SAMPLE HEALTH AND SAFETY PLAN (HASP)

Source: OSHA.

1.0 ORGANIZATIONAL STRUCTURE

(in compliance with 29 CFR 1910.120(b)(1) and (b)(2))

This chapter of the Health and Safety Plan (HASP) describes lines of authority, responsibility, and communication for health and safety functions at this site. The purpose of this chapter is to identify the personnel involved in the development and implementation of the site health and safety plan and to describe their roles and responsibilities. This chapter also identifies other contractors and subcontractors involved in work operations and establishes the lines of communication among them for safety and health matters.

The organizational structure of this site's safety and health program is consistent with OSHA requirements in 29 CFR 1910.120(b)(2) and provides the following site-specific information:

- the general supervisor who has the responsibility and authority to direct all hazardous waste cleanup operations
- the site safety and health officer who has the responsibility and authority to develop and implement this HASP and verify compliance
- other personnel needed for cleanup operations and emergency response and their general functions and responsibilities
- the lines of authority, responsibility, and communication for safety and health functions

This chapter is reviewed and updated as necessary to reflect the current organizational structure at this site.

1.1 Roles and Responsibilities

All personnel and visitors on this site must comply with the requirements of this HASP. The specific responsibilities and authority of management, safety and health, and other personnel on this site are detailed in the following paragraphs. A site organizational chart illustrating the hierarchy of personnel and lines of communication within this company and with additional contractors on site is found in Figure 1-1.

(The roles and responsibilities below are examples of roles/responsibilities that typically exist at hazardous waste clean-up sites. One person may fill more than one role. Add to, edit or delete the roles/responsibilities below as appropriate for your site.)

Project Manager (PM)

The Project Manager (PM) for this site is _____.

The PM has responsibility and authority to direct all work operations. The PM coordinates safety and health functions with the Site Safety and Health Officer (SSHO), has the authority to oversee and monitor the performance of the SSHO, and bears ultimate responsibility for the proper implementation of this HASP. The specific duties of the PM are:

Preparing and coordinating the site work plan; providing site supervisor(s) with work assignments and overseeing their performance; coordinating safety and health efforts with the SSHO; ensuring effective emergency response through coordination with the Emergency Response Coordinator (ERC); serving as primary site liaison with public agencies and officials and site contractors.

The qualified alternate Project Manager (PM) for this site is _____.

Site Safety and Health Officer (SSHO)

The Site Safety and Health Officer (SSHO) for this site is _____.

The SSHO has full responsibility and authority to develop and implement this HASP and to verify compliance [Note: if the preceding statement does not apply to the SSHO, be sure that it applies to one of the positions listed here]. The SSHO reports to the Project Manager. The SSHO is on site or readily accessible to the site during all work operations and has the authority to halt site work if unsafe conditions are detected. The specific responsibilities of the SSHO are:

Managing the safety and health functions on this site; serving as the site's point of contact for safety and health matters; ensuring site monitoring, worker training, medical surveillance, and effective selection and use of PPE; assessing site conditions for unsafe acts and conditions and providing corrective action; assisting the preparation and review of this HASP; maintaining effective safety and health records as described in this HASP; coordinating with the Emergency Response Coordinator (ERC), Site Supervisor(s), and others as necessary for safety and health efforts.

The qualified alternate Site Safety and Health Officer (SSHO) for this site is _____.

Emergency Response Coordinator (ERC)

The Emergency Response Coordinator (ERC) for this site is _____.

The ERC is responsible for assessing site conditions and directing and controlling emergency response activities and personnel in accordance with the Site Emergency Response Plan. The ERC reports to the Project Manager (PM). The ERC will ensure the evacuation, emergency transport, and treatment of site personnel and will notify the appropriate emergency response units and management staff in accordance with the emergency response plan of this HASP. Specific duties of the ERC include:

Developing and reviewing the emergency response plan; conducting emergency response rehearsals; ensuring effective emergency response to and evacuation of the site; coordinating emergency response functions with the Site Safety and Health Officer (SSHO), and integrating site emergency response plans with the disaster, fire, and/or emergency response plans of local, state, and federal organizations and agencies.

The qualified alternate Emergency Response Coordinator (ERC) for this site is _____.

The qualified second alternate Emergency Response Coordinator (ERC) for this site is _____.

Site Supervisor

The Site Supervisor for this site is _____. The Site Supervisor is responsible for field operations and reports to the Project Manager (PM). The Site Supervisor ensures the implementation of the HASP requirements and procedures in the field. The specific responsibilities of the Site Supervisor are:

- executing the work plan and schedule as detailed by the PM;
- coordination with the Site Safety and Health Officer (SSHO) on safety and health;
- ensuring site work compliance with the requirements of this HASP.

The qualified alternate Site Supervisor for this site is _____.

Site Workers

Site workers are responsible for complying with this HASP, using the proper PPE, reporting unsafe acts and conditions, and following the lines of authority established for this project site.

Decontamination Manager

The Decontamination Manager for this site is _____.

The Decontamination Manager is responsible for decontamination procedures, equipment, and supplies. The specific responsibilities of the Decontamination Manager are:

Setting up decontamination lines and the solutions appropriate for the type of contamination on site; controlling the decontamination of all equipment, personnel and samples from the contaminated areas; assisting in disposal of contaminated clothing and materials; ensuring all required equipment is available and in working order; and providing for collection, storage and disposal of waste.

The qualified alternate Decontamination Manager for this site is _____.

Security Officer

The Security Officer for this site, _____. is responsible for managing and maintaining site security. The specific responsibilities of the Security Officer are:

Conducting routine area patrols; controlling facility access and egress; assisting with communication during an emergency; securing accident/incident scenes; maintaining a log of site access and egress.

The qualified alternate Security Officer for this site is _____.

1.2 Identification of Other Site Contractors

(Choose either Option 1 or Option 2 for the text of Section 1.2 only. Choose the option appropriate for your site and delete all of the text associated with the other option. Option 1: there are other contractors /subcontractors on site that could be affected by site operations. Option 2: there are no other contractors/subcontractors that could be affected by site operations.)

(Option 1)

The other contractors and subcontractors on this site who could be affected by the tasks and operations associated with this workplan and HASP are listed in Table 1-2 below.

Table 1-2 Other Site Contractors and Subcontractors

Company	Function
(This is a table. Identify each contractor and subcontractor that will work on site. Please insert a row for each contractor and subcontractor, or alter this table as appropriate for your site.)	(Please identify the operation or task the contractor or subcontractor will complete at this site.)

Safety and health lines of communication with these contractors are illustrated in Figure 1-1.

(Option 2)

There are no other contractors or subcontractors on this site.

1.3 Local/State/Federal Agency Representatives and Their Roles & Responsibilities

(In this section, you should list the roles and responsibilities of local, state and federal agencies involved in your facility cleanup project. Cleanup of a facility contaminated through bioterrorist activity involves participation of agencies that are not generally included in other hazardous waste site cleanups. The EPA Representative description is offered as an example; add to the roles/responsibilities below as appropriate for your site. Include local police, fire, and public health departments as well as the FBI and CDC, as appropriate.)

EPA Representative

The EPA Representative for this site is _____. Serving either in the capacity

as On-Scene Coordinator (OSC), Remedial Project Manager (RPM), or Site Inspection Officer (SIO), the EPA Representative is responsible for overall project administration and contractor oversight. As part of that oversight function, EPA will ensure that project plans meet OSHA requirements at a minimum, and that the health and safety of all site personnel is a primary concern. As an OSC or RPM, EPA serves in the capacity of site supervisor.

The qualified alternate EPA Representative for this site is (insert name)
Figure 1-1 Organizational Chart

Insert the site organizational chart here, showing S&H lines of authority and communication among site personnel and site contractors.

SAMPLE HEALTH AND SAFETY PLAN (HASP)
Source: OSHA.

2.0 SITE CHARACTERIZATION AND JOB HAZARD ANALYSIS

(in compliance with 29 CFR 1910.120(b)(4)(ii)(A), 1910.120(c) and 1910.120(i))

This section of the HASP identifies and describes safety and health hazards associated with site work. The purpose of characterization and job hazard analysis is to identify and quantify the health and safety hazards associated with each site task and operation, and to evaluate the risks to workers. With this information, risks are then eliminated if possible, or effectively controlled. The information contained in this section of the HASP is essential to effective preparation of all other sections of the HASP. This section of the HASP includes:

- site history
- job hazard analysis
- chemical and biological hazard information
- employee notification of hazards

The person responsible for ongoing site characterization and job hazard analysis at this site is _____.

2.1 Site History

The following paragraph summarizes the history of this site as it relates to the need to perform a post-emergency response cleanup of anthrax spores.
(insert text here)

[Help Text]-Site History should identify:

- emergency response actions to bio-terrorist release
- regulatory actions (if applicable)
- sampling events and results
- extent of contamination

Materials referenced in providing site history information include:

(insert text here)

2.2 Job Hazard Analysis

Table 2.2a contains the job hazard analysis information for this site and the planned hazard controls. This table lists each task or operation required for this facility cleanup project, by site location. Biological and chemical hazards and their known or anticipated airborne concentrations are identified for each distinct combination of location and task/operation. Surface contamination data for anthrax spores are also included. Based on the task /operation at a particular location, anticipated physical hazards are also identified. Then, based on the best available knowledge of how that task/operation will be performed, the likelihood of exposure to the hazards identified for the task/operation at that location is indicated. The final section in Table 2.2a lists the control measures implemented to protect employees from the

hazards identified. The information provided here is designed to satisfy the job hazard analysis requirements of 1910.120(b)(4)(ii)(A) and the workplace hazard assessment requirements of 1910.132(d).

Table 2.2b summarizes health hazard information for each chemical and biological substance listed in Table 2.2a.

Tables 2.2a and 2.2b are modified by _____. when:

- the Scope of Work is changed by adding, eliminating, or modifying tasks
- new methods of performing site tasks are selected
- observation of the performance of site tasks results in a revised characterization of the hazards
- new chemical, biological, or physical hazards are identified
- exposure data indicate changes in the concentration and/or likelihood of exposure
- new/different control measures are selected
-

These tables summarize the information used to select and implement the specific exposure controls identified in the remainder of the HASP. When the tables are modified, related provisions elsewhere in the HASP are also modified.

(Copy this table and complete it for each Job Hazard Analysis you conduct.)

Table 2.2a: Site-Specific Job Hazard Analysis		
JHA Number: (assign number to this JHA)	Task/Operation	Location Where Task/Operation Performed (List only the locations that have similar hazard profiles. Create another hazard analysis for task/location combinations with different hazard profiles)
Date(s) this JHA Conducted:	**Employee Certifying this JHA** (in accordance with 1910.132(d)(2))	
	Print Name:	Signature

Chemical Hazards			
Chemical Name	**Source**	**Concentration** (Enter airborne concentration with units as ppm or mg/m^3; if surface concentration, label clearly with units)	Exposure Potential during Task/ Operation
			☐ Likely ☐ Unlikely
			☐ Likely ☐ Unlikely

Biological Hazards			
Name of Biological Hazard	Source	**Concentration** (Enter airborne concentration with units; if surface concentration, label clearly with units)	Exposure Potential during Task/ Operation
			☐ Likely ☐ Unlikely
			☐ Likely ☐ Unlikely

Physical Hazards		
Name of Physical Hazard (e.g., noise, ionizing radiation, fall hazards)	**Source**	Exposure Potential during Task/ Operation
		☐ Likely ☐ Unlikely
		☐ Likely ☐ Unlikely

Control Measures Used
Engineering Controls: (if feasible, list/describe)
Work Practices: (*describe*)
PPE: (Indicate PPE level, consistent with PPE selection criteria in Chapter 6 of this HASP. Include respiratory protection and any task-specific PPE modifications to address task-specific combination of hazards)

(Complete this table or insert a hazard data sheet for each hazardous substance listed in Table 2.2a above. A hazard data sheet for anthrax pores is included with the HASP files to assist you.)

Table 2.2b Hazard Substance Information					
Hazardous Substance Name	Characteristics of Substance	**Route(s) of Entry** (inhalation, skin contact, ingestion)	Target Organ(s) Effects	Exposure Limits (as applicable, list 8-hour, short-term, & ceiling limits. Indicate whether OSHA, NIOSH, or ACGIH limit)	Exposure Signs & Symptoms

2.3 Employee Notification of Hazards and Overall Site Information Program

The information in Tables 2.2a and 2.2b is made available to all employees who could be affected by it prior to the time they begin their work activities. Modifications to these tables are communicated during routine briefings.

Consistent with paragraph (i) of HAZWOPER, we also inform other contractors and subcontractors about the nature and level of hazardous substances at this site, and likely degree of exposure to workers who participate in site operations. _____ is responsible for providing site characterization information, this HASP, and modifications to it to other contractors and subcontractors working on this site.

SAMPLE HEALTH AND SAFETY PLAN (HASP)

Source: OSHA.

3.0 SITE CONTROL

(in compliance with 29 CFR 1910.120(b)(4)(ii)(F) and 29 CFR 1910.120(d))

This site control program is designed to reduce the spread of hazardous substances from contaminated areas to clean areas, to identify and isolate contaminated areas of the site, to facilitate emergency evacuation and medical care, to prevent unauthorized entry to the site, and to deter vandalism and theft.

The site control program includes the elements specified in 29 CFR 1910.120(d) and provides the following site-specific information:

- a site map, indicating site perimeter and work zones
- site access procedures
- site security
- site work zones including standard operating procedures
- use of the buddy system
- both internal (on-site) and external communications

_____ is responsible for evaluating site conditions and for verifying that the site control program functions effectively. The site control program is updated regularly to reflect current site conditions, work operations, and procedures.

3.1 Site Map

A map of this site, showing site boundaries, designated work zones, and points of entry and exit is provided in Figure 3-1, at the end of this chapter.

3.2 Site Access

Access to this site is restricted to reduce the potential for exposure to its safety and health hazards. During hours of site operation, site entry and exit is authorized only at the point(s) identified in Figure 3-1.

Entry and exit at these points is monitored by _____.

When the site is not operating, access to the site is controlled by _____.

Visitors to the site register with _____. and are escorted at all times. Visitors are expected to comply with the requirements of this HASP. Visitors who want to enter contaminated areas of the site must provide documentation that they have the required training and medical evaluation and must receive a site-specific briefing about protecting themselves from site hazards, recognizing site zones demarcations, and following emergency evacuation procedures prior to entry. PPE for visitors is provided by _____.

3.3 Site Security

Security at this site is maintained during both working hours and non-working hours to prevent unauthorized entry; removal of contaminated material from the exclusion zone; exposure of unauthorized, unprotected people to site hazards; and increased hazards due to vandalism and theft.

_____ is responsible for establishing and maintaining site security during working hours. This site takes the following measures for security during working hours:

(Add, delete, or edit the security measures for working hours below, as you'd like them to appear in your HASP)

- Security is maintained in the Support Zone and at Access Control Points to ensure only authorized entrants access the site.
- A barricade or other physical barrier is erected around the perimeter of the site to prevent unauthorized entry or exit.
- Signs have been posted around the perimeter of the site to warn of the site dangers and prohibition of unauthorized entry.
- Site personnel patrol the perimeter of the site.

_____ is responsible for establishing and maintaining site security during non-working hours. The following measures have been taken for security during non-working hours:

(Edit the security measures for non-working hours below, as you'd like them to appear in your HASP)

- Trained in-house site personnel are used for site surveillance.
- An outside contractor is used for site surveillance.
- A local police department is used for site surveillance.
- All doors to buildings and/or trailers are locked and equipment is secured.

3.4 Site Work Zones

This site is divided into (edit as appropriate) three (3) major zones, described below and shown in Figure 3-1. These zones are characterized by presence or absence of biological and chemical hazards and the activities performed within them.

