



Sanford

Underground Research Facility

South Dakota Science and Technology Authority

Bloodborne Pathogen Standard

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Revision History

Rev	Date	Section	Paragraph	Summary of Change	Authorized by
01	7/26/2023	NA	NA	Initial Release	CCR 789

1.0 Purpose

The South Dakota Science and Technology Authority (SDSTA) is committed to providing a safe and healthful work environment. The purpose of this standard is to eliminate or minimize occupational exposure to bloodborne pathogens via an exposure control plan.

SDSTA references the following to fulfill this standard:

- OSHA standard 29 CFR 1910.1030, "Occupational Exposure to Bloodborne Pathogens."

2.0 Scope

This Standard applies to all SDSTA employees, users, contractors, and visitors at Sanford Underground Research Facility (SURF).

3.0 Definitions

At Risk Personnel– Personnel who have potential for occupational exposure to blood or other potentially infectious materials.

Bloodborne Pathogen (BBP) – A pathogenic microorganism present in human blood that can be transmitted to and cause disease in others. These pathogens include but are not limited to, hepatitis B virus (HBV), hepatitis C virus (HVC), and human immunodeficiency virus (HIV).

Exposure Control Plan (ECP) – Plan that explains ways to minimize or eliminate exposure to BBPs.

Exposure Incident – An incident that occurs during the course of work where any employee, contractor, or visitor is exposed to blood, human tissue, or other potentially infectious materials.

Occupational Exposure – A reasonably anticipated skin, eye, mucous membrane or parenteral contact with blood or Other Potentially Infectious Materials (OPIM) that may result from the performance of an employee's duties.

Other Potentially Infectious Materials (OPIM) – Any fluid/tissue normally confined to inside the body.

Regulated Waste – Liquid or semi-liquid blood or OPIM; contaminated items that would release blood or OPIM in a liquid or semi-liquid state if compressed; items with dried blood or OPIM and can release these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or OPIM.

Sharps – Devices having corners, edges, or projections capable of cutting or piercing the skin, such as contaminated needles, scalpel blades, and broken glass.

Source Individual – Any individual, living or deceased, whose blood or other potentially infectious materials may be a source of occupational exposure to personnel.

Universal Standard Precautions – An approach to infection control recommended by the Centers for Disease Control (CDC) for care of all persons, regardless of their diagnosis or infection status.

4.0 Responsibilities

4.1. Environment, Safety, and Health (ESH) Department

- 4.1.1. Maintains, reviews, and updates the ECP whenever necessary to include new or modified tasks and procedures.

4.2. At Risk Personnel

- 4.2.1. Comply with the procedures and work practices outlined in this standard. All personnel that have potential exposures to BBP will be identified and notified of their inclusion.
- 4.2.2. Perform work only in areas where the appropriate training and work authorization(s) have been completed.
- 4.2.3. Complete required training and use personal protective equipment (PPE) prior to exposure to BBP or OPIM.
- 4.2.4. Inform Occupational Health Nurse of any exposure to blood or OPIM without universal precautions used and schedule a post-exposure evaluation.

4.3. Occupational Health Nurse

- 4.3.1. Arranges post-exposure evaluations for personnel exposed to onsite blood or OPIM without the use of universal precautions.
- 4.3.2. Maintains health records, including records of exposures, for SDSTA at risk personnel.
- 4.3.3. Ensures that appropriate containers/bags and labels are used.

4.4. Supervisors and Project Managers

- 4.4.1. Maintain and provide all necessary PPE and engineering controls as required by the standard.
- 4.4.2. Ensure that adequate supplies of the equipment and supplies (including PPE) are available in the appropriate sizes.
- 4.4.3. Coordinate with ESH to ensure that all medical actions required are performed and that appropriate employee health and OSHA records are maintained.

5.0 Instructions

Bloodborne pathogens can occur from a cut or puncture wound from an object that is contaminated with another person's blood, from a splash of bodily fluid to mucous membranes of the eyes, nose, mouth, or exposure to non-intact skin (skin that is chapped, abraded, or compromised by dermatitis).

5.1. Employee Exposure Determination

- The following is a list of all job classifications at our establishment that are considered at risk personnel:
 - Custodial Staff
 - ERT Members
 - Facility Technicians
 - Infrastructure Technicians
 - Occupational Health Nurse

- o Waste Water Treatment Plant (WWTP) Operators
- o Any other SDSTA staff that may provide emergency first aid/CPR/AED tasks

5.2. Universal Standard Precautions

- The following information relates to universal standard precautions, safe use of sharps and other potential exposure to blood or OPIM, engineering and work practice controls, Hepatitis B vaccinations, and components of the post exposure evaluation.
 - o Wash hands frequently and thoroughly after contact with blood or OPIM.
 - o Use PPE: Gloves, gowns, shoe covers, eyewear, masks, and shields depending on the situation to prevent contact with eyes, nose, mouth, and skin.
 - o Gloves must be worn when contact with blood or body fluids is anticipated.
 - o Avoid cleaning up blood spills or body fluids unless properly trained.
 - o May clean up own blood or body fluids with 1:10 solution of bleach & water.
 - ◆ Use of antiseptic or bleach has not proven to reduce the risk of transmission.
 - ◆ Puncture wounds can be cleaned with an alcohol-based cleanser, chloroxynol or chlorhexidine.
 - o Contain the bleeding with direct pressure, use of gloves if possible.
 - o Flush splashes to the nose, mouth, or skin with water immediately.
 - o Irrigate eyes with clean water, saline, or sterile irrigation solution immediately.
 - o Report immediately via our incident reporting process.
 - o Consider the following fluids as a risk for exposure to bloodborne pathogen:
 - ◆ Blood, cerebrospinal fluid, peritoneal fluid, semen, synovial fluid, pericardial fluid, vaginal secretions, pleural fluid, amniotic fluid.
 - ◆ Body fluids that have not been shown to pose a risk for transmission of bloodborne pathogens, unless blood is visible include urine, stool, tears, saliva, gastric secretions or vomitus, sweat, non-purulent sputum, nasal discharge.

