

# Integration of Exposure Assessment, Responder Activity Documentation, and Controls into ERHMS

## Purpose

If hazardous exposures are identified or anticipated, exposure assessment plans must be established. This exposure assessment must be performed early in an incident response and sustained throughout the incident response and recovery phases. This assessment is necessary to establish links for the purposes of medical and public health intervention, compliance, or liability actions.

## Principles of Sampling Strategies

Important parameters of the sampling strategy include the scope; comprehensiveness; number, timing, and frequency; and the methods used for sampling:

### The following factors must be assessed:

- Job requirements and tasks.
- Existing engineering and administrative controls.
- Personal protective equipment (PPE) requirements, standard operating procedures, and worker training.
- Potential hazards involved in collecting and shipping the samples.



*Operating monitoring equipment to detect hazardous exposures*

### The following factors must also be considered:

- Additive/synergistic effects from simultaneous exposure to mixtures of substances.
- Appropriate adjustments for nontraditional work shifts.
- Appropriate Reference Values and Occupational Exposure Limits (OELs).
- Reported health problems and concerns of workers.
- Other stressors (e.g., heat, fatigue, noise, ionizing radiation) that may be present.
- All routes of exposure (e.g., dermal, inhalation).
- Obtaining representative samples using appropriate sample strategy approaches.

### Don't forget:

- Multiple sampling strategies are often necessary.
- It is critical to understand the advantages, disadvantages, and limitations of the sampling methodology used.
- Skin contact can be a significant route of exposure that should not be overlooked.

## Types of Exposure Assessment Determinations

There are three decisions that public health professionals ascertain from the assessment:

- (1) Acceptable:** A job or task has exposures below a pre-determined OEL.
- (2) Unacceptable:** Exposures exceed or will exceed predetermined OELs, and imply an added health risk to the affected responders.
- (3) Uncertain:** Complex, unknown or mixed exposures; requires further information gathering.

## Documenting Responder Activities

Examples of information to be collected, documented, and included in investigative reports:

- Date, time, location, photos, and contact information of individual collecting the sample.
- Background readings, locations, and number of samples taken.
- The activity/task being evaluated, and number of workers exposed.
- Chemicals monitored, volumes/concentrations in use, other hazards present.

## Measures to Control Exposure, Including PPE

- Verify that the PPE recommended is consistently and correctly worn by responders.
- Ensure that change schedules for recommended PPE are clear and appropriate.

Use of controls should be monitored, new controls being implemented should be noted, and use of controls through direct observation in the field should be verified.

## Emergency Responder Health Monitoring and Surveillance

The Emergency Responder Health Monitoring and Surveillance (ERHMS) system is a health monitoring and surveillance framework that includes recommendations and tools specific to protect emergency responders during the pre-deployment, deployment, and post-deployment phases of a disaster. The intent of ERHMS is to identify exposures and/or signs and symptoms early in the course of an emergency response in order to prevent or mitigate adverse physical and psychological outcomes and ensure workers maintain their ability to respond effectively and are not harmed in the course of this response work. Data will also help to identify during the post-deployment phase which responders would benefit from medical referral and possible enrollment in a long-term health surveillance program. Please refer to Chapter 7, section 7T, and Appendix B for more information on Integration of Exposure Assessment, Responder Activity Documentation, and Controls into ERHMS.

### National Institute for Occupational Safety and Health (NIOSH) ERHMS Contact:

[erhmsonline@cdc.gov](mailto:erhmsonline@cdc.gov)

For more information on ERHMS, please visit:

[www.cdc.gov/niosh/erhms](http://www.cdc.gov/niosh/erhms)