gloves. Lab coat.
Working with large volumes (>4 liters) of corrosive liquids, small to large volumes of acutely toxic corrosives, or work which creates a splash hazard.[1]	If yes	Poisoning, increased potential for eye and skin damage.	Safety goggles. Heavy chemical-resistant gloves. Lab coat and chemical-resistant apron.
Working with small volumes (<4 liters) of organic solvents or flammable organic compounds.	If yes	Skin or eye damage, potential poisoning through skin contact.	Safety glasses or goggles. Light chemical-resistant gloves. Lab coat.
Working with large volumes (>4 liters) of organic solvents, small to large volumes of very dangerous solvents, or work which creates a splash hazard.[1]	If yes	Major skin or eye damage, potential poisoning through skin contact. Fire.	Safety goggles. Heavy chemical-resistant gloves. Flame-resistant lab coat (e.g. Nomex).
Working with toxic or hazardous chemicals (solid, liquid, or gas)[1, 2]	If yes	Skin or eye damage, potential poisoning through skin contact.	Safety glasses (goggles for large quantities). Light chemical-resistant gloves. Lab coat.
Working with acutely toxic or hazardous chemicals (solid, liquid, or gas)[1, 2, 3]	If yes	Increased potential for eye or skin damage, increased potential poisoning through skin contact.	Safety goggles. Heavy chemical-resistant gloves. Lab coat.
Working with an apparatus with contents under pressure or vacuum.	If yes	Eye or skin damage.	Safety glasses or goggles, face shield for high risk activities. Chemical-resistant gloves. Lab coat, chemical-resistant apron for high risk activities.
Working with air or water reactive chemicals.	If yes	Severe skin and eye damage. Fire.	Work in inert atmosphere, when possible. Safety glasses or goggles. Chemical-resistant gloves. Lab coat, flame resistant lab coat for high risk activities (e.g. Nomex). Chemical-resistant apron for high risk activities.
Working with potentially explosive chemicals.	If yes	Splash, detonation, flying debris, skin and eye damage. Fire.	Safety glasses, face shield, and blast shield. Heavy gloves. Flame-resistant lab coat (e.g. Nomex).
Working with low and high temperatures.	If yes	Burns, splashes. Fire.	Safety glasses. Lab coat. Thermal insulated gloves, when needed.
Minor chemical spill cleanup.	If yes	Skin or eye damage, respiratory damage.	Safety glasses or goggles. Chemical- resistant gloves. Lab coat. Chemical-resistant apron and boot/shoe covers for high risk activities. Respirator as needed. Consider keeping Silver Shield gloves in the lab spill kit.

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Are the following activities performed in the lab?		**Biological Hazards**	
Activity	Y/N	Potential Hazard	Applicable PPE
Working with human blood, body fluids, tissues, or blood borne pathogens (BBP). [5]	If yes	Exposure to infectious material.	Safety goggles with face shield or facemask plus goggles, latex or nitrile gloves, lab coat or gown.
Working with preserved animal and/or human specimens.	If yes	Exposure to infectious material or preservatives.	Safety glasses or goggles, protective gloves such as light latex or nitrile for unpreserved specimens (select protective glove for preserved specimens according to preservative used), lab coat or gown.
Working with radioactive human blood, body fluids, or blood borne pathogens (BBP).	If yes	Cell damage, potential spread of radioactive contaminants, or potential BBP exposure.	Safety glasses (goggles for splash hazard), light latex or nitrile gloves, lab coat or gown.
Working with agents or recombinant DNA classified as Biosafety Level 1 (BSL-1).	If yes	Eye or skin irritation.	Safety glasses or goggles for protection from splash or other eye hazard, light latex or nitrile gloves for broken skin or skin rash, lab coat or gown.
Manipulation of cell lines, viruses, bacteria, or other organisms classified as Biosafety Level 2 (BSL-2). 5	If yes	Exposure to infectious material, particularly through broken skin or mucous membranes.	Safety glasses or goggles for protection from splash or other eye hazard, light latex or nitrile gloves, lab coat or gown.
Manipulation of infectious materials classified as Biosafety Level 2 facility with BSL-3 practices (BSL-2+).	If yes	Exposure to infectious materials with high risk of exposure by contact or mucous membranes.	Safety glasses or goggles for protection from splash or other eye hazard, light latex or nitrile gloves (double), lab coat or disposable gown (preferred), surgical mask.
Manipulation of infectious materials classified as Biosafety Level 3 (BLS-3).	If yes	Exposure to infectious materials with high risk of exposure, particularly through the inhalation route.	Safety glasses or goggles for protection from splash or other eye hazard, light latex or nitrile gloves (double), full disposable gown or Tyvek suite (preferred), respirator, shoe cover or dedicated shoe.
Working with live animals (Animal Biosafety Level 1, ABL-1).	If yes	Animal bites, allergies.	Safety glasses or goggles for protection from splash or other eye hazard, light latex, nitrile or vinyl gloves for broken skin or skin rash, lab coat or gown. Consider need for wire mesh glove.
Working with live animals (Animal Biosafety Level 2).[5]	If yes	Animal bites, exposure to infectious material, allergies.	Safety glasses or goggles for protection from splash or other eye hazard, light latex, nitrile or vinyl gloves, lab gown, hair cover, shoe covers, surgical mask. Consider need for wire mesh glove.

