

Sam Houston State University

Facilities Management

Environmental Health & Safety

Biosafety Level One/Two (BSL-1/2) Inspection Checklist

SHSU's research & teaching laboratories that work with biohazards are required to have annual inspections using this checklist. Laboratory personnel should use this checklist to identify safety & regulatory deficiencies & address them before their annual inspection occurs. After each inspection laboratories will have thirty days to correct deficiencies. This inspection checklist is designed to help reduce potential exposures to biohazards. If you have any questions, please contact Safety@shsu.edu.

Biohazards *may* include: Agents that can infect &/or cause disease in humans, animals, or plants; Biohazardous waste; Experimentally-infected animals & animals naturally harboring zoonotic infectious agents; Genetically-modified organisms; Human blood, tissue, organs, cell lines, or other materials of human origin; recombinant & synthetic nucleic acid molecules; select agents & toxins; transgenic plants & animals.

Date: _____ **Lab Location(s):** _____

Lab Manager: _____ **Biosafety Level:** _____

Inspector(s): _____ **Arbovirus(es) used:** **Yes** **No**

STANDARD PRACTICES				
Questions:	Yes	No	N/A	Reference(s)
1. Does the supervisor limit access to the room in accordance with institutional policies?				B001; BMBL: BSL-1, A1, p. 30; BSL-2, A1, p. 33; NIH G-II-A-1-a; NIH G-II-B-1-a
2. Do all personnel wash their hands after handling potentially biohazardous materials, after removing gloves, & before leaving the laboratory?				B002; BMBL: BSL-1, A2, p. 30; BSL-2, A2, p. 33; NIH G-II-A-1-f; NIH G-II-B-1-f
3. Is eating, drinking, smoking, handling contact lenses, applying cosmetics, & storing food for human consumption prohibited in the lab?				B003; BMBL: BSL-1, A3, p. 30; BSL-2, A3, p. 33; NIH G-II-A-1-e; NIH G-II-B-1-e
4. Is mouth pipetting prohibited & are mechanical pipetting devices used?				B004; BMBL: BSL-1, A4, p. 30; BSL-2, A4, p. 34; NIH G-II-A-1-d; NIH G-II-B-1-d
5. Are written policies for the safe handling of <i>sharps (such as needles, scalpels, pipettes, & broken glassware)</i> followed & included in the laboratory-specific biosafety manual?				B005; BMBL: BSL-1, A5, p. 30; BSL-2, A5, p. 34
6. Are needle-locking syringes or safety hypodermic needles used when working with biohazards?				B006; BMBL: p. 291; NIH G-II-B-2-j
7. Do personnel understand that used disposable needles must not be bent, sheared, broken, recapped, removed from disposable syringes, or otherwise manipulated?				B007; BMBL: BSL-1, A5a, p. 30; BSL-2, A5a, p. 34
8. Are all syringes/needles/sharps disposed of in rigid, puncture-resistant, leak-proof containers?				B008; BMBL: BSL-1, A5b, p. 31; BSL-2, A5b, p. 34; 1910.1030(d)(2)(viii)(C)
9. Are re-usable sharps placed in a hard-walled container for transport to a processing area for decontamination?				B009; BMBL: BSL-1, A5c, p. 31; BSL-2, A5c, p. 34; 1910.1030(d)(2)(xiii)
10. Do lab personnel use mechanical means, such as brush & dustpan, tongs, or forceps to clean up broken glassware?				B010; BMBL: BSL-1, A5d, p. 31; BSL-2, A5d, p. 34