Zone boundaries are clearly marked at all times and the flow of personnel and equipment among the zones is controlled.

The site is monitored for changing conditions that may warrant adjustment of zone boundaries. Zone boundaries are adjusted as necessary to protect personnel and clean areas. Whenever boundaries are adjusted, zone markings are also changed and workers are immediately notified of the change.

The following criteria were considered in establishing the site work zones:

(Add, delete, or edit the criteria below as you'd like them to appear in your HASP)

- required clean-up activities
- sampling results for air and surface contaminants
- inside traffic patterns

- ventilation system & air circulation patterns
- air dispersion calculations
- potential for fire
- physical, biological, other characteristics of anthrax spores and decontamination substances

Exclusion Zone

The Exclusion Zone is the area where hazardous substances are known or suspected to be present and pose the greatest potential for exposure. Remediation operations (site clean-up) are performed in the Exclusion Zone. At this site, the Exclusion Zone boundaries are marked with the following: (Insert method)

[Help Text - Exclusion zone boundaries should be clearly marked (e.g., lines. placards, hazard tape and/or signs) and/or enclosed by physical barriers, such as chains, barricades or ropes]

Personnel and equipment will enter and exit the Exclusion Zone from the designated access points in the Contamination Reduction Zone (CRZ), shown in Figure 3-1.

[Help Text: Access control points regulate the flow of personnel and equipment into and out of the zone and help to verify that proper procedures for entering and exiting are followed. If feasible, set up separate entrance and exit points.]

Personnel in the Exclusion Zone will adhere to the following Standard Operating Procedures (SOPs):

Exclusion Zone (ExZ) SOPs

(Add, delete, or edit the Exclusion Zone SOPs below, as you'd like them to appear in your HASP)

- Check in and out of this zone at the designated access point.
- Use the buddy system at all times.
- Wear the PPE required for this zone (see PPE section of this HASP).
- Perform air and surface sampling as required for this zone (see Exposure Monitoring section of this HASP).
- Do not smoke, eat, or drink.
- Monitor self and buddy for signs of heat stress and other difficulties.
- Alert supervisor to signs of unanticipated hazards.
- Do not engage in horseplay.
- Monitor self and buddy for PPE improper fittings, rips, tears, and/or damage.
- Use monitoring equipment and tools that are safe for the working environment.

Contamination Reduction Zone (CRZ)

The CRZ is located between the Exclusion Zone and the Support Zone (clean zone). Its primary purpose is for decontamination of workers and equipment. The CRZ also serves as a buffer between the Exclusion Zone and Support Zone, to limit the potential for contamination to spread to the Support Zone and outlying areas. At this site, the CRZ boundaries are marked with (Insert method)

Based on monitoring results, the CRZ boundaries may be adjusted to ensure that the Support Zone remains uncontaminated.

[Help Text – The distance that the CRZ creates between the Exclusion Zone and the Support Zone, plus the decontamination of personnel and equipment that occur here, limit the physical transfer of hazardous substances into clean areas. When establishing the CRZ, consider factors such as air flow from the Exclusion Zone toward the Support Zone, work site configurations, traffic patterns, and other activities or processes that could result in the transfer of contaminants. The CRZ boundaries should be clearly marked (e.g., lines. placards, hazard tape and/or signs) and/or enclosed by physical barriers, such as chains, barricades or ropes.]

Workers and equipment exit the Exclusion Zone through the designated access point(s) into the CRZ. Workers and equipment are then decontaminated in the CRZ, according to the procedures specified in the Decontamination section of this HASP. Workers and equipment then exit the CRZ into the Support Zone through the designated access points, shown in Figure 3-1.

If necessary, emergency decontamination procedures are implemented. Emergency decontamination procedures are described in the site's emergency response program, Chapter 11 of this HASP.

Personnel in the CRZ will adhere to the following SOPs:

Contamination Reduction Zone (CRZ) SOPs

(Add, delete, or edit the CRZ SOPs below, as you'd like them to appear in your HASP)

- Check in and out of this zone at the designated access point.
- Wear the PPE required for this zone (see PPE section of this HASP).
- Perform air and surface sampling as required for this zone (see Exposure Monitoring section of this HASP).
- Do not smoke, eat, or drink.
- Monitor self and buddy for signs of heat stress and other difficulties.
- Alert supervisor to signs of unanticipated hazards.
- Do not engage in horseplay.
- Monitor self and buddy for PPE improper fittings, rips, tears, and/or damage.

Support Zone

The Support Zone is the clean area of the site, beyond the outer boundary of the CRZ. There should be no contamination in this zone. Administrative, clerical, and other support functions are based in the Support Zone.

The Support Zone is shown in Figure 3-1 and its boundaries are marked by (Insert method)

[Help Text - Support zone boundaries should be clearly marked (e.g., lines. placards, hazard tape and/or signs) and/or enclosed by physical barriers, such as chains, barricades or ropes).

Air and surface monitoring are conducted in the Support Zone as needed to ensure that it remains uncontaminated. If contamination is detected, zone boundaries are adjusted until corrective action is taken and monitoring results indicate that this zone is again uncontaminated.

Within the Support Zone, personnel adhere to the following SOPs:

Support Zone (SZ) SOPs

(Add, delete, or edit the Support Zone SOPs below, as you'd like them to appear in your HASP)

- Check in and out of this zone from the CRZ at the designated site access point.
- Alert supervisor to signs of unanticipated hazards.
- Do not engage in horseplay.
- Perform air and surface sampling as required for this zone (see Exposure Monitoring section of this HASP).

(If other site work zones exist on your site, complete Table 3-4 below and retain the following sentence. Otherwise, delete both.)

The table below, Table 3-4, identifies the other zones on this site, and provides a description and SOPs for each zone.

Table 3-4 Other Site Work Zones and SOPs		
Name of zone	Description of Zone/Demarcation	SOPs for Zone

(End of "other site work zones")

3.5 Buddy System

While working in the Exclusion Zone, site workers use the buddy system. The buddy system means that personnel work in pairs and stay in close visual contact to be able to observe one another and summon rapid assistance in case of an emergency. The responsibilities of workers using the buddy system include:

- remaining in close visual contact with partner,
- providing partner with assistance as needed or requested,
- observing partner for signs of heat stress or other difficulties,
- periodically checking the integrity of partner's PPE, and
- notifying the supervisor or other site personnel if emergency assistance is needed.

3.6 Site Communications

The following communication equipment is used to support on-site communications:

(Complete the communication equipment information below, i.e., telephones, cell phones, two-way radios, and other forms communication equipment that apply to this site)

Telephones at this site are located in the following areas:

A current list of emergency contact numbers is posted in the following locations:

Two-way radios are available in the following locations:

The following people will carry two-way radios:

Other forms of communication on this site include:

(End of communication equipment information)

Site personnel are trained to recognize and use hand signals when visual contact is possible but noise or PPE inhibit voice communication. These hand signals are listed below in Table 3-6.

Table 3-6 Site Communication – Hand Signals	
Signal	Meaning

Figure 3-1 Map of Site Boundaries, Work Zones, and Entry/Exit Points

SAMPLE HEALTH AND SAFETY PLAN (HASP)
Source: OSHA.

4.0 TRAINING PROGRAM

(in compliance with 29 CFR 1910.120 (b)(4)(ii)(B), 29 CFR 1910.120(e) and 29 CFR 1910.120 (q)(11))

The site training program is designed to ensure that workers receive the training they need to work safely. Site safety and health training requirements are based on the job hazard assessments contained in Chapter 2 of this HASP and relevant OSHA requirements.
At this site, _____ oversees the implementation of this training program and is responsible for ensuring that employees are adequately and currently trained for all tasks they are asked to perform. Employees who have not been trained to a level required by their job function and responsibility are not permitted to participate in or supervise field activities.
This training program is consistent with the requirements of 29 CFR 1910.120(e) and (q)(11) and addresses the following site-specific information:

- initial training for site workers & supervisors
- exceptions to initial training requirements
- site briefings for visitors and workers
- refresher training
- qualification of trainers
- training certification
- emergency response training

4.1 Initial Training for Site Workers and Supervisors

Initial training requirements are based on the designation of the site as either post-emergency response operations or as a government identified uncontrolled hazardous waste site, a worker's potential for exposure, and compliance with the applicable regulatory requirements of 29 CFR 1910.120 (q)(11) and/or (e)(3).

Choose either Option 1 or Option 2 for the text of Section 4.1 only. Although these options are not mutually exclusive, site workers for any given contractor will generally fall into only one category. Choose the option appropriate and delete the text associated with the other option. Option 1: post-emergency response clean-up conducted by workers involved in the emergency response. Option 2: post-emergency response clean-up conducted by workers that were not part of the initial emergency response.

[Help Text - Initial training may be conducted in compliance with either 29 CFR 1910.120 (q)(11) and/or (e)(3), depending on the designation of the site. If the clean-up is being conducted after the completion of an emergency response, training requirements for post-emergency response operations are identified in (q)(11). Under this paragraph, employers may choose to comply with paragraphs (b)-(o) or provide more limited training if the clean-up is done by the workers who were initially involved in the emergency response. Training requirements for workers involved in the initial emergency response include those identified in 29 CFR 1910.38, 1910.134, 1910.1200, and other health and safety training as necessary for the tasks the workers will conduct. If the site is designated an uncontrolled hazardous

waste site by a governmental agency, or if the employer must otherwise comply with paragraphs (b)-(o), initial training requirements are identified in paragraph (e)(3).]

(Option 1)

Emergency response personnel conducting the post-emergency clean-up at this site have successfully completed training in compliance with the requirements of 29 CFR 1910.120 (q)(6) for the emergency response roles they are assigned. These personnel have also successfully completed training addressing the emergency action and/or response plan for the site, respiratory protection consistent with 29 CFR 1910.134(k), and hazard communication consistent with 29 CFR 1910.1200(h). Finally, these personnel received training in the topics identified in Table 4-1, addressing the other health and safety hazards associated with the site and clean-up operations.

Table 4-1 Initial Training Requirements
(Identify the training topics covered in any additional training for workers at this site. Training should address the additional health and safety hazards associated with the site, such as exposure to decontamination agents. Training should include information about the signs and symptoms of exposure, decontamination procedures, and the exposure controls necessary for conducting site tasks safely. Please insert a row for each course, or alter this table as appropriate for your site.)

(Option 2)

Personnel at this site have successfully completed 40-hour initial HAZWOPER training consistent with the requirements of 29 CFR 1910.120(e)(3)(i), or have received equivalent training consistent with the provisions of 29 CFR 1910.120(e)(9), in order to work in contaminated areas. In addition, such personnel have received 3 days of supervised field experience applicable to this site.

The initial training provided to these workers addresses:

- names of personnel and alternates responsible for site safety and health
- safety, health and other hazards present on the site
- use of PPE
- work practices by which the employee can minimize risks from hazards
- safe use of engineering controls and equipment on the site
- the site control plan detailed in Chapter 3 of this HASP
- medical surveillance requirements detailed in Chapter 5 of this HASP
- the spill containment program detailed in Chapter 9 of this HASP
- decontamination procedures detailed in Chapter 10 of this HASP
- the emergency response plan detailed in Chapter 11 of this HASP
- confined space entry procedures detailed in Chapter 13 of this HASP (delete if confined spaces are not a hazard on this site)

Additional training provided for site workers is listed in Table 4-1a.

Table 4-1a Other Training for Site Workers
(This is a table. List the other training courses that your employees working on this site receive. Please insert a row for each course, or alter this table as appropriate for your site.)

Management and Supervisor Training

On-site managers and supervisors who are directly responsible for or who supervise workers engaged in hazardous waste operations receive, in addition to the appropriate level of worker HAZWOPER training described above, eight (8) additional hours of specialized supervisory training, in compliance with 29 CFR 1910.120(e)(4).

Training received by managers and supervisors is summarized in Table 4-1b:

Table 4-1b Training for Managers and Supervisors
(Identify the topics covered in the eight additional hours of training for Managers and Supervisors. These courses should cover the employer's health and safety program, PPE program, spill containment program, and health hazard monitoring procedure and techniques, as required under 1910.120 (e)(4). Please insert a row for each course, or alter this table as appropriate for your site.)

(End Option 2)

4.2 Exceptions to Initial Training

(Identify site workers that do not fit into Options 1 or 2 above. These will probably be workers who will not be working in one of the control zones, but will be on site, like office personnel. If there are no workers who fall into this category, use Option 3 text below, and delete the text of Option 4.)

(Option 3)

All employees at this site have training consistent with what is described in Section 4.1. There are no exceptions.

(Option 4)

Exceptions to the training requirements listed in Section 4.1 are summarized in Table 4-2. These exceptions include the following workers or categories of workers, based on the duration of their work at this site and their potential for hazardous exposures.

Table 4-2 Exceptions to Initial Training		
Worker or Category of Worker	Training Required	Reason for exception
(Identify each group of workers that do not require initial HAZWOPER training listed in Section 4.1. Insert a row for each group or alter this table as appropriate for your site.)	(Identify the initial training they will need, such as a site briefing.)	(Identify why this group does not need initial HAZWOPER training)

4.3 Site-Specific Briefings for Visitors and Workers

A site-specific briefing is provided to all individuals, including site visitors, who enter the site beyond the initial point of access, located (location) and clearly marked by (indicate how access point is marked).

For visitors, the site-specific briefing provides information about site hazards, the site lay-out including work zones and places of refuge, the emergency alarm system and emergency evacuation procedures, and other pertinent safety and health requirements as appropriate.

4.4 Refresher Training

All workers on this site, including managers and supervisors, receive annual HAZWOPER refresher training consistent with the requirements of 29 CFR 1910.120 *[select the appropriate paragraph (e)(8) or (q)(8)].* Table 4-4 details the refresher training:

Table 4-4 Refresher Training Topics
(Identify the topics covered in the refresher training for each group of workers. Managers and Supervisors should receive refresher training specific to their functions and duties. Refresher training should include critiques of incidents that occurred in the past year and other relevant topics as required in 1910.120 (e)(8); or for workers initially trained under 1910.120(q)(6), should be of sufficient content and duration to maintain competencies as required in 1910.120 (q)(8). Please insert a row for each course, or alter this table as appropriate for your site.)

4.5 Qualification of Trainers

Only instructors qualified in accordance with 29 CFR 1910.120 *[select the appropriate paragraph (e)(5) or (q)(7)]* are used to train workers for this site. Qualified instructors have either completed a training program for the subjects they are expected to teach, or have the academic credentials and instructional experience necessary for teaching these subjects.

4.6 Training Certification

This site maintains written certification of the successful completion of applicable training requirements for all personnel. Training records are maintained up-to-date and are retained onsite at the following location: (identify location).

Employees and supervisors receive a written certificate when they complete necessary training and field experience. Any person who has not been so certified or who does not meet the requirements of equivalent training is prohibited from engaging in the clean-up operations on this site.

4.7 Emergency Response Training

Emergency response training is addressed in Chapter 11 of this HASP, Emergency Response Plan.

4.8 References

(This section is optional. You may include these references in your program if you wish.)
OSHA Fact Sheet and References on Worker Health and Safety for Anthrax Exposure, http://www.osha.gov/bioterrorism/anthraxfactsheet.html

CDC Anthrax Information, http://www.bt.cdc.gov/Agent/Anthrax/AnthraxGen.asp
Occupational Exposure To Anthrax: OSHA Frequently Asked Questions, http://www.osha.gov/bioterrorism/anthrax/faqs.html

EPA Anthrax Webpage, Fact Sheets section, http://www.epa.gov/epahome/hi-anthrax.htm#ANTHRAXFACTSHEETS

SAMPLE HEALTH AND SAFETY PLAN (HASP)
Source: OSHA.

