

Standard Operating Procedures (FSOP) #9

Site Safety Plan



FIELD STANDARD OPERATING PROCEDURES

FOR

PREPARATION OF A SITE

SAFETY PLAN.

F.S.O.P. 9

**U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF EMERGENCY AND REMEDIAL RESPONSE
HAZARDOUS RESPONSE SUPPORT DIVISION
WASHINGTON, D.C. 20460**

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FIELD STANDARD OPERATING PROCEDURES

NO: 9

Prepared by: _____

Date: _____

ESS: SITE SAFETY PLAN DEVELOPMENT

Approved by: _____

WORKING PROCEDURES	STEP SEQUENCE	INFORMATION/OPERATING GOALS/SPECIFICATIONS	TRAINING GUIDE/NOTES
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at Requirements

The site safety plan must:

SEE TTT A
"ROUTINE OPERATION"

- 1 - Describe the known hazards and evaluate the risks associated with the incident and with each activity conducted.
- 2 - Describe requirements for an environmental surveillance program.
- Delineate work areas.
- Describe Levels of Protection to be worn by personnel and delineate specific job functions.
- List key personnel and alternates responsible for site safety, response operations, and protection of the public. In addition, list key personnel and alternates of public and private organizations who could become associated with the response.
- Establish procedures to control site access.
- Describe decontamination procedures for personnel and equipment.
- Establish site emergency procedures.
- Address emergency medical care for injuries and toxicological problems. As well as routine medical.
- Specify any routine and special training required for responders.
- Establish procedures for protecting workers from weather related problems

SECTION III

PLAN DEVELOPMENT

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- Control procedures must be implemented to prevent unauthorized access. Site security procedures - fences, signs, security patrols, and check-in procedures, as appropriate, must be established. Procedures must also be established to control the entry of authorized personnel into work zones where personnel protection is required.

- Establish Decontamination Procedures

Decontamination procedures for personnel and equipment must be established. Arrangements must also be made for the proper disposal of contaminated material, solutions, and equipment.

- Address Requirements for an Environmental Surveillance Program

A program to monitor site hazards must be implemented. This would include air monitoring and sampling, as well as other media sampling at or around the site. Site monitoring should address potential exposure to the chemicals present, their hazards, possible migration, and associated safety requirements.

- Specify Any Routine and Special Training Required

Personnel must be trained not only in general safety procedures and use of safety equipment, but in any specialized work they may be expected to do.

- Establish Procedures for Weather-Related Problems

Weather conditions can affect site work. Temperature extremes, high winds, storms, etc. impact on personnel safety. Work practices must be established to protect workers from the effects of weather and shelters provided, when necessary. Temperature extremes, especially heat and its effect on people wearing protective clothing, must be considered and procedures established to monitor for and minimize heat stress.

III B. ON-SITE EMERGENCIES

The plan must address site emergencies - occurrences that require immediate actions to prevent additional problems or harm to responders, the public, property, or the environment. In general, all responses present a degree of risk to the workers. During routine operations risk is minimized by establishing good work practices and using personnel protective equipment. Unpredictable events such as fire, chemical exposure, or physical injury may occur and must be anticipated. The plan must contain contingencies for managing them.

- Establish Site Emergency Procedures
 - List the names and emergency functions of on-site personnel responsible for emergency actions along with the special training they have.
 - Post the location of nearest telephone (if none at site).
 - Provide alternative means for emergency communications. (Short wave, CB, siren, air horn etc.)
 - Provide a list of emergency services organizations that may be needed. Names, telephone numbers, and locations must be posted. Arrangements for using emergency organizations should be made beforehand. Organizations that might be needed are:
 - Fire
 - Police
 - Health
 - Explosives experts
 - Local hazardous material response units
 - Civil defense
 - Rescue
 - Address and define procedures for the rapid evacuation of workers. Clear, audible warning signals should be established, well-marked emergency exits located throughout the site, and internal and external communications plans developed. An example of codes that could be used for emergency operations based on direct-reading instruments is contained in Attachment C.

