

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	Re-

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:
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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 <i>(location-specific)</i>	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

O₂ /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-Naphthylamine

1910.1010,1926.1110 Benzidene

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