5.3. Work Planning and Controls Requirements

- Controls are to be established with the purpose to eliminate or minimize personnel exposure. Where occupational exposure remains after institution of these controls, PPE shall also be used.
- Handwashing facilities or appropriate antiseptic hand cleansers must be available, in conjunction with clean cloth/paper towels or antiseptic towelettes where possible.
- Personnel must wash their hands immediately after removal of gloves or other personal protective equipment with soap and water, and/or flush mucous membranes with water immediately following contact with blood or body fluids. If hand cleansers or towelettes are used, hands must be washed with soap and running water as soon as feasible.
- Remove PPE after it becomes contaminated, and before leaving the work area. Any garment contaminated with blood or other potentially infectious material should be removed as soon as feasible and in such a way as to avoid skin contact with the contaminated surface of garment.

- Used PPE shall be disposed of in appropriate containers, such as red, hard-sided containers with biohazard symbol or red biohazard bags.
- Eating, drinking, applying cosmetics or lip balm, and handling contact lenses is prohibited in work areas where there is a reasonable likelihood of occupational exposure.
- Food and drink shall not be kept in refrigerators, freezers, shelves, cabinets or on countertops or benchtops where blood or OPIM are present.
- All activities should minimize splashing, spraying, spattering, and generation of droplets.

5.4. Blood Spills and Housekeeping Guidelines

- All equipment and working surfaces shall be cleaned and decontaminated immediately after contact with blood or body fluids with an appropriate disinfectant.
- Protective coverings shall be removed and replaced as soon as feasible when they have become contaminated.
- Broken glassware should never be picked up directly. Use mechanical means, such as brush/dustpan, tongs, or forceps.
- Contaminated laundry should be handled as little as possible and be bagged or containerized in the location where it was used, placed in a labeled or color-coded leak-proof container. No rinsing or sorting should be performed in the location of use.
- Blood or OPIM spills that occur will be cleaned up by personnel who are trained.
- Restrict the contaminated area until it is properly cleaned.

5.5. Labeling Methods

Item	Label Type (size, color, etc.)
Contaminated Laundry	Garbage bag with biohazard label
Contaminated PPE	Garbage bag with biohazard label
Biohazard/Needle Containers plastic container	Biohazard label of "SHARPS" on a red, puncture proof, leak proof container
Small spill clean-up bag	Garbage or Ziploc-style bag with biohazard label

- Personnel who are trained to handle biological waste containers will ensure that appropriate containers/bags and labels are used.
- Personnel are to notify a supervisor and/or the ESH Department if they discover regulated waste containers, refrigerators containing blood or other potentially infectious material, contaminated equipment, etc. without proper labels.

5.6. Training

- Initial employee training is required, and on an annual basis thereafter for all employees who have potential for exposure.

5.7. Hepatitis B Virus (HBV) Vaccinations

- The HBV vaccination series is available to employees with potential exposure to infectious materials, at no cost, after training, and within 10 days of initial assignment.
- A medical specialist administers and provides an explanation of HBV vaccinations, including vaccine effectiveness, safety, benefits, route of administration, and availability.

- Vaccination is encouraged unless documentation exists that the employee has previously received the series, antibody testing reveals that the employee is immune, or medical evaluation shows that vaccination is contraindicated.
- Employees who decline vaccination at the time it is offered must sign a ESH-(4000-F)-207413 Vaccine Declination Form. If they choose to receive the vaccine at another time, they may do so.

5.8. Confidential Post-Exposure Evaluation

- Details of the events surrounding the incident is obtained and documented. (Note: The exposed employee's blood shall be collected as soon as feasible after consent is obtained.)
- The severity of exposure and the potential to transmit HBV, HCV, and HIV is determined.
- Counseling is provided following the exposure and includes an explanation of the Post Exposure Testing Process.
- The source individual will be identified and documented (unless employer can establish that identification is infeasible or prohibited by state or local law), and consent for testing will be sought, if testing is needed.
- Pertinent and relevant employee information is obtained and safeguarded as part of the evaluation and documented.

5.9. Healthcare Professional's Written Opinion

- SDSTA shall obtain and provide the employee with a copy of the evaluating healthcare professional's written opinion within 15 days of the completion of the evaluation and shall include:
 - Whether Hepatitis B vaccine is indicated or has been received.
 - The results of the evaluation. Additional details may be found in the Post Exposure Testing Process.
 - That the employee has been told about any medical condition(s) resulting from exposure to blood or other potentially infectious materials which require further evaluation or treatment.
- All other findings or diagnoses shall remain confidential and shall not be included in the written report.

5.10. Recordkeeping

- Training records are maintained electronically for each employee.
- Medical records must be kept for 75 years per DOE records retention requirements and maintained according to 29 CFR1910.20. These confidential records shall include at a minimum:
 - Name and employee ID number of the employee.
 - A copy of the employee's hepatitis B vaccination status including the dates of all the hepatitis B vaccinations, the immune response, and any medical records relative to the employee's ability to receive vaccination.
 - A copy of all results of examinations, medical testing, and follow-up procedures.
 - A copy of the healthcare professional's written opinion.

6.0 Documented Information/Related Documents

- 6.1.** ESH-(4000-F)-207413 Vaccine Declination Form
- 6.2.** Post Exposure Testing Process
- 6.3.** 29 CFR 1910.1030
- 6.4.** 29 CFR1910.20