5.0 MEDICAL SURVEILLANCE

(in compliance with 29 CFR 1910.120(b)(4)(ii)(D), 29 CFR 1910.120(f), and other substance-specific medical surveillance requirements found in 29 CFR 1910.1001-1052)

The medical surveillance section of the HASP describes how worker health status is monitored at this site. Medical surveillance is used when there is the potential for worker exposure to harmful levels of hazardous substances. The purpose of a medical surveillance program is to medically monitor worker health to ensure that personnel are not adversely affected by site hazards. The provisions for medical surveillance at this site are based on the site characterization and job hazard analysis found in Chapter 2 of this HASP. They are consistent with OSHA requirements in 29 CFR 1910.120(f) *[include the following phrase only if employees may be exposed to a substance regulated by a substance–specific standard, like asbestos. Otherwise, delete the phrase.]* and the following substance-specific requirements: *[insert the substance name and regulatory citation, if appropriate. The medical surveillance requirements for substances listed in the substance-specific standards (29 CFR 1910 1001-1052 or 1926.62 and 1926.1101-1152) should be followed if they are present on site or used during the clean-up.]*
The medical surveillance program addresses the following information:

- provisions of the site medical surveillance program
- provisions of the medical protocol that addresses exposure to anthrax spores
- communication between the site, physicians, and workers
- medical recordkeeping procedures

The person with responsibility for ensuring this program is implemented and maintained is (insert name and/or title) .

(Choose either Option 1 or Option 2 for the text in Section 5.1 only, and delete the text for the other option. The criteria for choosing Option 1 are that:

- none of your employees are exposed to any hazardous substance above the PEL (or other published exposure limit) for more than 30 days a year, AND
- none of your employees use respirators for more than 30 days a year, AND
- none of your employees are part of an on-site HAZMAT team.

If anthrax spores are the ONLY hazardous substance to which the first bullet point above applies, and you meet the criteria in the other two bullet points, choose Option 1. If you choose Option 1, you still need to complete Sections 5.2-5.5.

The criteria for choosing Option 2 are that:

- some or all of your employees may be exposed to hazardous substances above the OSHA PEL or other published exposure limit for more than 30 days a year,
- some or all of your employees may use respiratory protection for more than 30 days a year, or
- some or all of your employees are part of a HAZMAT team.)

(Option 1)

5.1 Site Medical Surveillance Program

Medical surveillance requirements are based on a worker's potential for exposure as determined by the site characterization and job hazard analysis documented in Chapter 2 of this HASP and as required by 29 CFR 1910.120(f)(2) *[delete the following phrase if no substance-specific standards apply]* and the substance-specific standard(s) identified in Section 5.0 above.

Based on limited worker exposure to hazardous substances at or above the PELs or other published exposure limits (less than 30 days per year); limited use of respirators (less than 30 days per year); and the absence of an employee-staffed HAZMAT team, the medical surveillance program required at this site is also limited. The site medical surveillance program provides that:

1. workers assigned to tasks requiring the use of respirators receive medical examinations in accordance with 29 CFR 1910.134(e) to ensure they are physically capable to perform the work and use the equipment,

2. workers who could potentially be exposed to anthrax spores are covered by a medical protocol addressing this exposure, and

3. if a worker is injured, becomes ill, or develops signs or symptoms of possible over-exposure to hazardous substances or health hazards, medical examinations are provided to that worker as soon as possible after the occurrence and as required by the attending physician.

Medical examinations and procedures are performed by or under the supervision of a licensed physician and are provided to employees free of cost, without loss of pay, and at a reasonable time and place. The need to implement a more comprehensive medical surveillance program will be re-evaluated in the event of an over-exposure incident.

(Option 2)

5.1 Site Medical Surveillance Program

A medical surveillance program is implemented at this site based on the potential for employee exposure to levels of hazardous substances or health hazards in excess of the PEL or other published exposure limits, the use of respiratory protection, and/or the assignment of workers to a HAZMAT team. Medical surveillance requirements are based on a worker's potential for exposure as determined by the site characterization and job hazard analysis documented in Chapter 2 of this HASP and as required by 29 CFR 1910.120(f)(2) *[delete the following phrase if no substance-specific standards apply]* and the substance-specific standard(s) identified in Section 5.0 above. Based on that evaluation:

(Choose either option 2a or 2b as appropriate and delete the text of the other option.)

(Option 2a)

1. All personnel who enter contaminated areas of this site are covered by the medical surveillance program. In addition, all workers assigned to tasks requiring the use of respirators receive medical evaluations in accordance with 29 CFR 1910.134(e) to ensure they are physically capable to perform the work and use the equipment.

(Option2b)

1. Some personnel who enter contaminated areas of this site do not need to be included in the medical surveillance program. Table 5-1a below lists the types of workers who are not covered by the medical surveillance program.

Table 5-1a Types of Workers Excluded from the Medical Surveillance Program
(Identify workers by job, operation or task who are not covered by the medical surveillance program. Please insert a row for each of type of worker, or alter this table as appropriate for your site.

(End of Option 2b)

Personnel within the medical surveillance program receive medical examinations on the following schedule:

1. Prior to assignment: personnel covered by the medical surveillance program are medically examined prior to commencing work in contaminated areas of the site. The purpose of this examination is to assess baseline health status and the worker's ability to perform anticipated duties wearing required PPE without any adverse health effects. The pre-assignment medical examination must have been performed within the past 12 months. The content of the exam must include, at a minimum, the items listed in Table 5-1b below, based on the hazards present at this site and anticipated work duties. A copy of the results of that examination, in the form of a physician's written opinion as described in paragraph 5.2, must be presented on site prior to entry into contaminated areas.

2. On an annual basis: personnel within the medical surveillance program receive medical exams at least every 12 months to provide for ongoing assessment of a worker's health status [Note: the HAZWOPER standard allows for some flexibility in the frequency of surveillance exams, based on the advice of the consulting physician. Edit this statement if appropriate.]

3. At termination or reassignment: personnel are offered the opportunity for a medical examination upon their termination of employment or reassignment to work where the worker is not exposed to hazardous materials or required to wear a respirator

4. Post-injury/illness: any worker who is injured, becomes ill, or develops signs or symptoms of possible over-exposure to hazardous substances or health hazards, receives a medical

examination as soon as possible after the occurrence, with follow-up examinations provided as required by the attending physician.

All medical examinations and procedures are performed by or under the supervision of a licensed physician and are provided to workers free of cost, without loss of pay, and at a reasonable time and place.

Table 5-1b identifies the exam protocol for the baseline, periodic and termination exams conducted for all personnel within the medical surveillance program. These protocols were determined by the site's attending physician.

[Help Text – For the attending physician to determine what medical tests and evaluations workers need, the employer must provide him/her with the following information: a) a copy of the HAZWOPER standard and its appendices, b) a description of each employee's duties as they relate to potential exposures, c) the measured or anticipated exposure levels for each employee, d) a description of any PPE the employee may use, e) information from prior employee medical examinations that would not be readily available to the examining physician, and f) information that OSHA requires you to provide the physician in connection with the respiratory protection standard, 1910.134]

Table 5-1b Medical Surveillance for Site Workers		
Baseline Exam	Periodic Exam	Termination Exam
(Identify each test or procedure included in this exam. Insert a new row for each entry)	(same)	(same)

(End Option 2)

5.2 Medical Protocol for Anthrax Spore Exposure

Based on the potential for site personnel to be exposed to anthrax spores, the following medical protocol is implemented at this site. [Insert description, or edit this sentence, refer to the medical protocol as an attachment to this chapter, and attach the protocol. Be sure to indicate clearly which employees are covered by this protocol and the basis for that coverage].

[Help text: the decision to provide antimicrobial prophylaxis or vaccinations must be made carefully, in consultation with a qualified licensed physician. For additional information about the considerations involved in establishing such a medical protocol, consult CDC references available at: http://www.bt.cdc.gov/Agent/Anthrax/Anthrax.asp]

5.3 Communication Between the Site, Physicians, and Workers

The medical facility providing medical monitoring and overseeing injury, illness or overexposure examinations is:

Name	(Insert the name of the medical facility)

Location	
Phone	

The licensed attending physician for this site is:

Name	(Insert the name of the licensed physician performing or supervising the medical surveillance program)
Phone	

The employer, has provided information about the site hazards and potential exposure levels, work activities and PPE requirements, and other information as required by OSHA in 29 CFR 1910.120(f)(6) to the above-mentioned facility and physician.

(insert company name) also makes this information available to site personnel and/or their personal physicians.

A physician's written opinion of the results of these examinations is required for each worker and a copy is maintained on site. The contents of the written opinion is limited to:

- a statement of the worker's health status in relation to his/her job duties and a description of any detected medical condition that could put the worker at increased risk,
- notation of any recommended limitations in work activity or PPE use, and
- confirmation that the physician has informed the employee of the examination results and any further examination or treatment required

5.4 Medical Recordkeeping Procedures

Corporate medical recordkeeping procedures are consistent with the requirements of 29 CFR 1910.1020, and are described in the company's overall safety and health program. A copy of that program is available at (insert location).

The following items are maintained in worker medical records:

- (List the information maintained in your employees' medical record, as defined in 1910.1020(c)(6)(i).)
- Records required under this medical surveillance program, consistent with 1910.120(f)(8), are kept accurate and updated and are accessible at (insert location)

5.5 Program Review

Every (insert interval in months) the medical program is reviewed to ensure its effectiveness. (Identify name and/or title) is responsible for this review. At a minimum, this review consists of:

- review of accident and injury records and medical records to determine whether the causes of accidents and illness are promptly investigated and whether corrective measures are taken wherever possible,
- evaluation of the appropriateness of required medical tests on the basis of site exposures, and
- review of emergency treatment procedures and emergency contacts list to ensure they are site-specific, effective, and current.

Physician's Written Opinion/Certification of Fitness for Duties

Examinee's Name Last First Date
MI

TYPE OF EXAMINATION: [ ] Pre-Placement/Baseline Exam [ ] Medical Surveillance Program Please Specify [ ] Return to Work [ ] Evaluation [ ] Separation [ ] Miscellaneous Note:	Soc. Sec. #	Work Tele. #
	Position	
	Division	
	Address	
	Supervisor	

ATTENTION: **DO NOT** WRITE DIAGNOSIS ON THIS FORM
The following medical recommendation is based on a review of the health history questionnaire, physical examination and/or the specific requirements of the position applied for or occupied by the Examinee.

STATUS

1--[ ] The examination indicates no significant medical impairment, can be assigned any work consistent with skill and training.

2--[ ] The examination indicates non-occupational medical impairments, referred to or under the care of personal physician for medical follow up. Can be assigned any work consistent with skills and training.

3--[ ] The examination indicates that a medical impairment currently exists that limits work assignment on the following basis: (Check more than one when appropriate)

[ ] No prolonged standing [ ] No work with skin irritants and/or sensitizers

[ ] No prolonged walking
[ ] No repeated squatting or bending
[ ] Not to lift over_____ pounds
[ ] Not to work around moving machinery
[ ] Not to operate a motor vehicle
[ ] Not to work on ladders or at unprotected heights
[ ] No work in contained areas (inside tanks or vessels)
[ ] No work with respiratory irritants and/or sensitizers
[ ] Not to work with a particular chemical or group of chemicals, i.e.,:_____
[ ] Must wear corrective lenses
[ ] No work requiring accurate color perception
[ ] No work requiring manual dexterity
[ ] Other _____
[ ] No work in areas with dust fumes or chemical irritants _____
[ ] No work requiring use of Respirators

4--[ ] The examination indicates that the examinee may use any of the respirators indicated: (Check more than one when appropriate)

[ ] Half Face Negative Air Pressure Respirator
[ ] Full Face Negative Air Pressure Respirator
[ ] Half Face Positive Air Pressure Respirator
[ ] Full Face Positive Air Pressure Respirator
[ ] In-line Air Respirator
[ ] Self Contained Breathing Apparatus (SCBA)

5--[ ] Other recommendations:_____
____

6-- [ ] Follow-up Appointment _____

Date_____ Employee Signature_____

Date_____ Examiner Signature_____

SAMPLE HEALTH AND SAFETY PLAN (HASP)
Source: OSHA.

6.0 PERSONAL PROTECTIVE EQUIPMENT

(in compliance with 29 CFR 1910.120(b)(4)(ii)(C) and 29 CFR 1910.120(g))

This is the site Personal Protective Equipment (PPE) program. This chapter of the HASP describes how PPE is selected and used to protect workers from exposure to hazardous substances and hazardous conditions on this site. Exposure hazards from anthrax spores, as well as those from the decontamination process, are considered. The following topics are addressed in this chapter:

- PPE selection criteria
- site specific PPE ensembles
- work mission duration
- training in use of PPE
- respiratory protection
- hearing conservation
- PPE maintenance & storage
- evaluation of this program
- references

The person with the overall responsibility for implementing the PPE program on site is (insert name)

6.1 PPE Selection Criteria

Site safety and health hazards are eliminated or reduced to the greatest extent possible through engineering controls and work practices. Where hazards are still present, a combination of engineering controls, work practices, and PPE are used to protect employees.
An initial level of PPE is assigned to each task to provide an adequate barrier to exposure hazards. Initial PPE ensembles are selected based on the anticipated route(s) of entry of biological and chemical hazards and their concentration. Ensemble materials are selected using permeation data supplied by individual manufacturers. Materials providing the greatest duration of protection have been chosen. Tear and seam strength of the PPE are also considered to ensure ensemble durability while work is performed. When necessary, multiple layers of protection are used to accommodate the range of hazards that may be encountered. Where possible, employees are provided with a range of component sizes to ensure properly fitted PPE.

The following criteria are used in selecting PPE levels at this site.

[Delete criteria for PPE levels that do not apply to your site]

Use of Level A Protection

Employees use Level A protection during tasks that have or potentially have the following characteristics: (Insert criteria used to select Level A protection for site tasks.)

[Help Text- Level A Protection should be used if any of the following conditions exist:

- *Measured or potentially high concentration(s) of atmospheric vapors, gases, or particulate.*
- *High potential for splash, immersion, or exposure to unexpected vapors, gases, or particulate of materials that are harmful to skin or capable of being absorbed through the skin.*
- *Operations in confined, or poorly ventilated areas where the absence of conditions requiring Level A have not yet been determined.*

For cleanup of anthrax contaminated facilities, you may want to consult the Red Zone guidance in OSHA's Anthrax Risk Reduction Matrix, available online at http://www.osha.gov/bioterrorism/anthrax/matrix/index.html]

Use of Level B Protection

Employees use Level B protection during tasks that have or potentially have the following characteristics: (Insert criteria used to select Level B Protection for site tasks.)

[Help Text-Level B protection should be used if any of the following conditions exist:

- *Exposures are known and the highest degree of respiratory protection is needed.*
- *The atmosphere is oxygen deficient (<19.5%).*
- *There are no warning properties for the identified gases, vapors, or particulates.*
- *The atmosphere contains incompletely identified vapors or gases (indicated by a direct-reading instrument) not suspected of containing high levels of hazardous substances harmful to skin or capable of being absorbed through the skin.*
- *Atmospheres with IDLH concentrations of specific substances that present severe inhalation hazards but do not represent a skin absorption hazard].*

For cleanup of anthrax contaminated facilities, you may want to consult the Red Zone guidance in OSHA's Anthrax Risk Reduction Matrix, available online at http://www.osha.gov/bioterrorism/anthrax/matrix/index.html]

Use of Level C Protection

Employees use Level C protection during tasks that have or potentially have the following characteristics: (Insert criteria used to select Level C Protection for site tasks.)