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- A complete list of emergency equipment should be attached to the safety plan. The list should include emergency equipment available on-site, as well as all available medical, rescue, transport, fire-fighting, and mitigative equipment.
- Address emergency medical care.
 - Determine location of nearest medical or emergency care facility. Determine its capability to handle chemical exposure cases.
 - Arrange for treating, admitting, and transporting of injured or exposed workers.
 - Post the medical or emergency care facility's location, travel time, directions, and telephone number.
 - Determine local physician's office location, travel directions, availability, and post telephone number if other medical care is not available.
 - Determine nearest ambulance service and post telephone number.
 - List responding organization's physicians, safety officers, or toxicologists names and telephone numbers. Also include nearest poison center, if applicable.
 - Maintain accurate records on any exposure or potential exposure of site workers during an emergency (or routine operations). The minimum amount of information needed (along with any medical test results) for personnel exposure records is contained in Attachment D.
- Advise workers of their duties during an emergency. In particular, it is imperative that the site safety officers, standby rescue personnel, decontamination workers, and emergency medical technicians practice emergency procedures.
- Incorporate into the plan, procedures for the decontamination of injured workers and for their transport to medical care facilities. Contamination of transport vehicles, medical care facilities, or of medical personnel may occur and should be addressed in the plan. Whenever feasible these procedures should be discussed with appropriate medical personnel in advance of operations.
- Establish procedures in cooperation with local and state officials for evacuating residents who live near the site if necessary.

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PROCESS: SITE SAFETY PLAN

III C. SITE SAFETY PLAN SCOPE AND DETAIL

The plan's scope, detail, and length are based on:

- Information available about the incident.
- Time available to prepare a site-specific plan.
- Reason for responding.

Three general categories of response exist and will be referred to in this FSOP as: emergencies, characterizations, and remedial actions. Although considerations for personnel safety are generic and independent of the response category, safety requirements and plans vary considerably in scope, detail, and length. These variations are generally due to the reason for responding (or category of response), information available, and the severity of the incident with its concomitant dangers to the responder.

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PLANNING PROCEDURES

INFORMATION/OPERATING GOALS/SPECIFICATIONS

**TRAINING
GUIDE/NOTES**

Final Action

of Plan	Comprehensive	OHSS - 11/84 Chapter 9
of Plan	Follow plan as described	
re of work	Site mitigation and restoration	U.S. Environmental Protection Agency, Office of Emergency and Remedial Response's (OERR), Standard Operating Safety Guides (November, 1984)
ing Time	Time enough for detailed planning	
History	Available site documentation	

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TRAINING PROCEDURES

INFORMATION/OPERATING GOALS/SPECIFICATIONS

**TRAINING
GUIDE/NOTES**

Ident Characterization

f Plan Plan modified w/work progression
se Use of brief site specific plan
of work Multiple purpose
ng Time Ample time
istory Available information

OHSS - 11/84
Chapter 9
U.S. Environmental
Protection Agency, Office
of Emergency and Remedial
Response's (OERR), Standard
Operating Safety Guides
(November, 1984)

SECTION IV
PLAN IMPLEMENTATION

IV. IMPLEMENTATION OF THE SITE SAFETY PLAN

The site safety plan, (standard operating safety procedure or a generic safety plan for emergency response) must be written to avoid misinterpretation, ambiguity, and mistakes that verbal orders cause. The plan must be reviewed and approved by qualified personnel. Once the safety plan is implemented, it needs to be periodically examined and modified, if necessary, to reflect any changes in site work and conditions.

All agencies and organizations which have an active role at the incident must be familiar with the plan. If possible, the plan should be written in coordination with the organizations involved. All personnel from these organizations should sign the plan to signify they agree with it and will follow its provisions.

All personnel involved at the site must be familiar with the safety plan, or the parts that pertain to their specific activities. Frequent safety meetings should be held to keep all informed about site hazards, changes in operating plans, modifications of safety requirements, and for exchanges of information. It is the responsibility of personnel involved at the site as workers or visitors to comply with the requirements in the plan.

Frequent audits by the incident manager or the safety designee should be made to determine compliance with the plan's requirements. Any deviations should be brought to the attention of the incident manager. Modifications in the plan should be reviewed and approved by appropriate personnel.

SECTION V

SAMPLE SAFETY PLANS AND OPERATING CODES

V. SAMPLE SAFETY PLANS AND OPERATING CODES

Attachments A and B are two examples of Site Safety Plans. Since no one sample plan or plan format can adequately address all safety requirements for the variety of incidents that occur, they should be used as a guide to help develop an incident-specific plan. They can also be used, with necessary adaptation, as generic plans for emergency responses.