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Are the following activities performed in the lab?		**Radiological Hazards**	
Activity	Y/N	Potential Hazard	Applicable PPE
Working with solid radioactive materials or waste.	If yes	Cell damage, potential spread of radioactive materials.	Safety glasses, impermeable gloves, lab coat.
Working with radioactive materials in hazardous chemicals (corrosives, flammables, liquids, powders, etc.).	If yes	Cell damage or spread of contamination plus hazards for the specific chemical.	Safety glasses (or goggles for splash hazard), light chemical-resistant gloves, lab coat. Note: Select glove for the applicable chemical hazards above.
Working with ultraviolet radiation.	If yes	Conjunctivitis, corneal damage, skin redness.	UV face shield and goggles, lab coat.
Working with infrared emitting equipment (e.g. glass blowing).	If yes	Cataracts, burns to cornea.	Appropriate shaded goggles, lab coat.

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Are the following activities performed in the lab?		**Laser Hazards**	
Activity	Y/N	Potential Hazard	Applicable PPE
Open Beam			
Performing alignment, trouble-shooting or maintenance that requiresWorking with an open beam and/or defeating the interlock(s) on any Class 3 or Class 4	If yes	Eye damage.	Appropriately shaded goggles/glasses with optical density based on individual beam parameters.
Viewing a Class 3R laser beam with magnifying optics (including eyeglasses).	If yes	Eye damage.	Appropriately shaded goggles/glasses with optical density based on individual beam parameters.
Working with a Class 3B laser open beam system with the potential for producing direct or specular reflections.	If yes	Eye damage, skin damage.	Appropriately shaded goggles/glasses with optical density based on individual beam parameters, appropriate skin protection. [7]
Working with a Class 4 laser open beam system with the potential for producing direct, specular, or diffuse reflections.	If yes	Eye damage, skin damage.	Appropriately shaded goggles/glasses with optical density based on individual beam parameters, appropriate skin protection [7].
Non-Beam			
Handling dye laser materials, such as powdered dyes, chemicals, and solvents.	If yes	Cancer, explosion, fire.	Gloves, safety glasses, flame-resistant lab coat or coveralls.
Maintaining and repairing power sources for large Class 3B and Class 4 laser systems.	If yes	Electrocution, explosion, fire.	Electrical isolation mat, flame-resistant lab coat or coveralls.

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Are the following activities performed in the lab?		**Physical Hazards**	
Activity	Y/N	Potential Hazard	Applicable PPE
Working with cryogenic liquids.	If yes	Major skin, tissue, or eye damage.	Safety glasses or goggles for large volumes, impermeable insulated gloves, lab coat.
Removing freezer vials from liquid nitrogen	If yes	Vials may explode upon rapid warming. Cuts to face/neck and frostbite to hands	Face shield, impermeable insulated gloves, lab coat.
Working with very cold equipment or dry ice.	If yes	Frostbite, hypothermia.	Safety glasses, insulated gloves (possibly warm clothing), lab coat.
Working with hot liquids, equipment, open flames (autoclave, Bunsen burner, water bath, oil bath).	If yes	Burns resulting in skin or eye damage.	Safety glasses or goggles for large volumes, insulated gloves (impermeable insulated gloves for liquids, steam), lab coat.
Glassware washing.	If yes	Lacerations.	Heavy rubber gloves, lab coat.
Working with loud equipment, noises, sounds, alarms, etc.	If yes	Potential ear damage and hearing loss.	Earplugs or ear muffs as necessary.
Working with a centrifuge.	If yes	Imbalanced rotor can lead to broken vials, cuts, exposure.	Safety glasses or goggles, lab coat, latex, vinyl, or nitrile gloves.
Working with a sonicator.	If yes	Ear damage, exposure.	Safety glasses or goggles, lab coat, latex, vinyl, or nitrile gloves, ear plugs.
Working with sharps.	If yes	Cuts, exposure.	Safety glasses or goggles, lab coat, latex, vinyl, or nitrile

Are the following activities performed in the lab?		**Nanomaterial Hazard**	
Activity	Y/N	Potential Hazard	Applicable PPE
Working with engineered nanomaterials[8].	If yes	Inhalation, exposure, dermal exposure.	Goggles, gloves, lab coat.

1 Use a chemical exhaust hood or other engineering control whenever possible. Activities conducted outside a hood or other engineering control (local bench exhaust) may need to be evaluated for a respiratory hazards. A respirator may be required & a respiratory protection program must be in place per EH&S Respiratory Protection Program. In addition to engineering controls and PPE, consider personal clothing that provides adequate skin coverage.

2 Dusty solids should be separately evaluated for the need to use respiratory protection.

3 For a list of acutely toxic chemicals, visit safety.nmsu.edu and navigate to Chemical Safety.

4 Chemical-resistant gloves are to be selected based on chemical(s) in use (see glove quide).

5 Use a Biosafety cabinet to minimize exposure or evaluatd by Biosafety Officer.

6 Laser pointers, copiers, and readers are not currently subject to general or specific PPE requirements.

7 Appropriate skin protection can include lab coat, gloves, sun block, barrier cream.

8 Nanomaterial work is to be evaluated for respiratory protection.

September 6, 2012 (after UCLA LHATS developed by http://www.ehs.ucla.edu/)