[Help Text-Level C protection should be used to protect against measured concentrations of known atmospheric contaminants for which an air-purifying respirator can be used and when liquid splashes or other direct contact with hazardous substances will not adversely affect employee health or be absorbed through any exposed skin. Air purifying respirators (APR) can be used only when the contaminant(s) are known, cartridges/canisters exist, and concentrations are within the substance-specific standard guidelines or within the maximum use concentration (MUC) for the APR used. The MUC is calculated by multiplying the assigned protection factor (APF) by the exposure limit for the contaminant(s). The NIOSH APF for half face APRs is 10. The NIOSH APF for full face APRs is 50. For cleanup of anthrax

contaminated facilities, you may want to consult the Red Zone guidance in OSHA's Anthrax Risk Reduction Matrix, available online at [http://www.osha.gov/bioterrorism/anthrax/matrix/index.htm]

In accordance with 29 CFR 1910.134(d)(3)(iii)(B)(2), a cartridge/canister change schedule has been determined. Cartridges and canisters used with air-purifying respirators on this site are replaced when any of the following occurs: *[insert other criteria that apply for this site]*

- a NIOSH-approved end of service life indicator (ESLI) is activated,
- the service time identified in Table 6-2a has passed, (service time is total period of time canisters/cartridges are exposed to the environment)
- inhalation is restricted, or
- If warning properties (chemical odors, tastes or physical irritation) are noted, employees will immediately leave the work area and notify their site supervisor or the site safety and health officer.

Use of Level D Protection

[insert criteria used to select Level D Protection for site tasks]

Employees will use Level D protection during tasks that have the following characteristics:

[Help Text-Level D protection may be used during tasks where the atmosphere contains no known hazard and work functions preclude splashes, immersion, or the potential for unexpected inhalation of or contact with hazardous levels of any biological or chemical substances].

6.2 Use of PPE

Site-specific PPE ensembles and materials are identified below in Table 6-2a. These ensembles are consistent with Appendix B of 29 CFR 1910.120. All PPE is used in accordance with manufacturers' recommendations, and in conjunction with Chapter 12, **Standard Operating Procedures.**

Table 6-2a Site-Specific PPE Ensembles Select ensemble component by placing an "x" in each of the applicable columns. See PPE picklists at end of this chapter for additional components.					
Equipment	Model/Material	Level A	Level B	Level C	Level D
Self Contained Breathing Apparatus (SCBA)					
Air-line system with escape air supply *(5-minute minimum for escape supply)*					
Escape only air supply					
Powered air purifying respirator (PAPR) *[help text #1]*	Model:				
	Cartridge:				
	Service Time:				
Air purifying respirator (APR) *[help text #1]*	Model:				
	Cartridge:				
	Service Time:				
Fully Encapsulating Chemical Protective Suit					
Hooded Chemical Resistant Clothing/Suit *[help text #2]*					
Booties, outer, chemical-resistant					
Coveralls					
Inner chemical resistant gloves					
Outer chemical resistant gloves					
Steel toe/shank boots					
Hard Hat					
Safety Glasses					
Other (Specify) as determined by ____					

[Help Text #1: Each specific model and cartridge of air purifying respirator (PAPR or APR) must be entered separately. Service times (saturation point for cartridge/canister) must be determined for each cartridge/canister and for each hazardous substance/concentration to which they are exposed. Cartridge/canister change schedules may be determined using manufacturer data or predictive mathematical models. Reviewing the OSHA website at the following address may provide guidance: http://www.osha-slc.gov/SLTC/respiratoryprotection/index.html

Help Text #2: Two-piece chemical-splash suits, and disposable chemical-resistant overalls are both types of chemical resistant suits. Breakthrough times (the time it takes for a contaminant to permeate the suit) for each vary with different materials and substances. Various protective suits are designed to protect against different families of hazardous substances. See Section 6.8 References or contact the manufacturer, or their representative to determine which protective material is the proper choice for the contaminants at the site.]

Criteria for PPE Upgrades and Downgrades

Since PPE is primarily used as a barrier to biological and chemical exposure, airborne concentrations of anthrax spores and decontamination chemicals are monitored routinely, in accordance with Chapter 7, Exposure Monitoring. The level of PPE is assessed based on the criteria in Table 6-2b below.

_____ has the authority to upgrade or downgrade PPE in a timely manner to respond to changing site conditions and to protect worker health and safety. Routine evaluation of the PPE program is conducted as identified in Section 6.7 below.

Table 6-2b Action Levels/Criteria for PPE Upgrades and Downgrades

Level of PPE	Action Level/Criteria for PPE Upgrade	Required Modification for Action Level/Criteria	Action Level/Criteria for PPE Downgrade	Required Modification for Action Level/Criteria

[Help Text-Action Levels should be consistent with the values entered in Chapter 7, Exposure Monitoring.]

Work Mission Duration

_____ identifies task-specific work duration based on the following:

1. physiological requirements of the task
2. PPE level for the task
3. ambient temperature and humidity
4. respiratory protection capacity (air supply or cartridge change requirements)
5. chemical protective clothing capacity (permeation rate of on-site materials), and
6. acclimatization of the work force to site and task conditions.

_____ communicates the task-specific work duration during daily pre-entry briefings. Work duration is consistent with the requirements outlined in Chapter 8, **Heat Stress** and the respiratory protection capacity for the assigned PPE. Work duration is re-evaluated throughout the day in response to changes in working conditions.

6.3 Training

Employees receive general training regarding proper selection, use and inspection of PPE during initial HAZWOPER training (or equivalent) and subsequent refresher training. Site-specific PPE requirements, including task specific PPE, ensemble components, cartridge/canister service times, and inspection procedures are communicated as identified in Chapter 4, Training. Chapter 12, Standard Operating Procedures, may include additional information regarding PPE training requirements.

6.4 Respiratory Protection

(insert name/number) Respiratory protection is selected, fitted, used, stored and maintained in accordance with the Respiratory Protection Program located in Attachment *[attach copy to HASP]***.** Appropriate service for cartridges and canisters used with APRs are identified in Table 6-2a. The written Respiratory Protection Program has been reviewed for consistency with the other requirements of this HASP.

6.5 Hearing Conservation

Consistent with 1910.95, hearing protection is made available when noise exposures equal or exceed an 8-hour time-weighted average sound level of 85 dBA. Hearing protection is required when the 8-hour time weighted average sound level $\geq$ 90 dBA. Where noise exposure meets or exceeds this level, noise is listed as a physical hazard in the job hazard analysis for the tasks/operation, and hearing protection is included as one of the control measures (PPE).

Hearing protection is also required for any employees who have not yet had a baseline audiogram or who have experienced a standard threshold shift and are exposed to an 8-hour time weighted average sound level $\geq$ 85 dBA.

(insert name/number) Employees exposed to an 8-hr TWA sound level ≥ 90 dBA participate in a Hearing Conservation Program. A copy of the written Hearing Conservation Program is located in Attachment *[attach copy to HASP].*

6.6 PPE Maintenance & Storage

In order to ensure that PPE continues to provide the anticipated protection, this site uses specific procedures for PPE inspection, cleaning, maintenance, and storage. Adherence to these procedures is tracked with written inspection records.

_____ is responsible for overseeing PPE maintenance & storage procedures and for maintaining the inspection record. Table 6-6 details the PPE maintenance requirements for this site.

Table 6-6 PPE Cleaning, Inspection, & Maintenance					
Type of PPE	Model	Inspection Frequency/ Procedures	Done by	Cleaning Frequency/ Procedures	Done by

[Help text: Proper maintenance and care of respirators including standards for cleaning, disinfecting, storage, inspection and repairs is covered in 29 CFR 1910.134(h) and Appendix B-2 of that standard.]

Defective or damaged equipment is not used and is reported to _____ so that the equipment can be repaired or discarded. Spent and disposable PPE is discarded in the manner specified in Chapter 10, **Decontamination**. After decontamination, reusable PPE is properly stored, according to the manufacturers' recommendations and the site decontamination plan mentioned above and in HASP Chapter 12, Standard Operating Procedures.

6.7 Evaluation of PPE Program

Assessment of PPE performance occurs throughout site activities in response to air monitoring data collected (Chapter 7, Exposure Monitoring) and the action levels identified in Table 6-2b. Surface samples are collected from the inside surfaces of used PPE to ensure that the equipment provides an adequate barrier throughout the work shift. Surface monitoring procedures are described in Chapter 7.

Modifications to initially selected PPE are determined by

_____ and affected employees are informed immediately. Chapter 2 of the HASP, Job Hazard Analysis, is with updated information about job hazards and selected controls.

6.8 References

(This section is optional. If you use these or other references to develop your program, you may wish to include them here.)

OSHA Fact Sheet and References on Worker Health and Safety for Anthrax Exposure, http://www.osha.gov/bioterrorism/anthraxfactsheet.html

Occupational Exposure To Anthrax: OSHA Frequently Asked Questions, http://www.osha.gov/bioterrorism/anthrax/faqs.html

OSHA Emergency Response Technical Links, http://www.osha.gov/SLTC/emergencyresponse/index.html , particularly NIOSH report offering Guidance and Recommendations for Emergency Responders in Terrorist Events (http://www.cdc.gov/niosh/npptl/ , and NIOSH information on respiratory protection certification for chemical/biological agents (http://www.cdc.gov/niosh/interspup.html)

NIOSH Fact Sheet: Protecting Investigators Performing Environmental Sampling for *Bacillus anthracis*: Personal Protective Equipment, http://www.cdc.gov/niosh/unp-anthrax-ppe.html

Interim Recommendations for the Selection and Use of Protective Clothing and Respirators Against Biological Agents, http://www.bt.cdc.gov/DocumentsApp/Anthrax/Protective/10242001Protect.asp

29 CFR 1910.120(g) or 29 CFR 1926.65(g)

29 CFR 1910.120 Appendix B or 29 CFR 1926.65(g)

NFPA 1991 - Standard on Vapor-Protective Suits for Hazardous Chemical Emergencies

NFPA 1992 - Standard on Liquid Splash-Protective Suits for Hazardous Chemical Emergencies

NFPA 1993 - Standard on Liquid Splash-Protective Suits for Non-emergency, Non-flammable Hazardous Chemical Situations

Other (Specify)

PPE Picklists

Level A

Booties-outer, chemical-resistant, disposable *[Indicate Type]*
Cascade System
Cooling vest
Coveralls
Disposable protective suit (depending on suit construction, may be worn over totally-encapsulating suit) *[Indicate Type]*
Gloves (outer, chemical-resistant) *[Indicate Type]*
Gloves (inner, chemical-resistant) *[Indicate Type]*
Hardhat
Hardhat liner
Hearing protection
Manifold System
Positive pressure supplied air respirator, with escape SCBA (NIOSH certified)
SCBA-positive pressure, full face-piece (NIOSH certified)
Safety boots-steel toe and shank, chemical-resistant *[Indicate Type]*
Spare air cylinders
Totally-encapsulating chemical protective suit *[Indicate Type]*

Level B

Booties-outer, chemical-resistant, disposable *[Indicate Type]*
Butyl apron
Cascade System
Cooling vest
Cotton clothing
Face shield
Hardhat
Hardhat liner
Hearing protection
Hooded chemical-resistant clothing (overalls and long-sleeved jacket; coveralls; one or two-piece chemical-splash suit; disposable chemical-resistant overalls) *[Indicate Type]*
Gloves (outer, chemical-resistant) *[Indicate Type]*
Gloves (inner, chemical-resistant) *[Indicate Type]*
Manifold System
Positive pressure supplied air respirator, with escape SCBA (NIOSH certified)
Protective coverall *[Indicate Type]*
SCBA-positive pressure, full face-piece (NIOSH certified)
Safety boots-steel toe and shank, chemical-resistant *[Indicate Type]*
Spare air cylinders

Level C

5-minute escape mask
Booties-outer, chemical-resistant, disposable *[Indicate Type]*
Butyl apron
Cartridges [Indicate Type]
Canisters [Indicate Type]
Cooling vest
Cotton clothing
Coveralls

Face shield
Full-face or half-mask air purifying respirator (NIOSH certified) *[Select One]*
Hardhat
Hardhat liner
Hearing protection
Hooded chemical-resistant clothing (overalls; two-piece chemical-splash suit; disposable chemical-resistant overalls) *[Indicate Type]*
Insulated Coveralls
Insulated Boots
Outer gloves [Indicate Type]
Outer work gloves *[Indicate Type]*
Power air purifying respirator *[Indicate Type]*
Protective coverall *[Indicate Type]*
Safety boots-steel toe and shank, chemical-resistant *[Indicate Type]*
Safety glasses or chemical splash goggles

Level D

5-minute escape mask
Booties-outer, chemical-resistant, disposable *[Indicate Type]*
Cotton clothing
Coveralls
Face shield
Hardhat
Hardhat liner
Hearing protection
Insulated Coveralls
Insulated Boots
Protective coverall *[Indicate Type]*
Safety boots-steel toe and shank, chemical-resistant *[Indicate Type]*
Safety glasses or chemical splash goggles
Work gloves [Indicate Ty

SAMPLE HEALTH AND SAFETY PLAN (HASP)

Source: OSHA.

7.0 EXPOSURE MONITORING PROGRAM

(in compliance with 29 CFR 1910.120(b)(4)(ii)(E) and 29 CFR 1910.120(h))

This chapter of the HASP describes how levels of hazardous substances and physical hazards, and worker exposures to them, are monitored at this site. This exposure monitoring program provides project-specific information about:

- monitoring procedures to detect the presence of hazardous substances
- monitoring procedures to determine worker exposures to hazardous substances and physical hazards
- action levels and required responses for known and expected hazardous substances and physical hazards
- calibration and maintenance procedures for monitoring equipment

_____ is responsible for implementing this exposure monitoring program.

The following personnel are qualified to use and interpret direct-reading air monitoring instruments (insert names, and/or break down this information by the different types of direct-reading instruments used):

(Names)	**(Types of direct-reading instruments used)**

The following personnel are qualified to conduct air sampling:

(insert names)

The following personnel are qualified to conduct surface sampling:

(insert names)

7.1 Air Monitoring

Initial Monitoring

When the job hazard analyses (JHAs) in Chapter 2 of this HASP are prepared, the results of monitoring conducted during initial entry are entered. These data do not indicate airborne concentrations or employee exposures during facility decontamination activities. Periodic monitoring is conducted to quantify employee exposure during activities and the JHAs are updated accordingly.

Periodic Monitoring

Periodic monitoring is conducted to evaluate potential worker exposure to airborne hazardous substances and surface contamination. Resulting data are then used to determine baseline and on-going airborne and surface concentrations of contaminants, particularly when employee exposures may change significantly or rapidly. Situations in which conditions and employee exposures may change significantly or rapidly include:

- commencement of work on another portion of the facility
- exposure to or handling of contaminants/hazards not previously identified
- commencement of a new task/operation
- change in indoor environmental conditions
- commencement of task/operation that is likely to increase airborne concentrations of hazardous substances

Periodic air monitoring is conducted using direct reading instruments, and by collecting and analyzing personal samples. Periodic monitoring associated with confined space entry and spill response are identified in Chapter 13.0, Permit Required Confined Spaces, and Chapter 11.0 Emergency Response.

Direct reading instruments generally provide less precise data regarding the presence and concentrations of materials with a specific chemical characteristic. Consequently, we establish action limits (Table 7-1b) that can be used by qualified employees to make quick decisions regarding the adequacy of the PPE worn and other implemented controls.

Table 7-1a summarizes the direct-reading monitoring equipment and monitoring frequency for each task and facility location. Table 7-1a also identifies the applicable action limit to allow appropriate actions when airborne concentrations exceed these values. Qualified employees, identified in section 7.0, conduct direct-reading monitoring and interpret data according to the information listed in Table 7-1a.

Table 7-1a Monitoring-Direct Reading Instrumentation						
Task/Operation	Substance(s)/ Hazard(s)	Monitoring Location	Direct Reading Instrument and Response Factor (see Pick Lists at end of this chapter)	Frequency of Monitoring	Action Level	Required Action (see Chapter 6)

[Help Text-Generic Action Limits are published in the Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities. Action Limits may also be determined based on the specific substances present and the monitoring equipment used for detection. Although individual chemical specific action limits may be calculated, when using non-specific direct reading equipment, one overall action limit should be defined for that piece of equipment and applied to each of the hazardous substances monitored with that piece of equipment.]

Action limits identified are based on (please insert text describing how action limits are calculated and how the value used as the overall indicator of exposure was selected for each direct-reading instrument used).

Air sample collection and analysis are used to determine the identity and quantity of materials to which workers are exposed throughout the work shift. Consistent with HAZWOPER, personal air samples are collected in the breathing zones of employees expected to have the highest exposure during the task or in the facility location being evaluated. If exposures for these employees exceed the exposure limits identified in Table 7-1b, additional samples are collected in the breathing zones of all employees associated with the task or the facility location evaluated. Full-shift and short-term samples are collected, providing quantitative results that can be compared to OSHA Permissible Exposure Limits and other published exposure limits. Frequency and duration of sample collection are also consistent with the requirements in OSHA's substance-specific standards, including (see *Pick List* at the end of this chapter. If hazardous substances regulated within OSHA's substance-specific standards are not present, delete this sentence).

Table 7-1b summarizes the type and frequency of air sample collection and analysis during this project. Table 7-1b also identifies exposure limits for data interpretation and the appropriate actions when airborne concentrations exceed these values.

Table 7-1b Monitoring: Air Sample Collection and Analysis							
Task/ Operation	Substance(s)/ Hazard(s)	Monitoring Location	**Type of Monitoring** (separate lines for each type, see Pick List at end of chapter)	Monitoring Method	Monitoring Frequency	Exposure Limits	**Required Action** (must be consistent with Chapter 6, PPE)

Laboratory-analyzed sample results are used to evaluate the accuracy of direct-reading monitoring data as well as to quantify worker exposures and to determine the effectiveness of the exposure controls used at this facility. Laboratory results are compared with the direct-reading data to ensure that direct-reading instruments can be used to predict instances when exposures exceed defined exposure limits and the margin by which these values were exceeded. If a direct-reading instrument is not compatible with the contaminants identified in the air sample results, or the direct-reading data appear to be inadequate, _____ is responsible for determining an alternative monitoring strategy. If the monitoring strategy must be modified, the HASP will be revised accordingly and affected employees will be briefed about this change on the following day.

Equipment Calibration and Maintenance

Table 7-1c lists the specific monitoring instruments and the calibration procedures used on this facility. Instruments are calibrated and maintained according to the manufacturers' recommendations. Copies of the manufacturers' recommendations and instrument calibration and maintenance records are located (insert location).

Table 7-1c Equipment Calibration & Maintenance				
Instrument / Serial Number	Hazard(s) Measured	Field Calibration Method (see Pick Lists at end of chapter)	Field Calibration Frequency	Manufacturer Re-calibration Date

Sample Management

Procedures for collecting, handling, and shipping laboratory samples are included Chapter 12.0, Standard Operating Practices and in the sampling methods identified in Table 7-1b. Samples are shipped to and analyzed by the laboratories listed in Table 7-1d below:

Table 7-1d Laboratory Information	
Analyte(s)	Laboratory Information (insert laboratory name, address, telephone number and contact name)
	Laboratory Name: Addresses: Telephone: Laboratory Contact:
	Laboratory Name:

	Addresses: Telephone: Laboratory Contact:

Laboratory results are available within (insert number) days of sample collection.

_____ reviews the analytical results and communicates the information to employees.

Documentation and Employee Examination

Direct-reading monitoring data is documented daily, by qualified individuals (Section 7.0), in (insert location) . Air sample collection procedures and analytical results are documented by qualified individuals in (insert location) . Procedures for documenting both direct-reading monitoring data and air sampling events are included in Chapter 12, Standard Operating Practices.

Workers may review general air and surface monitoring results and may obtain copies of their personal monitoring results. **(Insert name or job title)** provides and interprets this information routinely during pre-entry briefings. Employees who participated in an air sampling event receive written notification of their respective personal exposures within **(insert number)** days of receipt of results.

7.2 Surface Monitoring

For this facility decontamination project, surface samples are collected in all work zones. Surface samples in the EZ provide exposure information. Surface samples in the CRZ and SZ are used to evaluate the effectiveness of decontamination methods and exposure controls, including hygiene practices, and to ensure that zone boundaries accurately reflect the presence or absence of contamination. Surface sample locations, methods, and permissible contamination limits are listed in Table 7-2.

Surface concentrations in excess of the established limits may results in adjustments of PPE, decontamination procedures, and controls, and corresponding information in those chapters of the HASP.

_____ is responsible for evaluating and defining corrective actions if sample results indicate contaminant levels in excess of established limits.

Table 7-2 Surface Monitoring Procedures

Surface Location	Hazardous Substance	Collection Method	Monitoring Frequency	Permissible Surface Concentration (*location-specific)*	Required Response

[Help Text- For help in determining the permissible surface concentration of anthrax spores for various locations at your facility, consult the representatives of the Federal and State agencies involved in your project, e.g., EPA, OSHA, and CDC]

Permissible Surface Concentrations listed in Table 7-2 were determined by
(insert text identifying the method used to determine Permissible Surface Concentrations).

Surface samples are shipped to and analyzed by the laboratories identified in Table 7-1d.
(Include Section 7.3 if applicable for your project. If not, delete this section.)

7.3 Noise Monitoring

As indicated in the job hazard analyses for this project, employees may be exposed to sound levels exceeding 85 dBA while conducting certain tasks/operations. Consequently, noise monitoring is conducted in accordance with the Hearing Conservation Program. Noise monitoring results are used to update Table 2-2a in Chapter 2 of this HASP. A copy of the Hearing Conservation Program is attached to this HASP as Attachment (Doc. Name) (attach to this HASP).

7.4 References

(This section is optional. If you use these or other references to develop your program, you may wish to include them here.)

OSHA Anthrax Technical Link website (http://www.osha.gov/bioterrorism/anthrax/index.html).

Direct-reading Equipment: OSHA on-line resources for Preventing/Controlling Exposure and Infection (http://www.osha.gov/bioterrorism/anthrax/question3.html), particularly the Emergency First Responders Equipment Guide (Department of Justice, http://www.ojp.usdoj.gov/terrorism/whats_new.htm?)

Sample Collection: OSHA online resources about Anthrax (http://www.osha.gov/bioterrorism/anthrax/question1.html), particularly the CDC Public Health Emergency Preparedness and Response website (http://www.bt.cdc.gov/) which includes information on Laboratory Testing and Environmental Samples for Anthrax (http://www.bt.cdc.gov/Agent/Anthrax/environmental-sampling-apr2002.asp)

Picklist [Tables 7-1a & Table 7-1b]: Monitoring Instruments

Organic Vapor Monitor *[Indicate Type]*

Calibration gas

O_2 /Explosimeter with Cal. Kit *[Indicate Type]*

Single gas monitor *[Indicate Type]*

Chargers for equipment

Equipment logbooks

Noise dosimeter

Sound level meter*]*

Draeger pump, tubes *[Indicate Type(s)]*

Accuro pump, tubes *[Indicate Type(s)]*

Real time aerosol monitor

Personal real time aerosol monitor

Heat stress monitor

Wind gauge, handheld

Relative humidity Probe

Relative humidity Pen

pH Meter

Anemometer

Sling psychrometer

Light meter

Batteries for equipment

TLD badge

Radiation alert monitor 4 (RAM-4)

Pocket dosimeters with charger

RAD meter

Portable XRF Device

Picklist (Substance-Specific Standards: 29 CFR 1910.1001-1096 or 29 CFR 1926.62 and 1926.1101-1152)

1910.1001,1926.1101	Asbestos
1910.1003,1926.1103	13 Carcinogens
1910.1004,1926.1104	alpha Naphthylamine
1910.1006,1926.1106	Methyl chloromethyl ether
1910.1007,1926.1107	3,3'-Dichlorobenzidine (and its salts)
1910.1008,1926.1108	bis-Chloromethyl ether
1910.1009,1926.1109	beta-Napthylamine
1910.1010,1926.1110	Benzidiene
1910.1011,1926.1111	4-Aminodiphenyl
1910.1012,1926.1112	Ethyleneimine

1910.1013,1926.1113	beta-propiolactone
1910.1014,1926.1114	2-Acetylaminofluorene
1910.1015,1926.1115	4-Dimethylaminoazobenzene
1910.1016,1926.1116	Nitrosodimethylamine
1910.1017,1926.1117	Vinyl chloride
1910.1018,1926.1118	Inorganic arsenic
1910.1025,1926.62	Lead
1910.1027,1926.1127	Cadmium
1910.1028,1926.1128	Benzene
1910.1029,1926.1129	Coke oven emissions
1910.1044,1926.1144	1,2-dibromo-3-chloropropane
1910.1045,1926.1145	Acrylnitrile
1910.1047,1926.1147	Ethylene Oxide
1910.1048,1926.1148	Formaldehyde
1910.1050	Methylenedianiline
1910.1051	1,3-Butadiene
1910.1052,1926.1152	Methylene Chloride
1910.1096	Ionizing Radiation

Pick List [Table 7-1b]: Type of Monitoring

Personal
Environmental
Area

Picklist [Table 7-1c]: Field Calibration Method

Zero Gas
Span Gas
Buffer Solution
Radiation Source of Known Activity
Bubble Meter
Rotameter

Picklist [Table 7-1c]: Field Calibration Check Frequency

Daily
Weekly
Monthly

SAMPLE HEALTH AND SAFETY PLAN (HASP)

Source: OSHA.

8.0 HEAT STRESS PREVENTION PROGRAM

(in compliance with 29 CFR 1910.120(h))

(Use Option 1 if employees are NOT exposed to high temperature or relative humidity, AND DO NOT USE PPE that could cause heat stress. If Option 1 applies to you, delete the remainder of this chapter.)

(Option 1)

Employees on this site are not exposed to environmental and work conditions such as temperature, humidity, and use of PPE that could cause either illnesses or injuries related to heat stress.

(Use Option 2 if employees are exposed to high temperature or relative humidity or use PPE that could cause heat stress.)

(Option 2)

This chapter of the HASP describes how the site-specific environmental conditions (temperature, humidity, air movement), employee work loads, and PPE may expose employees to hazards resulting in injury or illness related to heat stress. This Heat Stress Prevention Program outlines exposure controls to protect employees working in hot environments. The elements of this program are outlined in this section and include the following:

- Program Implementation Criteria
- Heat Stress Management
- Training

- References (Optional)

(insert interval) is responsible for implementing the Heat Stress Prevention Program, monitoring work area heat conditions and worker physiological parameters, and for ensuring that employees are trained to recognize the signs and symptoms of heat stress illnesses or injury and what to do if these occur.

8.1 Program Implementation Criteria

The Heat Stress Prevention Program is implemented when work area temperatures rise above XX°F/ XX°C

[Help Text-Many heat stress prevention strategies exist. To assist you, OSHA describes three below.

1. OSHA Technical Manual, Section 3, Chapter 4:

*OSHA has incorporated much of the American Conference of Governmental Industrial Hygienists ACGIH) Heat Stress strategy into the Technical Manual. This strategy recommends a wet bulb globe temperature (WBGT) of 68.5° F as an acceptable environment for unacclimatized employees to conduct continuous moderate work wearing water barrier **permeable** clothing. This value may be used as the criteria for instituting a heat stress protection program. The WBGT is calculated as follows:*

$$WBGT_{(indoor/outdoor\ no\ solar\ load)} = 0.7NWB + 0.3\ GT$$

$$WBGT_{(outdoor\ solar\ load)} = 0.7NWB + 0.2GT + 0.1DB$$

Acronyms in the equations refer to the following:

NWB- Natural Wet Bulb Temperature

GT -Globe Temperature

DB-Dry Bulb

2. The U.S. EPA's "A Guide to Heat Stress in Agriculture"

The U.S. EPA presents a strategy using temperature, relative humidity, and work load to calculate an adjusted temperature. This strategy specifies an adjusted temperature of 75°F as appropriate for an acclimatized employee, under the age of 40, wearing Tyvek®/respirator to conduct a moderate work following a "normal schedule". This value may be used as the criteria for instituting a heat stress protection program. The adjusted temperature is calculated as follows: Ta=DB + WC ± RH

Acronyms in the equation refer to the following:

DB-Dry Bulb

WC-Weather conditions: Add 13°F if the work is being performed in full sun, add 7°F if the work is being performed in partial sun to overcast conditions, make no adjustment if the work is done in the shade or at night.

RH-Relative humidity: use the following scale to adjust humidity

10% subtract 8°F

20% subtract 4°F

30% no change

40% add 3°F

50% add 6°F

60% add 9°F

3. The multi-agency "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities" (4-Agency Manual, 1985)

The Manual recommends the use of the current ACGIH guidelines for workers wearing permeable clothing (e.g., standard work clothing), but provides additional guidance for employees wearing impermeable clothing. According to this document, employees wearing impermeable clothing should be monitored when the work area temperature exceeds 70°F. This document also provides a chart identifying the frequency with which employees should be monitored. Work periods are governed by the frequency of monitoring]

8.2 Heat Stress Management

Work practices and exposure controls are used to reduce the risk of elevating an employee's core body temperature. These work practices and exposure controls include the following:

(Add, delete, or edit the work practices and accompanying subsections below as you'd like them to appear in your HASP)

- defining and adjusting employee work/rest intervals
- monitoring for physiological signs of heat stress
- providing cool liquids
- establishing and implementing acclimatization schedules
- using warm weather cooling garments

Employee Work/Rest Intervals

Work/rest intervals are based on PPE, employee work loads, environmental conditions (temperature, humidity, air movement), and the results of physiological monitoring. Work/rest intervals are determined by _____ and communicated to employees by (insert method) . Work/rest intervals are adjusted throughout the work shift as needed and communicated to each employee at the conclusion of an applicable rest period, prior to reentry into the work zone. Guidelines for work/rest schedules for this site are provided in Table 8-2b.

Table 8-2b: Guidelines for Work/Rest Schedule Determination (Heat Stress)			
Work Area Air or Adjusted Temperature Range	PPE Level	Work Period (minutes)	Rest Period (minutes)

[Help Text-Adjusted temperature ranges and work/rest durations should be consistent with the heat stress prevention strategy chosen in Section 8.1. Both the ACGIH and the U.S.EPA identify recommended work/rest durations for the adjusted temperature ranges.]

Monitoring

Physiological monitoring is conducted to alert employees and their supervisors to potential heat stress illness. Initial monitoring is conducted and documented at the beginning of the work shift, prior to entry into the work zone, by _____(insert name of responsible person).

Additional physiological monitoring is performed at the beginning and end of each rest cycle. Reentry and readjustment of the work/rest cycle are determined based on the guidelines listed in Table 8-2c.

Table 8-2c Physiological Monitoring			
Type of monitoring	Monitoring location	Action levels - vital signs	Work/Rest Modification

[Help Text: Both the OSHA's Technical Manual and the "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities" provide guidance on work/rest interval reassessment based on rest cycle monitoring data. Guidelines in both documents are essentially the same. Neither the ACGIH (1999) nor the U.S. EPA reference provides physiological monitoring guidance.

Personal monitoring may include measuring the heart rate, recovery heart rate, oral or ear canal temperature, or percent water loss.

Heart Rate Measurement: Count the radial pulse for 30 seconds at the beginning of the rest period. If the heart rate exceeds 110 beats per minute, shorten the next work period by one third and maintain the same rest period.

Recovery Heart Rate Measurement: Compare the pulse rate taken at 30 seconds (P_1) with the pulse rate taken at 2.5 minutes (P_3) after the rest break starts. The two pulse rates can be interpreted using Table III:4-4.

Employee Body Temperature Measurement: Check oral or ear canal temperature as early as possible in the rest period, before the employee drinks. If the employee's body temperature exceeds 99.7oF, shorten the next work cycle by one third.

Percent Water Loss Measurement: Body water loss can be measured by weighing the worker on a scale at the beginning and end of each workday. If total body weight loss exceeds 1.5% in a workday, increase fluid consumption.

Table III:4-4:

Heart Rate Recovery Pattern	*P_3*	*Difference between P_1 and P_3*
Satisfactory Recovery	*<90*	*----*
High Recovery(Condition may require further study)	*90*	*10*
No Recovery	*90*	*<10*

End of Help Text]

Physical signs and symptoms of heat stress are discussed with employees every (insert interval) and reviewed repeatedly, as necessary. Employees monitor each other's actions, speech and appearance for signs and symptoms of heat-related illnesses. Employees exhibiting signs or symptoms of heat exhaustion or heat stroke are (Insert actions taken when an employee is exhibiting signs or symptoms of heat exhaustion or heat stroke here, for example medical referral, hydration, and break procedures).

The physician's written opinion specifically addresses fitness for duty for employees who will work at temperatures at or above XX°F/ XX°C. This evaluation is described in Chapter 5, Medical Surveillance.

Liquid Replacement Program

Since dehydration is a primary cause of heat illness, employees on this site follow the regimen for liquid consumption detailed in Table 8-2d.

Table 8-2d Liquid Replacement Regimen			
Work Area Air or Adjusted Temperature Range	Work Period Between Drinks	Minimum Quantity (Ounces)	Liquid Type
	minutes	oz.	

[Help Text - A liquid replacement regime is not based on thirst. Employees need enough liquid and electrolytes to maintain their normal body weight throughout the day. Some sports drinks may exacerbate problems for some employees with certain medical conditions. Carbonated beverages are not recommended as a primary beverage for replacing body fluid because many contain caffeine and the gas makes them difficult to drink in large quantities.

The OSHA Technical Manual provides the following guidance: Make cool (50° - 60?F) water or any cool liquid (except alcoholic beverages) available to workers to encourage them to drink small amounts frequently, e.g., one cup every 20 minutes. Provide ample supplies of liquids close to the work area. Although some commercial replacement drinks contain salt, this is not necessary for acclimatized individuals because most people add enough salt to their summer diets.]

Acclimatization Program

Acclimatization increases physical tolerance to warm climates by improving the circulatory system and balance of salt in the body. Employees that are newly hired, have not worked in a comparable environment during the previous (insert number) days, or have been away from this site (vacation or sickness) for the same period of time follow the acclimatization procedures identified in Table 8-2e.

Table 8-2e Worker Acclimatization Procedures

Worker Status	Heat Condition	Procedures
Full-time	Sudden increase in air temperature, humidity, workload, or PPE	
Newly-hired or after extended absence from site or sickness	Warm, with PPE	
Newly-hired or after extended absence from site or sickness	Hot	

[Help Text: Employees need time to become acclimatized—usually about seven days. Acclimatization may start to decline in as little as four days. Alcohol or other drugs may affect the body's ability for acclimatization. References highlighted earlier recommend the following alternatives for developing and implementing site acclimatization procedures.

The OSHA Technical Manual indicates the following:

A properly designed and applied acclimatization program decreases the risk of heat-related illnesses. Such a program basically involves exposing employees to work in a hot environment for progressively longer periods. NIOSH (1986) says that, for workers who have had previous experience in jobs where heat levels are high enough to produce heat stress, the regimen should be 50% exposure on day one, 60% on day two, 80% on day three, and 100% on day four. For new workers who will be similarly exposed, the regimen should be 20% on day one, with a 20% increase in exposure each additional day.

The U.S. EPA's Guide to Heat Stress in Agriculture provides guidance in Table 4:

Worker Status	*Heat Condition*	*Procedures*
Full-Time	*Gradual Warming*	*None*
Full-Time	*Sudden increase in air temperature, humidity, workload, or level of protection*	*1. Cut work in hotter conditions to ½ the usual time. For balance of day, work in cooler environment or lighten workload.* *2. Increase time working in hotter conditions by an hour each day.*
Newly hired, returning after >3 week leave, returning after illness	*Warm; protective gear is worn* *Hot*	*1.* ***Light-to-moderate work****: Start work in the heat for maximum of two 60-minute periods each day. For balance of day, work in cooler environment or lighten workload.* ***Moderate-to-heavy work:*** *Start work in the heat for maximum of two 50-minute periods each day. For balance of day, work in cooler environment or lighten workload.* *2. Increase time working in the heat gradually by 1 hour/day until full acclimatization is approached (average 5-7 days).*

The "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities" provides a NIOSH reference different from that noted in the OSHA Technical Manual. According to this Manual, "NIOSH recommends a progressive 6-day acclimatization period for him/her to do full work on a hot job. Under this regimen, the first day of work on site is begun using only 50 percent of the anticipated workload and exposure time, and 10 percent is added each day through day 6. With fit or trained individuals, the acclimatization period may be shortened 2 or 3 days. However, workers can lose acclimatization in a matter of days, and work regimens should be adjusted for to account for this."

References vary regarding the specific period away from work (illness or vacation) that may result in a worker's loss of acclimatization. The OSHA Technical Manual indicates that acclimatization may be lost over a matter of days. NIOSH's Criteria Document for Work in Hot Environments indicates that "absence from work in the heat for a week or more results in a significant loss" in the adaptive changes acquired as a result of acclimatization. NIOSH also notes that these workers may regain heat acclimatization in 2-3 days after returning to work. Other references, like the Mine Safety and Health Administration's (MSHA) Heat Stress in Mining, identify compressed acclimatization schedules for employees that return after 9 days away from work in a cooler climate. NIOSH and MSHA note that workers returning from an illness may not be at the same level of hydration or physical fitness they were when initially acclimatized; this is a consideration when they return to work in a hot environment.]

Use of Warm Temperature Cooling Garments:

In addition to the work practices and physiological monitoring described above, employees use cooling garments to reduce the risk of heat related illnesses and injuries. Employees don the appropriate cooling garments based on the guidelines provided in Table 8-2f.

Table 8-2f Use of Cooling Garments

Work Area Air or Adjusted Temperature Range	Task	PPE Level	Cooling Garment Used

[Help Text: Cooling garments may provide additional protection for employees working in hot environments. Garments have advantages and disadvantages, so consider their use carefully. The OSHA Technical Manual notes that ice vests may provide cooling for 2-4 hours and maintain maximum worker mobility, but they are also heavy. The manual also notes that air circulation systems are the most highly effective cooling systems but may be noisy and can limit the mobility of workers when suits are attached to an airline. These systems, as with all PPE, provide additional protection but do not replace the administrative controls identified earlier. They may be most effective for workers in higher levels of protection doing tasks requiring limited movements.]

8.3 Training:

Employees receive general training regarding heat stress-related injuries and illnesses during initial HAZWOPER training and subsequent refresher training. The site-specific program and procedures are communicated as identified in Chapter 4, Training.

8.4 References

(This section is optional. You may include these references in your program if you wish.)

A Guide to Heat Stress in Agriculture (1993, U.S. Environmental Protection Agency, Prevention, Pesticides, and Toxic Substances, Publication No. EPA-750-b-92-001)

Managing the Heat in Florida (1995, The State of Florida Department of Labor and Employment Security Division of Safety)

1999 TLVs and BEIs (1999, The American Conference of Governmental Industrial Hygienists)

NIOSH *Criteria for a recommended standard . . . occupational exposure to hot environments - revised criteria*. (1986, U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 86-113.)

Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (1985, U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National

Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 85-115)

Corporate SOP, see Chapter 12 of this HASP

SAMPLE HEALTH AND SAFETY PLAN (HASP)

Source: OSHA.

9.0 SPILL CONTAINMENT PROGRAM

(in compliance with 29 CFR 1910.120(b)(4)(ii)(J) and (j)(1)(viii))

This chapter of the HASP describes the potential for hazardous substance spills at this site and procedures for controlling and containing such spills. The purpose of this chapter of the HASP is to ensure that spill containment planning is conducted and appropriate control measures are established, consistent with OSHA requirements in 29 CFR 1910.120(b)(4)(ii)(J) and (j)(1)(viii).

(Choose either Option 1 or Option 2 below as appropriate for your site. For Option 1, spill containment is not necessary and therefore not implemented at your site. For Option 2, there is the potential for a major hazardous substance spill at your site, so spill containment is implemented. Delete the text of the Option you don't choose.)

(Option 1)

9.1 Results of Evaluation for Potential Spills

An evaluation was conducted to determine the potential for hazardous substance spills at this site. That evaluation indicates that there is no potential for a hazardous substance spill of a sufficient quantity to require containment planning, equipment, and procedures. For that reason, no spill containment program is implemented at this site. Employee training on how to respond and take protective measures during incidental releases of hazardous substances are provided consistent with the Hazard Communication Standard, 29 CFR 1910.1200.

(Option 2 – Remainder of Document)

The spill containment program addresses the following site-specific information:

- potential hazardous substance spills and available controls
- initial notification and response
- spill evaluation and response
- post-spill evaluation

9.1 Potential Spills and Available Controls

An evaluation was conducted to determine the potential for hazardous substance spills at this site. That evaluation indicates that a hazardous substance spill could potentially occur. Therefore, the following site-specific spill containment program has been implemented to address spill containment planning, equipment, and procedures. Site personnel are trained in the contents of this spill containment program and their roles and responsibilities during spill response operations.

Table 9-1 below lists the location and type of potential hazardous substance spills at this site. This table also describes the activities or situations in which an accidental spill could occur and whether an emergency response is likely to be needed.

[Help Text: Incidental spills are different from emergency releases. Incidental spills can safely be absorbed, neutralized, or otherwise controlled by employees in the immediate area. See the definition of "Emergency Response" in HAZWOPER for more information about this distinction.]

Where spills, leaks, or ruptures can occur, this site has suitable quantities of proper absorbent and US Department of Transportation-specified salvage drums/containers. Their location is noted in Table 9-1. In addition, all areas subject to potential spills are diked or a means to adequately dike these areas in the event of a spill is available so that the entire volume of the hazardous substance being spilled can be contained and isolated. The type and location of spill containment equipment is also listed in Table 9-1.

Table 9-1 Potential Spills and Controls

Location	Hazardous Substance	Source of spill	Potential maximum qty of spill	Potential to Require Emergency Response (indicate with an "X")	Available Spill Containment Equipment	Equipment Location

9.2 Initial Spill Notification and Response

Any worker who discovers a hazardous substance spill immediately notifies _____.

The worker reports, to his/her best ability, the hazardous substance involved, the location of the spill, the estimated quantity of substance spilled, the direction/flow of the spill material, related fire/explosion incidents, and any associated injuries

9.3 Spill Evaluation and Response

_____ is responsible for evaluating spills and determining the appropriate response. When this evaluation is being made, the spill area is isolated and demarcated to the extent possible.

When an incidental release occurs, clean-up personnel receive instructions in a pre-clean-up meeting as to spill conditions, PPE, response activities, decontamination, and waste handling.

The procedures of the Emergency Response Chapter of this HASP are immediately implemented when the spill is determined to require emergency precautions and action. If necessary to protect those outside the clean-up area, notification of the appropriate authorities is made. Table 9-3 below lists the spill conditions that trigger notification of Federal, state, and local agencies.

Table 9-3 Off-site Notification Requirements			
Location	Hazardous Substance	Spill Volume/Conditions	*Required Notification* (insert name of organization(s) & contact information)

The following are general measures that response/clean-up personnel take when responding to a spill:

(Add, delete, or edit the spill response measures below as you'd like them to appear in your HASP)

- To minimize the potential for a hazardous spill, hazardous substances, control/absorbent media, drums and containers, and other contaminated materials are properly stored and labeled.
- When a spill occurs, only those persons involved in overseeing or performing spill containment operations will be allowed within the designated hazard areas. If necessary, the area will be roped, ribboned or otherwise blocked off. Unauthorized personnel are kept clear of the spill area.
- Appropriate PPE is donned before entering the spill area.
- Appropriate spill control measures are applied during spill response.
- Whenever possible without endangerment of personnel, the spill is stopped at the source or as close to the source as possible.
- Ignition points are removed if fire or explosion hazards exist.
- Surrounding reactive materials are removed.
- Drains or drainage in the spill area are blocked or surrounded by berms to exclude the spilled waste and any materials applied to it.
- Provisions are made to contain and recover a neutralizing solution, if used.
- Small spills or leaks from a drum, tank, or pipe will require evacuation of at least **(insert number)** feet in all directions to allow clean-up and to prevent employee exposure. For small spills, sorbent materials such as sand, sawdust, or commercial sorbents (see Table 9-1 above for site-specific sorbent media) are placed directly on the spill to prevent further spreading and aid in recovery.
- Spill area is sprayed with appropriate foam where the possibility of volatile emissions exists.
- If the spill results in the formation of a toxic vapor cloud, from vaporization, reaction with surrounding materials, or the outbreak of fire, further evacuation may be required.

- To dispose of spill waste, all contaminated sorbents, liquid waste, or other spill clean-up will be placed in small quantities (**(insert number)** pounds) in approved drums for proper storage or disposal as hazardous waste.

9.4 Post-Spill Evaluation

A written spill response report is prepared at the conclusion of clean-up operations. The report includes, at a minimum, the following information:

- date of spill incident
- cause of incident
- spill response actions
- any outside agencies involved, including their incident reports
- lessons learned or suggested improvements

The spill area is inspected to ensure the area has been satisfactorily cleaned. The use of surface and air sampling is utilized in this determination as necessary. The root cause of the spill is examined and corrective steps taken to ensure the engineering and control measures in place have performed as required. If alternative precautions or measures are needed, they are made available and implemented.

All durable equipment placed into use during clean-up activities is decontaminated as specified in Chapter 10, Decontamination, for future utilization. All spill response equipment and supplies are re-stocked as required.

SAMPLE HEALTH AND SAFETY PLAN (HASP)

Source: OSHA.

10.0 DECONTAMINATION

(in compliance with 29 CFR 1910.120(b)(4)(ii)(G) and 1910.120(k))

The decontamination chapter of the HASP describes how personnel and equipment are decontaminated when they leave the Exclusion Zone. This chapter also describes how residual waste from decontamination processes is disposed. Decontamination procedures are designed to achieve an orderly, controlled removal or neutralization of contaminants that may accumulate on personnel or equipment. These procedures minimize worker contact with contaminants and protect against the transfer of contaminants outside designated work zones. They also extend the useful life of PPE by reducing the amount of time that contaminants contact and permeate PPE surfaces. The decontamination procedures described below are designed to meet the requirements of 1910.120(k) and include project-specific information about:

- the location and type of project decontamination facilities
- general and specific decontamination procedures for personnel and PPE
- general and specific decontamination procedures for equipment
- disposal of residual waste from decontamination
- decontamination equipment and solutions
- the monitoring procedures used to evaluate the effectiveness of decontamination

Emergency decontamination procedures are detailed in the Emergency Response chapter of this HASP.

_____ overseas implementation of project decontamination procedures and is responsible for ensuring their effectiveness.

10.1 Decontamination Facilities

Decontamination is conducted in the contamination reduction zone (CRZ). The CRZ acts as a buffer between the exclusion zone and the support zone. The location and design of decontamination stations minimize the spread of contamination beyond these stations. Separate facilities are used for personnel and for equipment. The location of these designated facilities is marked on Figure 10-1.

Figure 10-1 Location of Decontamination Facilities

(Insert a map marking the location of decontamination facilities here.)

10.2 Decontamination Procedures for Personnel and PPE

Decontamination procedures are designed for the level of PPE used. Project-specific procedures for personnel and PPE decontamination minimize the potential for hazardous skin or inhalation exposure, cross-contamination, and chemical incompatibilities.

(Choose either Option 1 or Option 2 as appropriate for this project. For Option 1, showers and change rooms are not provided for personnel. For Option 2, showers and change rooms are provided for personnel.)

[Help Text - Effective employee decontamination often requires clean change rooms and showers. Employees must be able to shower after removing contaminated clothing and then go into a clean area where the employees put on their street clothing. Paragraph (n)(7) of HAZWOPER requires change rooms and showers meeting the requirements in 29 CFR 1910.141 when the work will require at least six months to complete. The intent of these requirements is to prevent contamination of workers' street clothes and, consequently, spread of hazardous substances to other areas such as an employee's home. Because of the hazards associated with anthrax spores, OSHA encourages the use of showers and change rooms for anthrax facility decontamination regardless of the duration of the project.]

(Option 1)

Based on the nature of the hazards and duration of work, showers and change rooms are not necessary and are not provided for workers.

(Option 2)

Based on the nature of the hazards and/or duration of work, showers and change rooms consistent with the requirements of 29 CFR 1910.141 are provided for workers.

(End of Option 2)

The following are general decontamination procedures established and implemented during this project. Specific procedures for personnel and PPE decontamination are provided in Table 10-2.

(Add, delete, or edit the general decontamination procedures below as you'd like them to appear in your HASP)

Decontamination is required for all workers exiting a contaminated area. Personnel may re-enter the Support Zone only after undergoing the decontamination procedures described in the next section.

Used protective clothing is (edit as it applies to your project) decontaminated, cleaned, laundered, maintained and/or replaced as needed to ensure its effectiveness.

PPE that requires maintenance or parts replacement is decontaminated prior to repairs or service.

PPE is decontaminated or prepared for disposal on the premises. Personnel who handle contaminated equipment have been trained in the proper means to do so to avoid hazardous exposure.

Workers are required and trained to immediately exit the work zone, perform applicable decontamination procedures, shower, and change into uncontaminated clothing if their permeable clothing is splashed or becomes wetted with a hazardous substance.

Procedures for decontamination waste disposal meet all applicable local, State, and Federal regulations.

Respirators and non-disposable PPE are decontaminated with a method/procedure that has proven to be effective for anthrax spores. A detailed copy of that method/procedure is attached to this chapter. (Follow this statement and attach a detailed description of your method for decontaminating respirators and non-disposable PPE. Be sure to address contact time and solution strength if you plan to use a hypochlorite solution.)

Tables 10-2a and 10-2b list project-specific procedures for personnel decontamination and handling of personnel decontamination waste.

(Complete the decontamination procedures below in Table 10-2a depending on the level(s) of PPE used during facility decontamination – Level(s) A, B, C, or D) The PICKLIST at the end of this chapter may be helpful in identifying necessary decontamination equipment to complete Table 10-2a below)

Table 10-2a Level A Decontamination Procedures & Equipment	
Station No.	Station Activity

Table 10-2a Level B Decontamination Procedures & Equipment	
Station No.	Station Activity

Table 10-2a Level C Decontamination Procedures & Equipment	
Station No.	Station Activity

Table 10-2a Level D Storage & Cleaning Procedures
Level D Storage Procedures:
Level D Cleaning Procedures:
Level D Special Handling Procedures:

Table 10-2b Waste Handling for Personnel Decontamination	
Waste Streams/Products for Personnel	Disposal Procedures for Waste Stream/Product

10.3 Decontamination Procedures for Equipment

All tools, equipment, and machinery from the Exclusion Zone or CRZ are decontaminated in the CRZ prior to removal to the Support Zone. Equipment decontamination procedures are designed to minimize the potential for hazardous skin or inhalation exposure, cross-contamination, and chemical incompatibilities.

The following are general equipment decontamination procedures established and implemented during this project. Specific procedures for equipment decontamination are provided in Table 10-3a and 10-3b.

General Equipment Decontamination Procedures:

(Add, delete, or edit the general equipment decontamination procedures below as you'd like them to appear in your HASP)

- Equipment in the Exclusion Zone that can be used again, that is still operable, and that will not pose an increased exposure hazard during re-use is left in Exclusion Zone until it is no longer needed. This eliminates unnecessary decontamination and reduces the potential for physical transfer of contaminants outside the Exclusion Zone.
- Decontamination is required for all equipment exiting a contaminated area. Equipment may re-enter the Support Zone only after undergoing the equipment decontamination procedures described in the table below (Table 10-3, Equipment Decontamination Procedures).
- Equipment that is transported regularly between the contaminated and clean areas of the facility (e.g., monitoring equipment) is carefully decontaminated each time it is removed from the Exclusion Zone and the effectiveness of decontamination is monitored to reduce the likelihood that contamination will be spread outside designated work zones.
- Equipment that cannot be successfully decontaminated is disposed of as hazardous waste.

Tables 10-3a and -3b list project-specific procedures for equipment decontamination and handling of equipment decontamination wastes.

Table 10-3a Equipment Decontamination Procedures		
Type of Equipment	Decontamination Solution	Decontamination Procedure (include sufficient detail so that those using this HASP can follow the procedure)

Table 10-3b Waste Handling for Equipment Decontamination	
Waste Streams/Products for Equipment	Disposal Procedures for Waste Stream/Product

10.4 Monitoring the Effectiveness of Decontamination Procedures

[Help Text - The effectiveness of decontamination can be assessed in a variety of ways. Examples of these methods include taking wipe samples of decontaminated equipment, wipe sampling internal and external surfaces of reusable chemical protective clothing, analyzing the final decontamination rinse water for the presence of contaminants, and visually inspecting PPE for signs of contamination following decontamination. You should set acceptable levels of contamination for the monitoring methods you use. The decontamination program must be revised if contaminants are not adequately removed by the decontamination procedures used.]

Visual examination and sampling are used to evaluate the effectiveness of decontamination procedures, in compliance with 29 CFR 1910.120(k)(2)(iv). Visual examination is used to ensure that procedures are implemented as described and that they appear to control the spread of contaminants under changing conditions. Where feasible, visual examination is also used to inspect for signs of residual contamination or for contaminant permeation of PPE.

Both air sampling and surface sampling are used to verify the effectiveness of decontamination. Air samples are taken in the clean zone to ensure that airborne contaminants have not spread to clean areas of the facility. Surface samples are taken from the inside surfaces of PPE, from decontaminated equipment, and from surfaces within clean areas of the facility to ensure that decontamination and control procedures are performing as anticipated. The type and frequency of air and surface sampling used to ensure the effectiveness of decontamination procedures are detailed in the Exposure Monitoring chapter of this HASP.

Results of the inspections of decontamination procedures and documentation of any action taken to correct deficiencies are recorded and stored at (insert location) .

Personnel who work in contaminated areas, either the Contamination Reduction Zone (CRZ) or the Exclusion Zone, are trained in the principles and practices of decontamination described in this chapter of the HASP and in related SOPs. If procedures are changed as a result of inspection and monitoring, all affected employees are notified of these changes.

10.5 References

(This section is optional. If you use these or other references to develop your program, you may wish to include them here.)

OSHA Fact Sheet and References on Worker Health and Safety for Anthrax Exposure, http://www.osha.gov/bioterrorism/anthraxfactsheet.html

US EPA Fact Sheet for Chlorine Dioxide, http://www.epa.gov/pesticides/factsheets/chlorinedioxidefactsheet.htm

US EPA Anthrax webpage, New Methods and Technologies section, http://www.epa.gov/epahome/hi-

anthrax.htm

Department of Health and Human Services, Counter Terrorism Program Response Planning, http://www.ndms.dhhs.gov/CT_Program/Response_Planning/response_planning.html

NIOSH Guidance and Recommendations for Emergency Responders in Terrorist Events, http://www.cdc.gov/niosh/npptl/

Attachment 10-1 Detailed Decontamination Method/Procedure for Respirators and Non-Disposable PPE

(attach/insert your procedure here, as indicated in Section 10.2)

[Picklist for Table 10-2a]

HEPA vacuum and filters

Washtubs

Buckets

Scrub brushes

Pressurized sprayer

Detergent [Indicate Type]

Solvent [Indicate Type]

Household bleach solution *[Indicate Dilution]*

Distilled water

Deionized water

Disposable face piece sanitizer wipes

Facemask sanitizer powder

Wire brush

Spray bottle

Banner/barrier tape

Plastic sheeting

Tarps and poles

Trash bags

Trash cans

Masking tape

Duct tape

Paper towels

Folding chairs

Step ladders

5-Gallon water jugs

Tables

SAMPLE HEALTH AND SAFETY PLAN (HASP)

Source: OSHA.

11.0 EMERGENCY RESPONSE PLAN

(in compliance with 29 CFR 1910.120(b)(4)(ii)(H) and 29 CFR 1910.120(l)

This is the site-specific emergency response plan. This chapter of the HASP describes potential emergencies at this site, procedures for responding to those emergencies, roles and responsibilities during emergency response, and training that workers must receive in order to follow emergency procedures. This chapter also describes the provisions this site has made to coordinate its emergency response planning with other contractors on site and with off-site emergency response organizations.

This emergency response plan is consistent with the requirements of paragraph (l) of HAZWOPER and provides the following site-specific information:

- pre-emergency planning
- on-site emergency response equipment and PPE
- emergency maps: evacuation routes and route to nearest hospital
- emergency roles and responsibilities
- emergency alerting and evacuation procedures
- emergency response procedures
- emergency decontamination, medical treatment and first aid
- response critique and plan updates
- emergency response training

During the development of this emergency response plan, local, state, and federal agency disaster, fire, and emergency response organizations were consulted to ensure that this plan is compatible and integrated with the plans of those organizations. Documentation of the dates of these consultations and the names of individuals contacted is kept (insert location) .

11.1 Pre-emergency Planning

This site has been evaluated for potential emergency occurrences, based on site hazards, the tasks within the work plan, the building layout, and the ventilation system design and operation. The results of that evaluation are shown in Table 11-1 below.

Table 11-1 Potential Site Emergencies		
Type of Emergency	Source of Emergency	Location of Source
(Identify each of the potential emergencies that may occur on site. Use a separate row for each type of emergency.)	(Identify the source of each emergency. Be as specific as possible.)	(Identify the location or multiple locations for each emergency. For example, if a chemical is stored in several places, list every location in one row.)

11.2 On-Site Emergency Response Equipment

Emergency procedures may require specialized equipment to facilitate worker rescue, contamination control and reduction, or post-emergency clean-up. Emergency response equipment stocked on this site is listed in Table 11-2. The equipment inventory and storage locations are based on the potential emergencies described in Table 11-1. This equipment inventory is designed to meet on-site emergency response needs and any specialized equipment needs that off-site responders might require because of the hazards at this site.

Any additional PPE required and stocked for emergency response is also listed in Table 11-2 below. During an emergency, the Emergency Response Coordinator (if you have not included this role, identify the name and/or title of the person with the following responsibility) is responsible for specifying the level of PPE required for emergency response. At a minimum, personal protective equipment used by emergency responders will comply with Chapter 6, Personal Protective Equipment, of this HASP.

Emergency response equipment is inspected at regular intervals and maintained in good working order. The equipment inventory is replenished as necessary to maintain response capabilities.

Table 11-2 Emergency Equipment & Emergency PPE		
Emergency Equipment		
Specific Type	Quantity Stocked	Location Stored
(Use a separate row for each type of equipment stored, like 6ft oil pig, or non-sparking shovel)	(insert number)	(insert location)
Emergency PPE		

Specific Type	Quantity Stocked	Location Stored
(Use a separate row for each type of emergency PPE stored, like SCBA or fully encapsulated Level A suit-butyl)	(insert number)	(insert location)

11.3 Emergency Planning Maps

Figure 11-3a provides a map of the site with key on-site emergency planning information clearly marked. Emergency evacuation route(s), places of refuge, assembly point(s), and the locations of key site emergency equipment are identified on this map. Site zone boundaries are shown to alert responders to known areas of contamination. Major building features and any ventilation system design or operation features that could affect emergency response planning are also marked on this map. Figure 11-3a is posted at site entry points and at locations throughout the work site. Figure 11-3b indicates the route to the nearest emergency medical assistance. Figure 11-3b is posted at the following locations: (insert location) . *[Help Text - Maps showing the route from the site to the medical facility should at least be located in the CRZ and the support zone]*

Figure 11-3a Emergency Planning Map

Insert Emergency Planning Map here.

Figure 11-3b Driving Route to Nearest Hospital

Insert Driving Route to Nearest Hospital here.

(Choose Option 1, Option 2, or Option 3 for the text of 11.4 only; delete the text for the other two options. Option 1: all site personnel evacuate during an emergency and no one is permitted to assist during emergency response; the site relies on off-site emergency responders to conduct emergency response operations. Option 2: some site personnel evacuate during an emergency, but other site personnel conduct limited emergency response operations; the site relies on off-site emergency responders for most emergency response operations. Option 3: an on-site HAZMAT team conducts most of the emergency response operations; off-site emergency responders are called only when the emergency response operations are beyond the capability of the on-site HAZMAT team.)

(Option 1)

11.4 Roles and Responsibilities for On-Site and Off-Site Personnel

(Insert name and/or title) has been designated the Emergency Response Coordinator (Note: this individual should be identified in Chapter 1, Organization Structure). He/she is responsible for implementing the emergency response plan and coordinates emergency response activities on this site. He/she provides specific direction for emergency action based upon information available regarding the incident and response capabilities and initiates emergency procedures, including protection of the public and notification of appropriate authorities.

In the event of an emergency, site personnel are evacuated and do not participate in emergency response activities. As a result, this emergency response plan is designed to comply with 29 CFR 1910.38. The on-site personnel and their alternates responsible for coordinating site evacuation efforts are listed in Table 11-4. The Emergency Response Coordinator or one of his/her alternates is on site whenever work operations are underway.

This site relies upon the off-site emergency response organizations listed in Table 11-4, Emergency Contact Information, to respond to site emergencies. These organizations have been provided a copy of the site HASP; have been thoroughly briefed on site operations, hazards, and potential emergencies; have participated in a site walk-through if necessary; and are appropriately trained, staffed, and equipped to provide emergency response to this site. These organizations are contacted at least semi-annually or when changes in operations or new potential hazards are introduced on site to verify the accuracy of phone numbers and contact names, and to ensure that current points of contact are aware of site operations and hazards.

Table 11-4 Emergency Contact Information		
SITE PERSONNEL		
Title	Contact	Telephone
(Include the Emergency Response Coordinator and the roles/title of any other site personnel who are responsible for sounding the employee alarm system and calling outside assistance.)	(Identify the individual with this role or title)	(List the phone number of the individual with the role or title)

OUTSIDE ASSISTANCE	Contact	Address/Location	Telephone
	(Identify a contact organization, name, or title for each of the following agencies or groups)	(Identify address or location of each of the following agencies or groups, if applicable)	(identify a phone number for each of the following agencies or groups)
Chemtrec			1-800-424-9300
Ambulance/EMS			
Police			
Fire			
State Police			
Local Emergency Response Agency			
Primary Medical Facility			
Secondary Medical Facility			
Poison Control Center			
Regional EPA			
OSHA Area Office			
EPA Emergency Response Team			
State Authority			
National Response Center			1-800-424-8802
Center for Disease Control			

(Option 2)

11.4 Roles and Responsibilities for On-Site and Off-Site Personnel

(Insert name and/or title) is designated the Emergency Response Coordinator (Note: this individual should be identified in Chapter 1, Organizational Structure). He/she is responsible for implementing the emergency response plan and coordinates emergency response activities on this site. He/she provides

specific direction for emergency action based upon information available regarding the incident and response capabilities and initiates emergency procedures, including protection of the public and notification of appropriate authorities.

In the event of an emergency, site personnel are evacuated and do not participate in emergency response activities, except as indicated below.

Limited On-Site Emergency Response Activities

- (Create a bulleted list of emergency response activities employees may take.)

The site also relies on the off-site emergency response organizations listed in Table 11-4, Emergency Contact Information, to respond to site emergencies that will not be addressed by site personnel. These organizations have been provided a copy of the site HASP; have been thoroughly briefed on site operations, hazards, and potential emergencies; have participated in a site walk-through if necessary; and are appropriately trained, staffed, and equipped to provide emergency response to this site. These organizations are contacted at least semi-annually or when changes in operations or new potential hazards are introduced on site to verify the accuracy of phone numbers and contact names and to ensure that current points of contact are aware of site operations and hazards.

Table 11-4 Emergency Contact Information			
SITE PERSONNEL			
Title	Contact		Telephone
(Include the Emergency Response Coordinator and the roles/title of all site personnel that are responsible for sounding the employee alarm system, calling outside assistance, or conducting limited emergency response activities.)	(Identify the individual with the role or title.)		(List the phone number of the individual with the role or title.)
OUTSIDE ASSISTANCE	Contact	Address/Location	Telephone
	(Identify a contact name or title for each of the following agencies or groups)	(Identify address or location of each of the following agencies or groups, if applicable)	(identify a phone number for each of the following agencies or groups)
Chemtrec			1-800-424-9300

Ambulance/EMS			
Police			
Fire			
State Police			
Local Emergency Response Agency			
Primary Medical Facility			
Secondary Medical Facility			
Poison Control Center			
Regional EPA			
EPA Emergency Response Team			
State Authority			
National Response Center			1-800-424-8802
Center for Disease Control			

(Option 3)

11.4 Roles and Responsibilities for On-Site and Off-Site Personnel

(Insert name and/or title) is designated the Emergency Response Coordinator (Note: this individual should be identified in Chapter 1, Organizational Structure). He/she is responsible for implementing the emergency response plan and coordinates emergency response activities on this site. He/she provides specific direction for emergency action based upon information available regarding the incident and response capabilities and initiates emergency procedures, including protection of the public and notification of appropriate authorities.

In the event of an emergency, the site has established and relies upon an on-site emergency response team. The names of the emergency response team leader and alternates are listed in Table 11-4. At least one of these individuals is on site whenever work operations are underway.

The on- site emergency response team is responsible for providing the following emergency response services:

Potential Site Emergencies	On-Site Responder Activities
(This is a table. Identify the emergencies from Table 11-1 that can be responded to by on-site emergency responders. Insert a new row for each emergency.)	(Identify the actions on-site emergency responders may take in response to this emergency e.g., shut supply valve, or use fire extinguisher, etc.) Enter all of the activities for each emergency in one row, in a list)

SOPs for each of these emergency response functions can be found within Chapter 12, the SOPs chapter of this HASP (supplement this chapter of the HASP as appropriate).

Off-site emergency response personnel are relied upon to provide the services listed below. Off-site emergency response organizations listed in Table 11-4, Emergency Contact Information, have a copy of the site HASP; are thoroughly briefed on site operations, hazards, and potential emergencies; have participated in a site walk-through if necessary; and are appropriately trained, staffed, and equipped to provide emergency response to this site. These organizations are contacted at least semi-annually or when changes to operations or new potential hazards are introduced on site to verify the accuracy of phone numbers and contact names and to ensure that current points of contact are aware of site operations and hazards.

Potential Site Emergencies	Off-Site Responder Activities
(This is a table. Identify the emergencies from Table 11-1 that must be responded to by off-site emergency responders. Insert a new row for each emergency.)	(Identify the actions off-site emergency responders must take.)

Table 11-4 Emergency Contact Information			
SITE PERSONNEL			
Title	Contact	Telephone	
(Identify the roles/title of all site personnel that are responsible for emergency response.)	(Identify the individual with the role or title)	(List the phone number of the individual with the role or title)	
OUTSIDE ASSISTANCE	Contact	Address/Location	Telephone
	(Identify a contact name, or title for each of the following agencies or groups)	(Identify address or location of each of the following agencies or groups, if applicable)	(List a phone number for each of the following agencies or groups)
Chemtrec			1-800-424-9300
Ambulance/EMS			
Police			
Fire			
State Police			
Local Emergency Response Agency			
Primary Medical Facility			
Secondary Medical Facility			
Poison Control Center			
Regional EPA			
OSHA Area Office			

EPA Emergency Response Team			
State Authority			
National Response Center			1-800-424-8802
Center for Disease Control			

(End of Option 3)

11.5 Emergency Alerting and Evacuation

Upon discovering an emergency situation, personnel notify **(insert name and/or title)**, who will evaluate available information and initiate an appropriate response. Site workers are alerted to emergencies through the use of an employee alarm system. The employee alarm systems at this site are listed in Table 11-5.

Table 11-5 Employee Alarm Systems		
Type of Alarm	Location	How Alarm is Used
(Insert type of employee alarm system. If there is more than one alarm or alarm sound, then insert rows as appropriate)	(Insert the location of the alarm(s))	(Use this column to differentiate when multiple alarms or alarm sounds are used. You may also provide a physical description of how the alarm is actuated.)

This alarm system meets the requirements of 29 CFR 1910.165 and is tested (insert the text interval, e.g., weekly, monthly) under normal site operating conditions to ensure that it is in good working order and can effectively alert all persons on-site. A log of alarm tests is kept by (insert name and/or title) .

If an evacuation notice is given, site workers leave the worksite with their respective buddies, if possible, by way of the nearest exit. Emergency decontamination procedures detailed in Chapter 10 (Decontamination) of this HASP are followed to the extent practical without compromising the safety and health of site personnel.

Appropriate primary and alternate evacuation routes and assembly areas have been identified and are shown on the Emergency Response Map Fig 11-3a. The routes and assembly area will be determined by conditions at the time of evacuation based on the location of the hazard source and other factors as determined by rehearsals and inputs from emergency response organizations.

If any work will be done outside, wind direction indicators will be located so that workers can determine a safe up wind or cross wind evacuation route and assembly area if not informed by the Emergency Response Coordinator at the time the evacuation alarm sounds.

Personnel exiting the site gather at a designated assembly point. To determine that everyone has successfully exited, personnel will be accounted for at the assembly site. If any worker cannot be accounted for, notification is given to (insert name and/or title) so that appropriate action can be initiated.

Contractors and subcontractors on this site have coordinated their emergency response plans to ensure that these plans are compatible and that source(s) of potential emergencies are recognized, alarm systems are clearly understood, and evacuation routes are accessible to all personnel relying upon them.

11.6 Emergency Response

The Emergency Response Coordinator (or designee), after investigating the incident and reviewing relevant information, determines the level of response required for containment, rescue, medical care, and clean-up. The appropriate emergency response team (on-site or off-site) is mobilized to the incident with sufficient personnel, PPE, and emergency equipment.

When the Emergency Response Coordinator (or designee) determines that on-site emergency response capability is inadequate for the emergency or that outside assistance is required, the applicable off-site organization shown in Table 11-4 is contacted. The Emergency Response Coordinator (or designee) provides relevant information to the responding organizations, including hazards associated with the emergency incident, potential containment problems, and missing site personnel.

(Choose either Option 4 or Option 5 for the text of Section 11.7 only; delete the text for the other option. Option 4: site personnel are trained and assigned to provide first aid. Option 5: site personnel are not trained or assigned to provide first aid)

[Help Text - If you expect on-site personnel to perform first-aid, you must prepare a written exposure control plan for exposure to bloodborne pathogens, as required in 1910.1030(c)(1)(i). You must also offer Hepatitis B vaccinations to workers who are expected to provide first aid as their primary job assignment. If they decline the vaccination, you must document this, in accordance with 1910.1030(f)(2)(iv)]

(Option 4)

11.7 Emergency Decontamination, Medical Treatment and First Aid

Site provisions for medical services and first aid are consistent with 1910.151 as well as HAZWOPER.

This site has (insert number) workers with current first aid certification assigned to provide first aid during each shift. Because of this practice, the site has an exposure control plan in accordance with OSHA's bloodborne pathogens standard, 1910.1030 (c)(1)(i). The site also offers Hepatitis B vaccinations to workers whose primary job assignment is to provide first aid. A record of those vaccinations or the employee's declination of the vaccination is kept in her/his medical records file.

The primary medical care facility for this site is _____ . The route to the facility is shown in Figure 11-3b.

Site personnel who are contaminated and need medical treatment will be decontaminated before treatment is provided and/or before being transported to a medical facility if decontamination does not delay life-saving treatment, interfere with essential treatment, or aggravate the injury.

When emergency decontamination is performed, contaminated protective clothing and equipment is washed, rinsed and/or cut off. If an emergency victim is grossly contaminated with extremely toxic or

corrosive material, the victim will be wrapped in blankets, plastic, or rubber before any first aid or medical treatment is performed to reduce potential exposure to other personnel.

Personnel who provide first aid and offsite medical treatment will be alerted to the chemicals and hazards to which a victim has been potentially exposed. This will be done by sending relevant MSDSs and other applicable hazard data with the victim or by having the victim accompanied by personnel who are familiar with the incident and the hazards.

(End of Option 4)

(Option 5)

11.7 Emergency Decontamination, Medical Treatment and First Aid

Site provisions for medical services and first aid are consistent with 1910.151 as well as HAZWOPER.

Because of the near proximity of medical assistance, this site does not train or assign site personnel to provide first aid.

[Help Text - For a discussion of "near proximity" and an employer's obligation to have trained first aid providers on site, see OSHA Interpretations on this topic under "I" in the subject index on the OSHA website, www.osha.gov. The April 18, 2002 letter to John Mateus addresses this topic.]

The primary medical care facility for this site is _____. The route to the facility is shown in Figure 11-3b.

Site personnel who are contaminated and need medical treatment will be decontaminated before being transported to a medical facility **if** decontamination does not delay life-saving treatment or aggravate the injury.

When emergency decontamination is performed, contaminated protective clothing and equipment is washed, rinsed and/or cut off. If an emergency victim is grossly contaminated with extremely toxic or corrosive material, the victim will be wrapped in blankets, plastic, or rubber to reduce potential exposure to other personnel.

Offsite medical treatment personnel will be alerted to the chemicals and hazards to which a victim has been potentially exposed. This will be done by sending relevant MSDSs and other applicable hazard data with the victim or by having the victim accompanied by personnel who are familiar with the incident and the hazards.

(End of Option 5)

11.8 Emergency Response Critique and Plan Updates

After every emergency incident or evacuation of this site, the Emergency Response Coordinator (or designee) will evaluate the quality and safety of response activities. Any deficiencies in response actions will be included in a specific follow-up plan and corrected.

This emergency response plan is evaluated periodically throughout site operations and updated for accuracy. Changes made to emergency response procedures as the result of rehearsals or actual response incidents are recorded in this Plan. Site workers receive notification and training on changes to the Plan (identify the method used to communicate changes in the Plan, e.g., during daily site briefings) .

11.9 Emergency Response Training

All persons who enter this worksite, including visitors, receive a site-specific briefing about anticipated emergency situations and the emergency procedures.

Prior to the commencement of work and in accordance with Chapter 4, Training, site personnel are trained in the contents of this emergency response plan, including potential emergencies, personnel roles and responsibilities, evacuation routes and procedures, and the location of medical assistance.

(To choose the correct Option below, refer back to your Chapter 4 text. If you chose Option 1 in that chapter [your personnel are trained under paragraph (q)(6) of HAZWOPER], choose Option 6 below. If you chose Option 2 in Chapter 4 [your personnel are trained under paragraph (e) of HAZWOPER], choose Option 7 below.)

(Option 6)

Site personnel designated as emergency responders have completed emergency response training consistent the level of their responsibilities and in accordance with 29 CFR 1910.120(q)(6).

(end of Option 6)

(Option 7)

Site personnel designated as emergency responders are trained how to respond to expected emergencies safely, in accordance with 29 CFR 1910.120(e)(7).

(end of Option 7)

Additionally, site workers participate in emergency response rehearsals as required in HAZWOPER paragraph (l)(3)(iv). Off-site emergency response organizations participate in the rehearsals as necessary. Rehearsals are held every (insert time interval) . A log of the rehearsals is kept by (insert name and/or title) .

Where this site relies on off-site organizations for emergency response (see Table 11-3), the training of personnel in those off-site organizations has been evaluated and is deemed adequate for response to this site.

The site maintains written up-to-date certification of the successful completion of applicable training requirements of each worker. Training records are maintained (Insert location).

12.0 Standard Operating Procedures (SOPs)

(in compliance with 29 CFR 1910.120(b)(1)(ii)(F), and with 1910.120(d)(3) for standard operating procedures or safe work practices not addressed elsewhere in this HASP)

(Use this chapter to insert SOPS that may be referenced elsewhere in this HASP or are otherwise necessary to support site health and safety. SOPs referenced in other chapters of this HASP are:

- Procedures for PPE use, maintenance, and storage
- Procedures for collecting, handling, and shipping laboratory samples
- Methods for documenting both direct-reading monitoring data and air sampling events

For additional attachments to the HASP, see Instructions, Section III.)

SAMPLE HEALTH AND SAFETY PLAN (HASP)
Source: OSHA.

13.0 CONFINED SPACE ENTRY PROCEDURES

(in compliance with 29 CFR 1910.120(b)(4)(ii)(I) and 29 CFR 1910.146)

Insert your confined space entry procedures here. If your evaluation of the project site indicates that you do not need to develop such procedures, OSHA recommends that you document that finding here to indicate that this element of the HASP has not been overlookeds.

For assistance in developing a permit-required confined space program, see the e-tools on OSHA's website at http://www.osha.gov/dts/osta/oshasoft/index.html#eTools)

SAMPLE HEALTH AND SAFETY PLAN (HASP)
Source: OSHA.

14.0 SAFETY DATA SHEET (SDS)

Anthrax (Bacillus Anthracis) Safety Data *Sheet*

PHYSICAL CHARACTERISTICS
Aerobic, large gram positive rods occurring in chains; non-motile; forms resistant spores

HEALTH HAZARD INFORMATION
Pathogenicity: Cutaneous Anthrax – itching, boils, and formation of a black scab (5-20% case fatality in untreated cases); inhalation anthrax – fever, chest pain, & difficulty breathing (usually fatal); gastrointestinal anthrax – abdominal distress, fever, nausea, vomiting, & diarrhea (25-60% case fatality)
Infectious Dose: 8,000 to 50,000 spores by inhalation
Mode of Transmission: Infection of skin by contact; inhalation anthrax results from inhalation of spores; gastrointestinal anthrax results from ingestion of spores
Incubation Period: Can vary with form of disease. CDC reports 1-12 days for cutaneous anthrax, 1-7 days for gastrointestinal anthrax, and "unclear" for human inhalational anthrax, but reported to range from 1-7 days, and may be as much as 60 days
Communicability: Transmission from person to person is very rare
Drug Susceptibility: Susceptible to penicillin (except for inhalation anthrax in which the mortality remains high); ciprofloxacin, doxycycline, tetracyclines, erythromycin, & chloramphenicol
Medical Surveillance: Monitor for suspicious skin lesions and other symptoms; laboratory confirmation through direct microscopy, culture, immunological techniques

EMERGENCY RESPONSE TO POTENTIAL EXPOSURE
Wash hands with soap and water; shower with soap and water; prompt treatment with high dose antibiotics

PERSONAL PROTECTIVE EQUIPMENT FOR EMERGENCY RESPONDERS, CLEANUP PERSONNEL, AND INVESTIGATORS
See the “Red Zone” PPE guidance in OSHA’s Anthrax Matrix (http://www.osha.gov/bioterrorism/anthrax/matrix/anthraxmatrixred.html)