STANDARD PRACTICES CONTINUED

Questions:	Yes	No	N/A	Reference(s)
11. Are all procedures performed carefully in a manner to minimize the creation of splashes or aerosols?				B011; BMBL: BSL-1, A6, p. 31; BSL-2, A6, p. 34; NIH G-II-A-1-g; NIH G-II-B-1-g
12. Are work surfaces decontaminated with an effective disinfectant on completion of work or at the end of the day, & especially after overt spills or splashes of biohazardous materials?				B012; BMBL: BSL-1, A7, p. 31; BSL-2, A7, p. 34; NIH G-II-A-1-b; NIH G-II-B-1-b
13. Are all wastes that are contaminated with biohazardous materials autoclaved or decontaminated with an effective disinfectant before they are scheduled for pick-up?				B013; BMBL: BSL-1, A8, p. 31; BSL-2, A8, p. 34; NIH G-II-A-1-c; NIH G-II-B-1-c; NIH G-II-B-2-j; 29 CFR 1910.1030 (d)(2)(xiv)
14. Do all laboratory personnel receive training regarding their duties, safety policies, precautions & do they receive annual updates & additional training when changes in procedures or policies occur?				B014; BMBL: BSL-1, p. 32; A11, BSL-2, A11, p. 35; 1910.1030(g)(2)
15. Have all personnel, & particularly women of childbearing age, been provided information regarding immune competence & conditions that may predispose them to infection? Are individuals encouraged to self-identify health conditions to their healthcare provider for appropriate counseling & guidance?				B015; BMBL: BSL-1, A11, 32; BSL-2, A11, p. 35

Comments:

SPECIAL PRACTICES

Questions:	Yes	No	N/A	Reference(s)
16. Does the PI/supervisor inform personnel who work in the laboratory about the potential hazards and specific entry requirements (<i>e.g., immunization</i>)?				B017; BMBL: BSL-1, A11, 32; BSL-2, B1, p. 35; NIH G-II-B-2-c
17. Is a medical surveillance program in place for the laboratory?				B018; BMBL: BSL-2, B2, p. 35
18. Are serum samples collected & stored from at-risk personnel?				B019; BMBL: BSL-2, B3, p. 35; NIH G-II-B-2-l
19. Has the PI/supervisor developed lab-specific biosafety procedures & incorporated them into either a Biosafety Manual or Standard Operating Procedures?				B020; BMBL: BSL-2, B4, p. 35
20. Have all laboratory personnel demonstrated proficiency in standard & special microbiological practices before working in the laboratory?				B021; BMBL: BSL-2, B5, p. 35
21. Are cultures, tissues & other biohazardous materials placed in a container with a cover that prevents leakage during collection, handling, processing, storage, or transport?				B022; BMBL: BSL-1, A8a, p.31; BSL-2, B6, p. 35; NIH G-II-A-2-a; G-II-B-2-a
22. Is laboratory equipment routinely decontaminated, as well as after spills, splashes, & before repair, maintenance or removal from laboratory?				B023; BMBL: BSL-1, A8, p.31; BSL-2, B7, p.35
23. Are spills involving infectious materials contained, decontaminated, & cleaned up by staff properly trained & equipped to work with infectious material?				B024; BMBL: BSL-1, A8, p.31; BSL-2, B7a, p. 36
24. Are incidents that may result in exposure to infectious materials immediately evaluated & treated according to procedures described in the laboratory-specific safety manual?				B025; BSL-2, B8, p. 36

SPECIAL PRACTICES (CONTINUED)

Questions:	Yes	No	N/A	Reference(s)
25. Is the PI/supervisor immediately notified if there are spills & accidents that result in exposures to biohazardous materials?				B026; BSL-2, B8, p. 36
26. Are there written procedures for responding to exposure incidents?				B028; BSL-2, B8, p. 36
27. Is medical follow-up obtained after spills, accidents, & potential exposures?				B028; BSL-2, B8, p. 36
28. Are animals & plants not associated with the work prohibited from the laboratory?				B029; BSL-2, B9, p. 36

Comments:

PRIMARY SAFETY DEVICES

Questions:	Yes	No	N/A	Reference(s)
29. If there is a biological safety cabinet in the lab, has it been certified within the past year?				B030; BSL-2, C1, p. 36; NSF 49
30. Is the biological safety cabinet free of equipment or supplies that can block the air grills & disrupt proper airflow?				B031; p. 308; NSF 49
31. Is a biological safety cabinet used for all procedures with a potential for creating biohazardous aerosols or splashes? These may include grinding, blending, vigorous shaking or mixing, sonic disruption, opening containers of biohazardous materials (especially whose internal pressures may differ from ambient pressures), inoculating animals intra-nasally, & harvesting infected tissues from animals or embryonated eggs.				B032; BSL-2, C2a, p. 36
32. Is a biological safety cabinet used when high concentrations or large volumes of biohazardous materials are handled?				B033; BSL-2, C1b, p. 36
33. Is equipment (e.g., refrigerator, freezers) for use or storage of biohazardous materials labeled with a biohazard symbol?				B034; 29 CFR 1910.1030(g)(1)(i)(A)
34. If an autoclave is used, are procedures posted?				B035; 29 CFR 1910.132

Comments:

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Questions:	Yes	No	N/A	Reference(s)
35. Do personnel wear lab coats whenever they are in the lab & remove them before leaving the lab?				B037; BMBL: BSL-1, C2, p. 32; BSL-2, C2, p. 36; 29 CFR 1910.132 ; NIH G-II-A-1-h; NIH G-II-B-2-f
36. Are personnel prohibited from taking their lab coats home for laundering?				B038; BMBL: BSL-2, C2, p. 36; NIH G-II-B-2-f;
37. Do personnel remove gloves before touching "clean" surfaces (<i>keyboards, telephones, elevators, etc.</i>) & before leaving the lab?				B039; BMBL: BSL-2, C2, p. 36
38. Do personnel wear protective eyewear when performing procedures that have the potential to create splashes or microorganisms or other hazardous materials?				B040; BMBL: BSL-1, C3, p. 32; BSL-2, C3, p. 36

PERSONAL PROTECTIVE EQUIPMENT CONTINUED

Questions:	Yes	No	N/A	Reference(s)
39. When biohazardous materials must be manipulated outside a biological safety cabinet, do personnel use eye & face protection?				B041; BMBL: BSL-2, C3, p. 36
40. Does personnel wear gloves to prevent contact with biohazardous materials?				B043; BMBL: BSL-1, C4, p. 32; BSL-2, C4, p. 37; 29 CFR1910.132
41. Are alternatives to latex gloves available for personnel with latex sensitivity?				B043; BMBL: BSL-1, C4, p. 32; BSL-2, C4, p. 37; 29 CFR1910.132
42. Are gloves changed when contaminated, when glove integrity is compromised, or when otherwise necessary?				B044; BMBL: BSL-1, C4a, p. 32; BSL-2, C4a, p. 37; 29 CFR1910.132
43. Are hands washed after removing gloves?				B045; BMBL: BSL-1, C4b, p. 32; BSL-2, C4b, p. 37; 29 CFR1910.132
44. Are disposable gloves prohibited from being washed or reused?				B046; BMBL: BSL-1, C4c, p. 32; BSL-2, C4c, p. 37; 29 CFR1910.132
45. Are contaminated gloves disposed properly?				B047; BMBL: BSL-1, C4c, p. 32; BSL-2, C4c, p. 37; 29 CFR1910.132
46. Are eye, face, & respiratory protection worn in rooms containing infected animals?				B048; BMBL: BSL-2, C5, p.37; 29 CFR 1910.132

Comments:

LABORATORY FACILITIES

Questions:	Yes	No	N/A	Reference(s)
47. Is a BIOHAZARD sign posted on the lab entrance door, which includes the biosafety level, any required immunizations, emergency contact numbers, & any personal protective equipment that must be worn in the lab?				B049; BMBL: BSL-1, A9 p. 31; BSL-2, A9, p. 34;NIH G- II-B-2-d
48. Do laboratories have doors for access control?				B050; BMBL: BSL-1, D1, p. 33; BSL-2, D1, p. 37
49. Do laboratories have doors that are self-closing?				B051; BMBL: BSL2, D1, p. 37
50. Does the lab have a sink for hand washing?				B052; BMBL: BSL-1, D2, p. 33; BSL-2, D2, p. 37; NIH G-II-A-4-d; NIH G-II-B-4-d
51. Are carpets & rugs prohibited in the laboratory?				B053; BMBL: BSL-1, D3, p. 33; 4-d-2, D3, p. 37
52. Is furniture in the laboratory capable of supporting anticipated loads & uses?				B054; BMBL: BSL-1, D4, p. 33; BSL-2, D4, p. 37; NIH G- II-A-4-c
53. Is the room clean? Are spaces between benches, cabinets & equipment accessible for cleaning?				B055; BMBL: BSL-1, D4, p. 33; BSL-2, D4, p. 37; NIH G-II-A-4-c; NIH G-II-B-4-c
54. Are bench tops impervious to water & resistant to moderate heat & the chemicals used to decontaminate the work surfaces & equipment?				B056; BMBL: BSL-1, D4a, p. 33; BSL-2, D4a, p. 37; NIH G-II-A-4-b; NIH G-II-B-4-b
55. Are chairs & other furniture used in the lab covered with a non-fabric material that can be easily decontaminated?				B057; BMBL: BSL-1, D4b, p. 33; BSL-2, D4b, p. 37

LABORATORY FACILITIES CONTINUED

Questions:	Yes	No	N/A	Reference(s)
56. Are windows that open to the exterior fitted with screens?				B058; BMBL:BSL-1, D5, p. 33;BSL-2, D5, p. 37; NIHG-II-A-4-e;NIH G-II-B-4-e
57. Are biological safety cabinets located away from heavily traveled areas, doors & functioning windows or any other potentially intrusive entity?				B059; BMBL: BSL-2, D6, p. 38
58. Is there an eyewash station readily available and working in the lab?				B060; BMBL: BSL-2, D8, p.38;ASUBiosafety Manual
59. If vacuum lines are used, are they protected with High Efficiency Particulate Air (HEPA) filters or liquid disinfection traps?				B060; BMBL: BSL-2, D7, p.38; ASU Biosafety Manual
60. Does the room provide an inward flow of air without recirculation to spaces outside the room?				B062; BMBL: BSL-2, D9, p.38; ASU Biosafety Manual
61. Is a method for decontaminating all waste available in the facility (e.g., autoclave, chemical disinfection, incineration, or other validated decontamination method)?				B063; BMBL: BSL-2, D11,p.38; NIH G-II-B-4-f

Comments:

ADDITIONAL REQUIREMENTS FOR OSHA BLOODBORNE PATHOGENS

Questions:	Yes	No	N/A	Reference(s)
62. Have personnel been offered & received appropriate immunizations for the agents potentially present in the lab (e.g., hepatitis B)? Or declined in writing?				B064; 29 CFR1910.1030(f)(1)(i)
63. Have personnel with the potential for exposure to bloodborne pathogens or other potentially infectious materials completed SHSU's Bloodborne Pathogens Training?				B065; 29CFR 910.1030(g)(2)(i)

Comments:

ADDITIONAL REQUIREMENTS FOR RECOMBINANT & SYNTHETIC NUCLEIC ACID MOLECULES

Questions:	Yes	No	N/A	Reference(s)
64. Has the PI's recombinant/synthetic nucleic acid research been reviewed & approved by the Institutional Biosafety Committee?				B068; NIH Section III
65. Does the laboratory have 10 or more liters of culture present?				B069; NIH III-D-6
66. Is the PI familiar with which section of the <i>NIH Guidelines</i> their research falls under?				B070; NIH IV-B-7
67. Does the laboratory have an emergency response plan for dealing with accidents, spills, or other incidents involving recombinant/synthetic nucleic acid molecules?				B071; NIH IV-B-2-b-(6)
68. Are personnel familiar with the emergency response procedures for spills or exposures involving recombinant/synthetic nucleic acid molecules?				B072; NIH IV-B-2-b-(6)
69. Do lab personnel have access to the <i>NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules</i> ?				B073; NIH G-I