In some incidents, the sample plans contained in Attachments A and B might be satisfactory to use by themselves. Filling in the blanks provides an effective safety plan. In many incidents they should only be considered as a check list. Since they do not exhaustively cover every condition which may need to be addressed, users of these sample plans and any other examples must realize that their application to any one incident may not be acceptable. Therefore, they must be used with discretion and tempered by professional judgement and experience. They are not meant to be all-inclusive but examples of considerations, requirements, and format which should be adapted for incident-specific conditions.

Attachment C is a suggested action plan for Emergency Operating Procedures. A code system could be a well-defined program that couples meteorological data with real-time site monitoring.

Attachment D is an example of the minimum amount of data needed to initiate work on any given response.

ATTACHMENT A

(Suggested format for minimum site safety plan)

SITE SAFETY PLAN

(Name of Hazardous Waste Site/Spill)

I. General Information

As a minimum, all personnel involved with emergency response, waste site cleanup, drum handling and opening, sampling, site investigations, etc., will follow the applicable Federal/State rules and regulations. In addition, all site personnel will follow, as a minimum, U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Hazardous Response Support Division's Standard Operating Safety Guides and Chapter 9 Hazardous Substance Response, from the EPA Occupational Health and Safety Manual.

In the event of conflicting plans/requirements, personnel must implement those safety practices which afford the highest personnel protection.

If site conditions change, and it is necessary to modify Levels of Protection A, B, or C, the safety designee on-site shall notify the On-Scene Coordinator before making recommendations to site personnel.

II. APPROVALS

(SIGNATURE)		(SIGNATURE)	
On-Scene-Coordinator (OSC)	DATE	Safety Officer	DATE
(SIGNATURE)		(SIGNATURE)	
REVIEW COMMITTEE	DATE	OTHERS	DATE

III. Summary of Minimum Requirements

A. The safety officer/designee shall:

1. Describe chemicals, hazards, and risk involved
2. List key personnel
 - a. Response manager (OSC)/alternate _____
 - b. Safety officer(s)/alternate _____
 - c. Other responsible site personnel/alternate _____
3. Prescribe Levels of Protection
4. Designate work zones: Support area, contamination reduction area, exclusion area.
5. Implement procedures to control

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6. Define decontamination procedures.
7. Delineate entry and escape routes.
8. Identify/contact medical facility, etc.:
 - a. Fire _____
 - b. Ambulance _____
 - c. Police _____
 - d. Health _____
 - e. Etc. _____
9. List responsible parties and emergency contacts:
 - a. Federal Government EPA/USCG/CDC/OSHA
 - b. State Government Environmental/Health Agency
 - c. County/City Government _____
10. Establish personnel air monitoring.
11. Specify routine and special training needed
12. Establish procedures for managing weather-related problems.

B. Levels of Protection

1. Level C protection should be used for those job functions listed below where there is no potential for personnel contact with either hazardous materials or gases, vapors, or particulates exceeding requirements for wearing air-purifying respirators.

(Identify job functions in this paragraph:
e.g. - monitoring/surveillance, supervisors,
observers, etc.)

(Identify specific type of respirator in this paragraph:
e.g. - approved respirator and type of canister.)

(Identify skin protection in this paragraph:
e.g. - double boots, double gloves, Tyvek/Saran hooded,
disposable coveralls, etc.)

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2. Level B protection should be used for those job functions listed below, based either on potential or known site conditions and/or vapor and gas concentrations, for which Level C is unsatisfactory.

Identify job functions in this paragraph:
(e.g. - Heavy equipment operations, samplers, equipment/
drum handlers, etc.)

Identify specific respiratory protection in this paragraph:
(e.g. - self-contained breathing apparatus (SCBA), supplied air
respirator)

Identify skin protection in this paragraph:
(e.g. - double boots, double gloves, type of chemical re-
sistant garment, etc)

3. If Level A protection is applicable, write a paragraph in plan listing where and when it is to be worn.
 4. Level D is not adequate protection for any work on-site where potential for exposure is possible.
 5. Levels C and B may be modified based on monitoring and sampling data collected on-site. Safety designee should not make any modification to the Level of Protection without discussing it with the On-Scene-Coordinator.
- C. Air monitoring - Refer to Standard Operating Safety Guides, Part 8, Air Surveillance. (and/or FSOP #8.)

D. Training

- Personnel must have both formal training and prior-on-the-job training for those tasks they are assigned to at the incident. All unfamiliar activities will be rehearsed beforehand.

E. Respiratory Protection Program

All contractor and government personnel involved in on-site activities shall have a written respiratory protection program. All personnel wearing air-purifying respirators and self contained units on-site are required to be fit-tested. All personnel wearing respirators must be properly trained and physically fit. All respirators are to be properly decontaminated at the end of each workday.

Persons having beards or facial hair must not wear a respirator if a proper mask-to-face-seal can not be demonstrated by a fit test. A log of all individuals wearing personnel protective equipment shall be maintained, including time in exclusion zone.

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F. All contractor and government personnel who are exposed to hazardous levels of chemicals or use respirators must be enrolled in a medical monitoring program.

G. General Safety Rules and Equipment

1. There will be no eating, drinking, or smoking in the exclusion or contamination reduction zone.
2. All personnel must pass through the contamination reduction zone to enter or exit the exclusion zone.
3. As a minimum, emergency eye washes will be on the hot side of the contamination reduction zone and/or at the work station.
4. As a minimum, an emergency deluge shower and/or spray cans are to be located on the clean side of the contamination reduction area.
5. At the end of the work day, all personnel working in the exclusion area shall take a hygienic shower.
6. All supplied breathing air shall be certified as grade D or better.
7. Where practical, all tools/equipment will be spark proof, explosion resistant, and/or bonded and grounded.
8. Fire extinguishers will be on-site for use on equipment or small fires only.
9. Since site evacuation may be necessary if an explosion, fire, or release occurs, an individual shall be assigned to sound an alert and notify the responsible public officials if required. For example, the evacuation signal may be two long horn blasts every 30 seconds until all personnel are evacuated and accounted for.
10. An adequately stocked first-aid kit will be on-scene at all times during operational hours. It is suggested that an oxygen inhalator respirator be available and a qualified operator be present. The location of these items and the operator shall be posted.

H. Morning Safety Meeting

A morning safety meeting will be conducted for all site personnel and they will sign a daily attendance sheet and should sign a master sheet indicating they have read the site safety plan and will comply. The safety procedures and the day's planned operations should be discussed.

Attachment B

OCCUPATIONAL HEALTH AND SAFETY MANUAL

APPENDIX A - SAMPLE SAFETY PLAN

Assistance in preparing the safety plan can be obtained from the OHS
Designee _____ located in Room _____ of Building _____
or by telephoning _____.

REVIEW

Response Safety Committee Chairperson _____

APPROVALS

OSC/SFC _____

OHS Designee _____

OIC _____

PROJECT LEADER

Branch _____

Building _____

Room _____

Phone _____

DATE OF PLAN PREPARATION _____

HAZARDOUS SUBSTANCE RESPONSE

Site Name _____ Site No. _____

HAZARDOUS/SUBSTANCES (known or suspected, contaminated media or in
storage container, etc.):

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HAZARD ASSESSMENT (toxic effects, reactivity, stability, flammability, and operational hazards with sampling, decontaminating, etc.):

MONITORING PROCEDURES (If required by the Project Leader)

Monitoring the site for identity and concentration of contamination in all media:

Medical monitoring procedures for evidence of personnel exposure:

Personnel monitoring procedures:

DECONTAMINATION AND DISPOSAL

Decontamination Procedures (contaminated personnel, surfaces, materials, instruments, equipment, etc):

Disposal Procedures (contaminated equipment, supplies, disposables, washwater):

EMERGENCY PROCEDURES

In event of personnel exposure (skin contact, inhalation, ingestion):

In event of personnel injury:

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In event of potential or actual fire or explosion:

In event of potential or actual ionizing radiation exposure:

In event of environmental accident (spread of contamination outside sites):

EMERGENCY SERVICES (complete here or have separate list available on-site)

Location

Telephone

Emergency Medical Facility

Ambulance Service

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Location

Telephone

Fire Department

Police Department

Poison Control Center

PERSONNEL POTENTIALLY EXPOSED TO HAZARDOUS SUBSTANCES

Personnel Authorized to Enter site

1. _____
2. _____
3. _____
4. _____
5. _____

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Other personnel assigned to handle hazardous substances
(decontaminate, analyze samples)

1. _____
2. _____
3. _____
4. _____
5. _____

ALTERNATIVE WORK PRACTICES

(Describe alternative work practices not specified in this Chapter.
Indicate work practices specified in the Chapter for which proposed
alternative work practices will serve as substitute.)

APPROPRIATE LITERATURE CITATIONS

LEVEL OF PROTECTION

SITE MAP

(Attach a site map in advance of a response, if possible, or at an
early stage of an emergency response. Map should be properly scaled and
keyed to local landmarks.)

ATTACHMENT C

Emergency Operation Codes
Real-Time Monitor
(suggested minimum action plan)

(Site Name)

CODE DESIGNATIONS

1. GREEN

A. Normal operations

2. YELLOW A

A. Cessation of specific work activity on-site because of:

(1) Indications of emissions from the site such as continuous organic readings on direct-reading instrument of * ppm above background (measured 20-30 ft. from point of suspected release), and

(2) Current or projected meteorologic conditions indicate a probable impact on work activity.

B. If background readings above * ppm are obtained during cessation of activity, redesign activity to lower releases and/or delay that on-site activity until off-site air monitoring indicates acceptable off-site concentration.

C. Site personnel will immediately notify EPA/State of site condition.

3. YELLOW B

A. Termination of all work on-site because of:

(1) Indications of emissions from the site such as continuous organic readings on direct-reading instrument * ppm above background: (measured approximately 1,000 ft. from work area or site property limits), and

(2) Current or projected meteorologic conditions indicate a potential impact on inhabited areas.

B. Site personnel will immediately notify EPA/State of site conditions.

C. EPA/State will modify off-site air monitoring to meet the needs of contingency plan.

4. RED

A. Termination of all work on-site because of:

(1) Indications of emissions from the site such as continuous organic readings on direct-reading instruments
* ppm above background (measured downwind at the nearest occupied area off-site, and

(2) Current or projected meteorologic conditions indicate a potential impact on inhabited areas.

B. Site personnel will immediately notify EPA/State of site conditions.

C. Local officials making evacuation/public health decisions will be advised by EPA/State to:

(1) Release a public health advisory to potentially affected areas since on-site control methods will not reduce the source of contamination; and/or

(2) Implement a temporary relocation plan because on-site activities indicate a potential for continuous above background/acceptable readings at the nearest inhabited area(s).

*Concentration should be determined by appropriate response personnel.

Attachment D

RESPONSE SAFETY CHECK-OFF SHEET

(minimum required data)

I. Before Response

Employee _____

1. Incident: Site _____ City _____ State _____
a. Response Dates _____

2. Type of Response: Spill _____ Fire _____ Site _____ Train _____ Other _____

3. Incident Safety Plan: Region _____ ERT _____ Not Developed _____

4. Suspected chemical(s) involved: (a) _____ (b) _____
(c) _____ (d) _____

5. Protective Level(s) involved: A _____ B _____ C _____ D _____
(a) If Level C - 1. Identify Canister _____

2. Describe air monitoring sources(s) _____

(b) If Level D JUSTIFY (in comments section at bottom of page).

6. SCBA-Identify Buddy: Name/Organization _____

7. Last Response: (a) Level Used: A _____ B _____ C _____ D _____

(b) Medical Attention/Exam Performed: Yes _____ No _____

II. AFTER RESPONSE

1. Protective Level Used: A _____ B _____ C _____ D _____

a. Level C - identify cannister: _____ b. Level D (comment below)
c. Level B or C skin protection: Tyvek/Saran _____ Acid/Rain _____ Other _____

2. List possible chemical exposure: Same as above (a) _____
(b) _____ (c) _____ (d) _____

3. Equipment Decontamination: (a) clothing (b) respirator (c) monitoring
Disposed: _____
Cleaned: _____
No Action: _____

4. Approximate time in exclusion area: _____ hours per day for _____ days

5. Was medical attention/exam required for this response: Yes _____ No _____

Part I: DATE PREPARED: _____ Reviewed by _____ Date _____

Part II: DATE PREPARED: _____ Reviewed by _____ Date _____

COMMENTS: _____