ADDITIONAL REQUIREMENTS FOR RECOMBINANT & SYNTHETIC NUCLEIC ACID MOLECULES CONTINUED

Questions:	Yes	No	N/A	Reference(s)
70. Do personnel have access to copies of procedures (e.g., SOPs) for recombinant/synthetic nucleic acid molecules?				B074; NIH G-I
71. Are animals not involved in the research prohibited in the room?				B075; NIH G-II-B-2-g
72. Are hypodermic needles and syringes used only for parenteral injection and aspiration of fluids from laboratory animals and diaphragm bottles?				B076; NIH G-II-B-2-j
73. Are only needle-locking syringes or disposable syringe-needle units (<i>i.e., needle is integral to the syringe</i>) used for the injection or aspiration of fluids containing organisms that contain recombinant or synthetic nucleic acid molecules?				B077; NIH G-II-B-2-j
74. Is extreme caution used when handling needles & syringes to avoid autoinoculation & the generation of aerosols during use & disposal?				B078; NIH G-II-B-2-j
75. Are spills & accidents, which result in overt exposures to organisms containing recombinant or synthetic nucleic acid molecules immediately, reported to the Biological Safety Officer & Institutional Biosafety Committee?				B079; NIH G-II-B-2-k
76. Is there an insect & rodent control program in effect?				B082; NIH G-II-A-2-b; NIH G-II-B-2-e
77. Has a laboratory-specific bio safety manual been adopted?				B082; NIH G-II-B-2-m
78. Are personnel required to read & follow the laboratory-specific biosafety manual?				B082; NIH G-II-B-2-m

Comments:

ADDITIONAL REQUIREMENTS FOR TOXINS

Questions:	Yes	No	N/A	Reference(s)
79. Does the laboratory have any toxins listed on the Select Agent & Toxin list?				B083; 42 CFR 73
80. Is an inventory control system in place for the toxins?				B084; BMBL, Appendix I
81. Is all work with toxins conducted within a certified chemical fume hood or Biological Safety Cabinet?				B085; BMBL, Appendix I

Comments:

Summary &/or additional comments:

Equipment Inventory for Lab Location: _____

Is there an autoclave present?	Yes	No			
If yes, please include the following information for each:					
	Model Number	Serial Number	Location	Last Cert. Date	Cert. Due Date
Autoclave (1)					
Autoclave (2)					
Autoclave (3)					
Autoclave (4)					
Autoclave (5)					

**If you need additional space for more than (5) pieces of equipment, please use the blank table below.*

Is there a Biological Safety Cabinet (BSC) present?	Yes	No			
If yes, please include the following information for each:					
	Model Number	Serial Number	Location	Last Cert. Date	Cert. Due Date
BSC (1)					
BSC (2)					
BSC (3)					
BSC (4)					
BSC (5)					

**If you need additional space for more than (5) pieces of equipment, please use the blank table below.*

Is there a Centrifuge present?	Yes	No			
If yes, please include the following information for each:					
	Model Number	Serial Number	Location	Last Cert. Date	Cert. Due Date
Centrifuge (1)					
Centrifuge (2)					
Centrifuge (3)					
Centrifuge (4)					
Centrifuge (5)					

**If you need additional space for more than (5) pieces of equipment, please use the blank table below.*

Is there a Flow Cytometer present?	Yes	No
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If yes, please include the following information for each:

	Model Number	Serial Number	Location	Last Cert. Date	Cert. Due Date
Flow Cytometer (1)					
Flow Cytometer (2)					
Flow Cytometer (3)					
Flow Cytometer (4)					
Flow Cytometer (5)					

**If you need additional space for more than (5) pieces of equipment, please use the blank table below.*

Extra table:

Equipment	Model Number	Serial Number	Location	Last Cert. Date	Cert. Due Date

Comments: