

Workplace Inspection and Hazard Management Guidance

**Office of Environment Safety and Health (EH)
Federal Employee Occupational Safety and Health (FEOSH)
Program**

Draft

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FEOSH

***Ensuring safe and healthful
conditions for U.S. Department
of Energy Employees***

U.S. Department of Energy (DOE)

Office of Environment Safety and Health (EH)

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Federal Employee Occupational Safety and Health (FEOSH) Program

August 16, 2001

This document was prepared to assist EH line managers and FEOSH program staff in conducting workplace hazard assessments. Workplace hazards are typically classified as biological, chemical, or physical conditions that have the potential for causing harm to people, property, or the environment. They can include equipment and material hazards. If a hazard is combined with unexpected circumstances, unreliable physical systems, or irresponsible actions, then it can become a risk.

Hazards within EH workplaces can range from general office hazards to those encountered during field travel to DOE, production facilities, and hazardous waste sites.

The degree and complexity of management commitment and employee participation in the DOE EH's Federal Employee Occupational Safety and Health (FEOSH) program should be based on the degree of hazard and risk that exists at a DOE EH facility or workplace.

Therefore, complete and accurate identification of potential hazards and risks is essential to the effective management of FEOSH issues.

This document highlights the roles, responsibilities of EH supervision and employees, and the methods for hazard evaluation, to assure the identification of safety and health issues that can lead to an unsafe workplace.

DOE Order 440.1, Worker Protection Management for DOE Federal and Contractor Employees, implements 29 CFR 1960, FEOSH, for the Department of Energy and requires DOE line management to provide employment and places of employment that are free from recognized hazards that can cause death or serious physical harm. This document is intended to help managers meet these requirements.

EH managers must identify, evaluate and control all hazards that pose a risk to the safety of EH workers, the public that may be exposed during EH work activities, and the environment. This document contains the process that EH management is to use to verify that hazards are adequately managed.

Effective hazard management will enable DOE EH managers to know when controls, training, radiation dosimetry, and medical monitoring are effectively minimizing exposures of EH employees, the public and the environment to hazards associated with EH activities.

This is particularly important for DOE EH personnel traveling to other facilities outside DOE EH headquarters.

These individuals may be exposed to hazards such as chemical processes, waste management, facility demolition, beryllium operations, asbestos, and a host of general industrial safety concerns.

The hazard management system provided in this document is intended to complement basic hazard and risk analysis techniques outlined in this document and add to the overall effectiveness of DOE EH's Federal Employee Occupational Safety and Health (FEOSH) program.

A DOE EH facility or workplace that relies primarily on a single approach, such as walkthroughs, may not completely estimate or identify hazards. A Job Hazard Analysis may be an invaluable technique to identify hazards for certain tasks or jobs, particularly those where the hazards are not readily apparent in a walk-through inspection, or superficial observation, or those preformed during travel at other facilities.

Implementing the approaches discussed in this document will allow DOE EH workplaces to assume a proactive stance on hazard analysis and management. Participation by employees, labor representatives, and other affected parties is critical to successful implementation.

Introduction

There are a number of different methods that DOE EH workplaces can use to identify and evaluate safety, health, and environmental hazards. When used together, these methods will provide the DOE EH managers and employees with the information needed to recognize and understand all potential hazards. See figure 1: Overview.

DOE EH managers and employees can use the following methods to identify and evaluate workplace hazards, develop controls, and verify that implemented controls are adequate to provide a safe and healthful work environment:

The DOE EH process involves the conduct and documentation of:

- Baseline and annual workplace hazard assessments (WPHA) by EH FEOSH staff, EH FEOSH unit coordinators, and other technical resources.
- Job Hazard Analysis (JHA) conducted for each worker who travels to other facilities or who is engaged in moderate to high-risk work activities.
- Periodic management walkarounds (MWA) by EH supervision.
- Quarterly personal workplace self-assessments (WSA) conducted by employees.

- Hazard reporting by employees and supervision.
- Formal inspections by experts triggered by reported concerns.
- Accident and incident investigation.
- Analysis of injury and illness trends.

The first three approaches listed above address the need for developing a complete hazard inventory for the DOE EH facility or workplace and anticipating potential hazards for a particular job whether it is performed at DOE HQ or in the field.

The remaining techniques focus primarily on detecting hazards that may not have been controlled by existing systems.

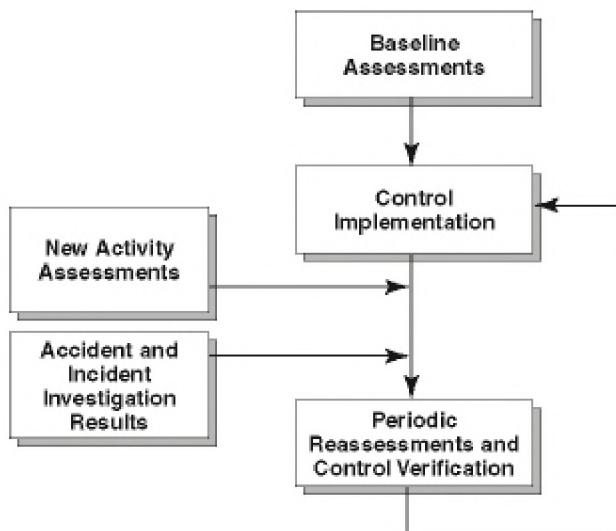


Figure 1. Overview of the Hazards Management Process

The DOE EH hazard management system:

- Identifies safety, health and environmental hazards
- Evaluates and prioritizes identified hazards
- Develops and implements controls
- Verifies the adequacy of controls

- Provides feedback as required for each element

EH will provide managers and employees with the appropriate training to ensure they have the competence to effectively implement all the elements of the hazard management system.

Information gained by these techniques is important for planning, safe conduct, and monitoring of work by employees and supervisors. It is a crucial and integral element of the DOE EH Integrated Safety Management (ISM) program, and control of facility or workplace operations.

This document highlights the methods for initial and periodic hazard inspections that need to be implemented by EH managers. These methods include:

- Initial baseline and thereafter annual workplace assessments by a team of technical experts, and employee's or their designated representative.
- Periodic walkarounds conducted by EH supervision.
- Periodic workplace self-assessments conducted by individual employees of their personal workstation/offices.

DOE EH Program Requirements for an effective hazard identification and evaluation program are outlined in the FEOSH Rule 29 CFR 1960 and the DOE Order 440.1 and its implementation guides. This document addresses each of these requirements.

Each DOE EH facility or workplace must:

- Conduct baseline identification of all hazards or potential hazards.
- Implement systems and approaches for periodic identification of hazards not controlled through existing programs and procedures, including an annual inspection.
- Implement a procedure that encourages the reporting of hazards by employees.
- Investigate accidents and incidents with an emphasis on determining root cause.
- Determine trends in accidents and incidents.
- Identify and implement appropriate corrective action(s).

Program Administration

To effectively manage the hazard identification and evaluation program, the ultimate responsibilities for maintaining a safe workplace are assigned to DOE EH line managers. The DOE EH FEOSH Program Manager and unit FEOSH coordinators will assist and advise the DOE EH line manager.

EH management responsibilities under 29 CFR 1960, and DOE Order 440.1 include:

- Conducting a baseline identification of hazards of their workplaces
- Coordinating the ongoing identification and evaluation of hazards through inspections, reporting, etc.
- Quickly responding to, and evaluating, any hazards reported by employees.
- Investigating accidents and incidents.
- Completing accident and incident records and investigation reports.
- Periodically evaluating accident and incident data to determine any trends.
- Identifying corrective actions for any hazards or deficiencies identified through inspections, employee reports, incident investigations, or other means.
- Tracking corrective actions.
- Implementing and evaluating the effectiveness of corrective actions.
- Maintaining documentation for the hazard identification and evaluation program (e.g., inspection checklists, accident/incident reports and investigations, corrective action logs, posting inspection reports and corrective action plans, etc.)

Hazard Identification and Evaluation Methods

Identifying and evaluating hazards is a four-step process:

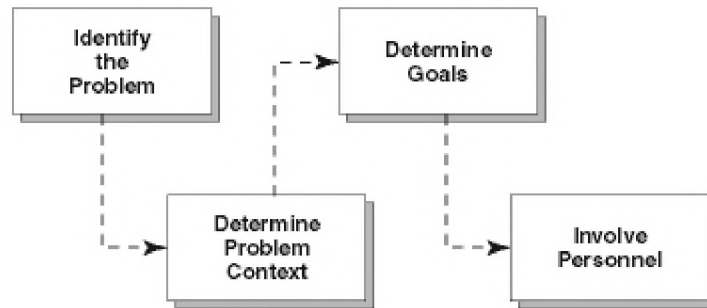


Figure 2. Four step hazard evaluation process

The steps can be performed in order, but do not have to be, depending on the situation.

Identify the Problem

A variety of methods are used to identify problems. For example:

- Review FEOSH inspection and monitoring results and/or reports.
- Conduct literature reviews of toxicology and epidemiology studies relevant to EH workers exposures.
- Review accident and incident records.
- Reports of sensory perceptions of employees (e.g., back, neck or wrist pain, irritation, odor, etc.)

The fundamental more formal approaches to hazard identification and evaluation the EH will employ are baseline/annual inspections, and job hazard inventories (JHAs). These techniques are used to establish a baseline for new or modified operations or procedures, but can also be used in the ongoing management of hazards.

Ongoing identification and evaluation methods must be implemented according to 29 CFR 1910.120, to determine if new hazards are introduced and if control methods are successful. The approaches EH will employ are, periodic personal workspace assessments conducted by employees, periodic management walkarounds, and employee complaints.

Baseline and Annual Inspections

Baseline and annual inspections are fundamental to identifying hazards. Baseline inspections are used to establish an inventory of the hazards and potential hazards at the DOE EH facility or workplace. Additional annual updates of the baseline inspection are conducted to ensure that previously detected hazards have been controlled and that new hazards have been identified. In addition, annual inspections can be used to conduct a more intensive analysis in areas that have a moderate to high risk potential for serious injury or illness, such as beryllium exposure, including new or less obvious hazards.

At a minimum, DOE EH workplaces must conduct a preliminary baseline inspection, followed by annual periodic inspections conducted by a multidisciplinary team with sufficient experience and expertise to recognize hazards in their area of review, and to identify effective corrective actions.

For some DOE EH workplaces, it may be necessary to supplement the team with appropriate personnel from outside the DOE EH facility or workplace, such as specialized FEOSH consultants. When conducting an inspection, the team should divide the process into four phases as shown in Figure 2-1.

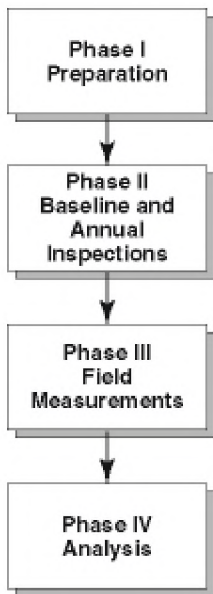


Figure 2-1: Four Phases of Baseline or Annual Inspections

The components of each of these phases are discussed in more detail in the following sections.

Phase I: Inspection Preparation

Adequate preparation is essential to the success of an inspection. Prior to an inspection, the team should become familiar with the operations at the DOE EH facility or workplace, identify which areas or operations have potentially significant risk and might require closer evaluation.

Since the inspection team must understand the extent of the regulatory requirements, it is also necessary to have an up-to-date list of applicable regulations, as well as the DOE EH facility or workplace-specific requirements, prior to starting the inspection.

These standards and requirements include, but are not limited to:

- Section 19 of the *Occupational Safety and Health Act of 1970*, Public Law 91-596, 91st Congress, S. 2193, December 29, 1970.
- Executive Order 12196, *Occupational Safety and Health Programs for Federal Employees*.
- Title 29 Code of Federal Regulations, Part 1960 (29 CFR 1960), *Elements for Federal Employee Occupational Safety and Health Programs*.
- Title 10 CFR Part 835, *Occupational Radiation Protection*.
- Title 10 CFR Part 850, *Chronic Beryllium Disease Prevention Program*.
- DOE Order 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees*.
- DOE Order 442.1, *Department of Energy Employee Concerns Program*.
- DOE P 450.4, *Safety Management System Policy*.
- Others determined as applicable and necessary.

This task should be completed before every baseline and annual inspection, since existing regulations may have changed and new regulations may have been promulgated. Once the inspection team has gained a clear understanding of DOE EH facility or workplace operations, and has reviewed all of the relevant documentation, it should be able to evaluate the potential hazards that may be encountered in the DOE EH facility or workplace. To do this, the EH inspection team should obtain or develop a workplace inspection checklist of anticipated hazards and FEOSH program requirements to guide the inspection. An example checklist may be found in Appendix A to this document.

Accident and incident investigation records should be reviewed. A review of these records will uncover hazards missed by other approaches or corrective actions due to changing conditions.

The inspection team should then use this information to conduct an efficient and thorough hazard assessment. Once the inspection preparation has been completed and the potential hazards have been identified, the team should conduct a walk-through inspection using the checklist to:

- Verify conclusions made in Phase I.
- Identify easily recognizable hazards not anticipated in Phase I.
- Assess the effectiveness of the hazard controls in place.
- Verify compliance with OSHA and DOE requirements.
- Determine if detailed studies such as exposure monitoring will be needed for Phase III.

Refer to Figure 2-2 for a summary of the components of Phase I.

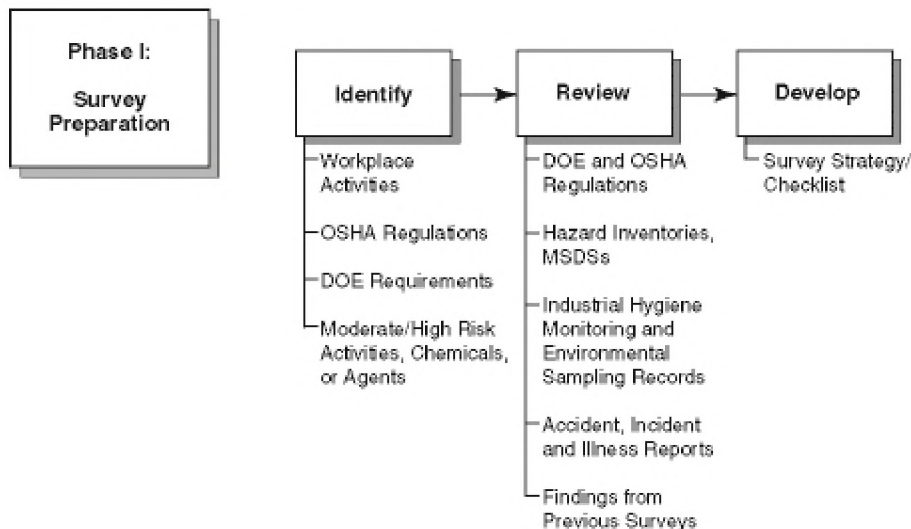


Figure 2-2; Summary of the components of Phase I.

Phase II: Inspections

Title 29 CFR 1960.79 requires that EH FEOSH Program self-evaluations, inspections, be developed and implemented. The EH Federal Safety and Health Manager must conduct an annual programmatic review using this document. Results of the EH FEOSH Program review, as well as reviews from all other departmental FEOSH Programs, will be used to

prepare the annual DOE report on occupational safety and health to the Secretary of Labor, as required by 29 CFR 1960. The Deputy Assistant Secretary for Safety and Health (EH-1) must prepare this report on behalf of the Secretary and may request, as appropriate, information from all Department organizations to complete the annual report.

MA-211 is responsible for building maintenance and correction of related hazards for the Forrestal and Germantown facilities, as well as being the point-of-contact for the General Services Administration (GSA) leased space, the annual inspection of work spaces, as required by 29 CFR 1960, will be jointly performed by MA-211 (Safety and Health Manager), the organizational element's FEOSH point-of-contact, and NTEU. Each Organizational element will review its high-risk activities that take place away from their occupied space.

During the walk-through, the inspection team must be ready to accept any new information that may change the direction or focus of the inspection from the original design established in Phase I. Team members should observe and interview employees performing routine and special tasks; review equipment and facilities (including ventilation systems); and note obvious signs of exposure, contamination, or emissions.

For example, signs of exposure could include: airborne dust, smoke, mist, and aerosols; surface accumulation of dust, liquid, or oil; odors from solvents or gases; unusual tastes; and burning or irritation of the nose or throat. If industrial hygiene or environmental sampling is needed in Phase III, a walkthrough will also provide the inspection team with critical details for the design of an effective sampling plan. As the inspection team conducts the walk-through, they should ensure that the following items are documented pertaining to potential Phase III concerns:

- Description of tasks and operations having potential exposures or emissions.
- Description of associated controls for these tasks and operations.
- Frequency and duration of operations with potential exposures or emissions.
- Number of employees potentially exposed.

Although a walk-through inspection is only a snapshot in time, the effectiveness of the hazard controls in place (e.g., engineering, administrative, and work practice) should be assessed through observation.

Involve Employees

Involvement of DOE EH facility or workplace personnel in hazard identification, risk analysis, and appropriate decision making processes is critical. With employee involvement, decisions are typically more widely accepted, as well as are more effective.

Employee perspectives add important experience and expertise to the process, along with different interpretations and perceptions of risk.

Certain persons may become involved based on expertise, experience with similar risks in the past, scope and impact of the decision. For participation, employees need management support, training, guidance from experts, and experience. It is also very important to involve employees from the very beginning of the process.

Conducting the Baseline or Annual Inspection

All hazards or areas of noncompliance identified through inspections, reporting or other means must be documented and investigated. Hazards include any condition or situation that could pose a threat to human health or safety or to the environment.

- Organize and brief the inspection team.
- Conduct an in-briefing with EH line management and employee representatives
- Conduct walkthrough inspection utilizing the prepared checklist.
- Observe workpractices, tasks and operations.
- Look for obvious signs of exposure, contamination, or emissions.
- Determine compliance with OSHA regulations 29 CFR 1910, FEOSH Rules 29 CFR 1960, DOE 440.1, and other accepted standard practices such as NFPA Life Safety Codes and National Electric Codes.
- Evaluate effectiveness of engineering controls.
- Interview employees and supervisors as necessary.
- Other issues that should be evaluated include, but are not limited to, chemical and waste storage, disposal, MSDS's, ventilation, respiratory protection, protective clothing, training, general work practices, use of standard operating procedures (SOPs), written programs, required postings, and record keeping.
- Prepare the inspection findings and report, using at minimum the example Workplace Inspection Checklist Form (Appendix A), the inspection log, and other forms required by MA.
- Conduct an exit briefing with EH line management and employee representatives.
- Transmit inspection reports to the EH FEOSH Manager for final review, approval, coordination, and disposition.

Refer to Figure 2-3 for a summary of the components of Phase II.

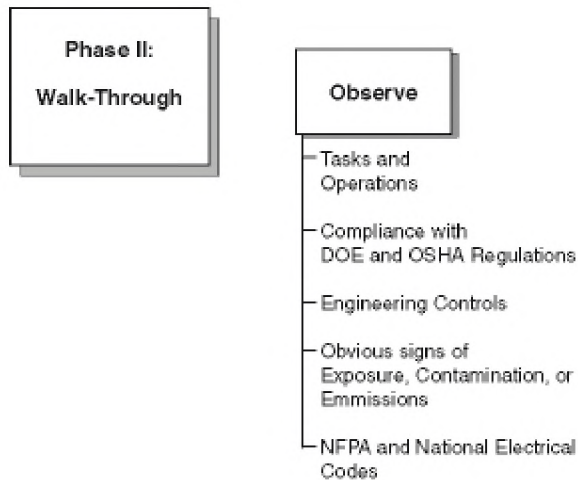


Figure 2-3: Phase II of a Baseline or Annual Inspection

Phase III: Field Measurements

Once the walk-through has been completed, enough information should have been obtained to determine whether follow-up investigation is needed. For example, after determining that workers may be exposed to levels of methylene chloride above acceptable limits, the inspection team should coordinate industrial hygiene monitoring to quantify the potential exposure more accurately.

Activities during Phase III if indicated are:

- Perform field measurements or more detailed survey and or Job Hazard Analysis.
- Conduct industrial hygiene monitoring.
- Conduct more detailed behavioral safety or ergonomic inspection and analysis.

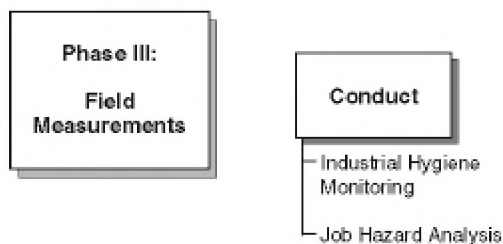


Figure 2-4: Phase III of a Baseline or Annual Inspection

Phase IV: Analysis of Inspection Data, Taking and Tracking Corrective Actions

The final phase of a inspection involves evaluating information obtained in Phases I through III and taking corrective actions.

Both the qualitative and quantitative findings concerning hazards encountered in the inspection should be used to develop a list of needed controls or work practices, as well as improvements to the management systems. In addition, this final phase should include an evaluation of any new permitting or monitoring requirements that were identified during the walkthrough.

Refer to Figure 2-5 below for a summary of the components for Phase IV. Information obtained from the inspections can also be incorporated into other hazard analysis techniques. For instance, observations recorded in the walk-through can be used to develop a checklist for routine inspections. Once the analysis has been completed, the team, along with the appropriate DOE EH facility or workplace supervision, should review the concerns identified in the inspection.

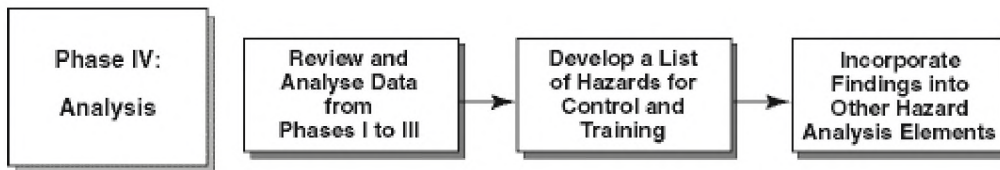


Figure 2-5: Phase IV of a Baseline or Annual Inspection

Job Hazard Analysis

A Job Hazard Analysis (JHA) is a systematic method for identifying the hazards of a particular task or job, hazards that may not be readily apparent from a cursory examination of the operation.

This technique is a process that provides an evaluation of the workers tasks in question. First, activities required to complete a Job Hazard Analysis are to identify the work tasks the employee performs. Such as the worker enters radiation or beryllium control areas for the purposes of conducting inspections. Next, examine the work for the hazards present, and where exposure to hazardous agents could exist, such as the beryllium facility or chemical processing areas of a particular site or facility.

After each hazard or potential hazard has been listed and reviewed with the employee performing the job, recommendations on preventing or reducing exposure to the hazards

or modifying work tasks are developed, needed training, exposure or medical monitoring is also determined.

For a JHA to be most effective, it should be conducted by trained personnel who have experience in many aspects of FEOSH management (e.g., industrial hygiene, health physics, fire safety).

In many cases, a team approach will provide the most valuable information. Whether individuals or teams conduct JHAs, it is essential to always involve an individual whose task being assessed. Some may involve combining or changing the sequence of job steps, adding engineering controls, or revising written programs. For instance, a properly conducted JHA may reveal that training is incomplete or nonexistent, or that the personal protective recommendations resulting from a JHA need to be implemented.

The JHA Process

- Select the worker/job activities to be analyzed.
- Break the job down into work activities or requirements, such as employee operates a particular noise producing piece of equipment, enters or works at a hazardous waste site, a radiation or beryllium area, etc.
- Identify the hazards and potential accidents. For each work activity, determine what accidents or potential exposures could happen to the employee performing the job.
- Recall data trends, past accidents and incidents. Include employee recollections of accidents, illnesses, and near misses.
- Examine how the task and environment interact with the employee:
 - Can the employee be struck by anything?
 - Can the employee strike up against or come into contact with anything?
 - Can the employee be caught in, on, or between anything?
 - Can the employee fall?
 - Can the employee overexert?
 - Can the employee be exposed to hazardous agents such as beryllium, radiation, asbestos, noise, etc.
 - Examine how the employee performs the job, such as exertion is required, or if respirators and personal protective equipment must be worn.
 - Determine in what ways can other deviations of expected actions and assumptions present hazards, such as fires, explosion, nuclear criticality, heat stress etc.?
- Evaluate adequacy of and need for control measures.

- Review the findings with employees who perform the job task(s).
- Formulate recommendations for worker training, protective measures, medical monitoring, work task modification, exposure reduction and minimization, and feedback information for improved FEOSH management of workers with similar hazard exposures.

A JHA may be a simple qualitative analysis or a more formal detailed quantitative task and exposure analysis. A JHA for a particular worker or work activity may not need to be conducted using all the steps or in great detail. The concept, in simple terms is to qualitatively identify the hazards the worker is exposed to, needed control measures, training, exposure and medical monitoring, and the need for new or modified procedures.

JHA for a particular work activity may need to include a detailed task analysis to fully understand the hazards and nature of exposure. In these cases the work is evaluated in a more quantitative method. Analysis of discrete tasks may also show that the training provided to employees has not been effective, procedures may need to be modified or, it may be necessary to redesign equipment, change tools, or provide extra machine guarding. For more information on the JHA process see the DOE Guide 440.1-3 “Occupational Exposure Assessment.”

In all cases hazards identification and recommendations should be clearly communicated to the employee, and should be as specific to the employees work activities or procedures as possible.

A JHA for a given worker or work task should be updated periodically, even if changes have not been made in the job. Also, if an accident, exposure, or injury occurs, the JHA specific to that job should be reviewed to determine if changes in the procedure are necessary. When changes are mandated, DOE EH line managers should ensure that affected employees have received additional training.

Ongoing Hazard Identification and Evaluation

Periodically, the DOE EH facility or workplace should determine if hazards identified through the baseline inspection are being effectively controlled by existing systems and procedures. In addition, ongoing identification and evaluation methods are important in identifying any new hazards that may not have been captured by change management procedures.

Ongoing hazard identification and evaluation techniques include:

- Hazard reporting by employees and supervision.

- Periodic walkthrough inspections by management and personal workspace assessments by employees.
- Accident and incident investigation and analysis.
- Tracking and trending for accidents, illness, and correction actions for hazards abatement.
- Employee personal workspace self-assessments, input and participation in their FEOSH program.

Each of these techniques is described in the following sections.

Hazard Reporting

Employee involvement is critical to the success of the FEOSH program. Each DOE EH facility or workplace must develop a mechanism to encourage hazard reporting; this system should be based on management controls that are founded on employee involvement, responsibilities, authority, and resources.

Employees who work in a DOE EH facility or workplace every day are an invaluable source of FEOSH information. With proper training, employees are likely to be the first to identify a hazard or a possible inadequacy in protective systems, equipment, or procedures.

For this reason, the DOE EH facility or workplace should institute a reliable system for employees to notify management of existing or potentially hazardous conditions. In an effective system, employees must have no fear of reprisal, and management must take credible and timely action to address problems that are revealed.

In DOE EH workplaces, employees should be encouraged to first report a hazard to their supervisor. If this is not possible, unit EH FEOSH coordinator should be contacted. If any of these persons cannot be reached, the FEOSH Manager should then be contacted.

Periodic Inspections – Management Walkarounds and Employee Personal Workspace Self-Assessments

Once hazards have been identified in a workplace and hazard controls have been established, the DOE EH facility or workplace should conduct routine FEOSH inspections to monitor the effectiveness of these controls and to identify new or previously undetected hazards.

Unlike comprehensive inspections or audits, management walkarounds (MWAs) and Employee Personal Workspace Self-Assessments (WSAs) require minimal time and are conducted more frequently.

Also, since these periodic inspections require less expertise than formal inspections and JHAs, supervisors and employees can perform the inspections with minimal training and support by the unit FEOSH coordinator, and EH FEOSH Manager as needed.

This integration enhances employee involvement in the overall FEOSH program. Inspections of this type should not be used in place of inspections or audits since they will not identify all regulatory requirements or management system deficiencies for the DOE EH facility or workplace; they should be used as a routine tool for hazard identification.

Management Walkarounds (MWAs)

Managers should walk the EH office spaces they are responsible every month to determine the presence or introduction of hazards.

To conduct the walkthrough inspection, the supervisor should use a checklist of FEOSH issues that need to be examined and reviewed (e.g., safety equipment, general work practices, personal protective equipment, chemical storage and handling, etc.).

The FEOSH unit coordinator can provide customized inspection lists for each work area with assistance from the EH FEOSH Program Manager, from the hazards identified in the baseline and annual inspections.

Employee Personal Workspace Self-Assessments (WSAs)

Individual employees on a quarterly basis should perform the WSA with the assistance of the unit FEOSH coordinator if required. It is a simple checklist that can be completed in approximately 30 minutes. The WSA engages employees in accepting responsibility for their safety and personal workspace, and teaches them to proactively identify and correct hazards.

Using the WSA checklist the employee answers a few questions on the status of conditions including:

- Damage to office equipment and furniture.
- The condition of electrical appliances, cords, extension cords and outlet strips, plugs, switches, lighting fixtures, etc.
- The adequacy of lighting.
- Presence of uncomfortable workstation design, neck, back and wrist pain.
- Damage to floor and walking surfaces.
- Any water damage to ceilings, walls, and floors.
- Unusual persistent noxious odors.
- Office clutter and stacking of files, boxes and other materials.
- Trash and refuse removal.
- Presence of insects, rodents, or other vermin.
- Clear aisle ways and areas around office furniture and equipment.
- Any changes in job duties or conditions that would require a formal evaluation by a FEOSH technical expert.

The employee completes the WSA on a periodic basis, forwards it to the EH FEOSH unit coordinator for review. The FEOSH unit coordinator reviews the findings with supervision. Supervision is responsible for initiating corrective actions, tracking the actions to completion, and informing the employee of the action to be taken. The FEOSH unit coordinator forwards a copy of the individual WSAs to the EH FEOSH Manager for records retention, consultation, or assistance. See Appendix B for a sample WSA checklist.

The EH FEOSH Program Manager may provide a sample DOE EH Personal Workspace Self-Assessment checklist and Supervisor Walk-around Checklist.

Tracking and Trending

Periodically, a DOE EH facility or workplace should review all accident and incident investigation reports to determine if any trends or patterns are evident. This review may indicate the need to modify procedures, and may also provide justification for taking

actions that may require significant time or money to implement. Furthermore, this review can reveal when incident rates have increased or decreased, and can be used to measure the effectiveness of the FEOSH program. Trends may be identified in a variety of investigation report components.

For example:

- Job task involved in the accident, exposure or illness.
- Department or work area involved.
- Body part affected.
- Type of incident (e.g., exposure to radiation, beryllium or other agent above a regulated standard, or injuries such as lacerations or ergonomic problems).
- Hazardous agent involved.
- Accident analysis root causes.
- Lost workday cases, rates.
- Employee classification.
- Others.

Determine the problem in context to the inherent hazards with the work employees are engaged in. In the identification and evaluation processes consider the context of the potential risk.

Key factors to consider include:

- Multiple sources of exposure to the same hazard.
- Multiple exposure routes (e.g., absorption, inhalation, ingestion).
- Exposure to multiple hazards from the same source.
- Multiple risks from multiple exposures.
- Multiple employees at risk to similar exposures, accidents, etc.

Each of these is discussed in the following sections.

Multiple Sources of Exposure

Persons responsible for identifying and evaluating hazards must determine if there is more than one opportunity for employee exposure to a given hazard. Evaluations of risk may be underestimated if this factor is not considered. It is important to include the potential for exposure outside the workplace. For example, DOE EH facility or workplace personnel may be exposed to loud noise during the workday, but may also be exposed to loud noises at home (e.g., lawnmowers and chainsaws). The resultant effect of these exposures is important.

All potential routes of exposure to a given hazard must be considered, especially if not inherently obvious. Common multiple exposure routes to EH employees at DOE field facilities or workplaces may involve inhalation and absorption. The potential for exposure to more than one hazard from a given source must be determined. The cumulative effect of multiple hazard exposures is critical to determining risk.

Effects may be additive, multiplicative, or synergistic. For example, employees may be exposed to an aerosol and a chemical simultaneously. Which may transport it to unexpected areas of the respiratory tract. This could pose and the variety of hazards that a DOE EH facility or workplace employee may encounter must be considered as a whole. This involves not only a consideration of cumulative or resultant effects as described above, but also a comparison of the different types of hazards people face each day.

Multiple Exposure Routes

If multiple exposure routes are not considered, the risk may be underestimated. This underestimation will ultimately affect decisions and/or completely different risk potential.

Multiple Risks from Multiple Exposures

Multiple risks from multiple exposures are considered when looking one given effect. For example:

- What are the potential hazards that may cause this effect?
- What are the controls for different hazards and risks than can be implemented to result in one overall effect?

Corrective actions

The EH FEOSH Program manager will assist the EH Line Manager in determining appropriate corrective actions when requested. EH Line management is responsible for talking corrective actions based upon findings of either the baseline or annual, periodic walk-around, and employee personal workspace self-assessments.

Many corrective actions will require coordination with MA-1, because MA is responsible for buildings and DOE facilities. Managers may be required to take corrective actions that only, simply require, initiating work orders for repairs or purchase orders for replacing equipment or furniture, or initiating training. Individual EH line managers need to track and follow up on their corrective actions.

Corrective action analysis involves, for example:

First, remove the stored objects to provide clear egress. Second, to re-emphasize the importance of keeping exits clear, and even based on interest. Provide additional awareness training, post signs, review the issue during monthly meetings, etc.

For each, the cost and benefit must be weighed. Other important factors to consider include the following:

- Who receives the benefits?
- Who bears the cost?
- How feasible is the option, considering the time, money, resources, and other potential limitations?
- Could a solution create another problem?

Corrective actions may include education and training, incentives, monitoring (e.g., data gathering), surveillance (e.g., observation of effects), and others. Additional research is often necessary to analyze options and/or assess costs and benefits.

Documented corrective action plans should be developed and posted in the workplace, to include, at a minimum, a description of the corrective action, the individuals responsible, and the target date for completion. DOE EH line managers must track completion of corrective action plans.

The effectiveness of corrective actions must be evaluated through subsequent inspections, audits, and performance monitoring.

Determine Goals

Another step in the process is to determine and track goals. This should be done early in the process, as goals should guide identification and analysis. Analysis may lead to a redefinition of goals. Goals are often dictated by statute and/or regulation, policy, and internal standards.

Goals should be general or specific, as needed for a given situation. Examples of general goals include the following:

- Reducing or eliminating risks of exposure to hazardous substances and agents.
- Reducing the incidence of adverse effects, repetitive motion injuries, cuts, falls etc.
- Specific goals will typically focus on determining compliance with specific aspects of a regulation, policy, and/or written program.
- Reducing the numbers of employees potentially exposed to hazardous agents such as beryllium and radiation.

APPENDIX A

WALKTHROUGH INSPECTION AND HAZARDS RECOGNITION CHECKLIST

Workplace(s) Inspected: (List rooms, etc.)

EH Responsible Supervision: (Name, Room, Phone)

Date Inspected:

Time Inspected:

Inspectors Names, Orgs, Phone Numbers:

Inspector Signature(s):

Inspectors Comments:

WALKTHROUGH AND HAZARDS RECOGNITION CHECKLIST

Workplace Inspected:

Date:

Posting Requirements

Yes No N/A

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| Is the DOE FEOSH poster displayed in a prominent location where all employees are likely to see it? | ☐ | ☐ | ☐ |
| • Are signs concerning fire and emergency escape routes, room capacities, or floor loading posted where appropriate? | ☐ | ☐ | ☐ |
| • Is the Summary of Occupational Illnesses and Injuries (OSHA No. 200) posted in the month of February? | ☐ | ☐ | ☐ |

Walking and Working Surfaces

Yes No N/A

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| • Are floors, aisles and passageways kept clean, dry and all spills cleaned immediately? | ☐ | ☐ | ☐ |
| • Are carpets kept tight so they will not develop rolls or bunch up? | ☐ | ☐ | ☐ |
| • Are office areas uncluttered, without excessive accumulation of paper or other combustible material? | ☐ | ☐ | ☐ |
| • Are floor receptacle boxes located where they may cause tripping hazards? | ☐ | ☐ | ☐ |
| • Is sufficient space (room) provided in office areas between desks and other furniture, and adjacent to doors to facilitate exit into hallways? | ☐ | ☐ | ☐ |
| • Are electric and phone cords run across aisles or passageways? | ☐ | ☐ | ☐ |
| • Are stair rails or handrails provided on all stairways? | ☐ | ☐ | ☐ |
| • Are holes in the floor or other walking surfaces repaired properly, covered or otherwise made safe? | ☐ | ☐ | ☐ |
| • Are changes of direction or elevations readily identifiable? | ☐ | ☐ | ☐ |

• Is adequate headroom provided for the entire length of any aisle or walkway?	☐	☐	☐
• Are all work areas properly illuminated?	☐	☐	☐
Electrical Safety	Yes	No	N/A
• Are flexible cords and cables used permanently as a substitute for fixed wiring?	☐	☐	☐
• Are all appliances plugged directly into receptacles?	☐	☐	☐
• Is all equipment connected by cord and plug (i.e., fans, space heaters, typewriters, microwaves, coffee pots, etc.) provided with grounded connections?	☐	☐	☐
• Are power strips or surge protectors overloaded, plugged in series or not used in accordance with the manufacturer's recommendations?	☐	☐	☐
• Have exposed wires, frayed cords, and deteriorated insulation been repaired or replaced?	☐	☐	☐
• Are junction boxes, receptacles, and switches provided with tight-fitting covers or plates, hence not exposing wires or conductors?	☐	☐	☐
• Are flexible cords and cables run through holes in walls or ceiling or through doorways and windows?	☐	☐	☐
• Are flexible cords and cables free from splices or taps?	☐	☐	☐
• Are multiple-plug adapters used?	☐	☐	☐
Fire Protection	Yes	No	N/A
• Are sprinkler heads kept clear of storage material, where the clearance between sprinkler heads and the top of storage is at least 18 inches?	☐	☐	☐
• Are fire doors unobstructed and protected against obstructions?	☐	☐	☐

• Are all doors that must be passed through to reach an exit or way to an exit always free to access with no possibility of a person being locked inside?	☐	☐	☐
• Are all fire extinguishers fully charged and in their designated places?	☐	☐	☐
• Are extinguisher locations free from obstructions or blockage?	☐	☐	☐
• Are all exit routes always kept free of obstructions?	☐	☐	☐
• Are portable fire extinguishers provided in adequate number and type?	☐	☐	☐
• Have all extinguishers been serviced, maintained, and tagged at intervals not to exceed one year?	☐	☐	☐
• Are all extinguishers checked monthly to see if they are in place or if they have been discharged?	☐	☐	☐
• Are fire extinguishers mounted in readily accessible locations?	☐	☐	☐

Means of Egress	Yes	No	N/A
• Are exits marked with an exit sign and illuminated by a reliable light source?	☐	☐	☐
• Is the direction to exits, when not immediately apparent, marked with visible signs?	☐	☐	☐
• Are doors, passageways or stairways, that are neither exits nor access to exits and which could be mistaken for exits, appropriately marked e.g., "NOT AN EXIT"	☐	☐	☐
• Are there sufficient exits to permit prompt escape in case of fire or other emergency?	☐	☐	☐
• Are there doors, which are required to serve as exits designed and constructed so that the way of exit travel is obvious and direct?	☐	☐	☐

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| • Are exit doors openable from the direction of exit travel without the use of a key or any special knowledge or effort when the building is occupied? | ☐ | ☐ | ☐ |
| • Where exit doors open directly onto any street, alley or other area where vehicles may be operated, are adequate barriers and warnings provided to prevent employees from stepping into the path of traffic? | ☐ | ☐ | ☐ |
| • Is emergency lighting in stairways, hallways and other work areas tested periodically to determine if they are in operable condition? | ☐ | ☐ | ☐ |
| • Are dead bolts affixed to exit doors? | ☐ | ☐ | ☐ |
| • Are door stops installed on exit doors? | ☐ | ☐ | ☐ |
| • Do smoke barrier doors close properly? | ☐ | ☐ | ☐ |

Ergonomics (Video Display Terminals)	Yes	No	N/A
---	------------	-----------	------------

- **Have ergonomics evaluations been conducted for:**

1. **Monitor and document arrangements:**

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| - positioned too high or too low | ☐ | ☐ | ☐ |
| - positioned too close or too far away | | | |
| - are not height adjustable | | | |
| - are too difficult to see/read | | | |

2. **Lighting/glare:**

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| - Ambient light is too bright or too dim | | | |
| - task lighting is needed | ☐ | ☐ | ☐ |
| - glare is visible on the monitor | | | |
| - operator faces uncovered window/uncovered light source | | | |

3. **Workstations and accessories:**

- | | | | |
|---|--------------------------|--------------------------|--------------------------|
| - Work surface is crowded or too small | | | |
| - keyboard or work surface is too high or too low | ☐ | ☐ | ☐ |
| - hand/wrist rests on hard/sharp edge | | | |
| - hand/wrist rests on palm rest while keying | | | |

4.	Work area:			
	- The work area restricts body movement			
	- causes reaching/twisting/bending/awkward positions	☐	☐	☐
	- an anti-fatigue mat/footrail/footrest is needed but unavailable.			
5.	Input devices:			
	- Contribute to non-neutral wrist/elbow/shoulder positions			
	- require excessive force to activate	☐	☐	☐
	- cannot be repositioned			
	- require awkward static positions			
	- require excessive reaches			
	• Has an ergonomics evaluation been conducted for Seating arrangements to determine if the seats:			
	- Lack a back rest which is separated from the seat pan	☐	☐	☐
	- lack adequate/adjustable lumbar support			
	- lack adequate/adjustable seat height			
	- lack appropriate/adjustable arm rests			
	• Are employees instructed in the proper manner of lifting heavy objects?	☐	☐	☐
	• Has training been provided on how to adjust the workstation/seating?	☐	☐	☐
	Hazardous Substances Communication	Yes	No	N/A
	• Is there a list of hazardous substances used in your workplace?	☐	☐	☐
	• Is there a written hazard communication program dealing with MSDSs, labeling, and employee training?	☐	☐	☐
	• Is each container for a hazardous substance labeled with product identity and a hazard warning?	☐	☐	☐
	• Is there a MSDS readily available for each hazardous substance used?	☐	☐	☐

• Is there an employee training program for hazardous substances?	☐	☐	☐
Sanitation	Yes	No	N/A
• Are restrooms kept in clean and sanitary condition?	☐	☐	☐
• Are covered receptacles for waste food kept in clean and sanitary condition?	☐	☐	☐
• Are food and drinks stored, prepared, and consumed where chemicals and cleaning products are stored and used?	☐	☐	☐
Medical Services and First Aid	Yes	No	N/A
• Are first aid supplies easily accessible to each work area, with necessary supplies available, periodically inspected and replenished as needed?	☐	☐	☐
• Are medical personnel readily available for advice and consultation on matters of employee health?	☐	☐	☐
• Are emergency phone numbers posted where they can be readily found in case of emergency?	☐	☐	☐

Distribution:
MA-211: 1 copy
Supervisor: 1 copy
EH FEOSH Program Manager: 1 copy

APPENDIX B

Employee Personal Workspace Self Assessment

Employee Name:

Work Location/Building:

Room:

Phone Number:

Supervisor Name:

Supervisor Phone Number:

Date of this self-assessment:

Employee Comments:

Office Equipment	Yes	No	N/A
Is there damage to your office equipment and furniture, sharp edges, unstable chair, or bookcases?	☐	☐	☐
Electrical Safety	Yes	No	N/A
Is there damage to any electrical appliances, cords, extension cords and outlet strips, plugs, switches, lighting fixtures, etc.?	☐	☐	☐
Are there extension cords and multi-outlets plugged into another cord or multi outlet?	☐	☐	☐
Ergonomics (Video Display Terminals)	Yes	No	N/A
Do you have frequent or reoccurring pain in your arms, wrists, neck or back?	☐	☐	☐

Monitor and document arrangements:

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| • Does it seem that the monitor is positioned too high or too low? | | | |
| • That documents are positioned too close or too far away? | ☐ | ☐ | ☐ |
| • Is your keyboard, mouse or monitor height adjustable? | | | |
| • Is the monitor too difficult to see/read? | | | |

Lighting/glare:

- | | | | |
|---|--------------------------|--------------------------|--------------------------|
| • Does it appear that ambient light is too bright or too dim? | | | |
| • Do you use a desk lamp to light tasks? | ☐ | ☐ | ☐ |
| • Is there glare visible on the monitor? | | | |
| • Do you face an uncovered window/uncovered light source? | | | |

Workstations and accessories:

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| • Is your work surface crowded or too small? | | | |
| • Is your keyboard or work surface is too high or too low? | ☐ | ☐ | ☐ |
| • Does your hand/wrist rest on hard/sharp edge? | | | |
| • Do you use a palm rest, mouse pad while keying? | | | |

Office Structures and General Safety	Yes	No	N/A
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Is there any damage to floor and walking surfaces, such as the carpet?	☐	☐	☐
--	--------------------------	--------------------------	--------------------------

Any water damage to ceilings, walls, and floors?	☐	☐	☐
--	--------------------------	--------------------------	--------------------------

This there office clutter and stacking of files, boxes and other materials present?	☐	☐	☐
Is trash and refuse removed on an acceptable schedule?	☐	☐	☐
Are isle ways and areas around office furniture and equipment clear and unobstructed to you passage without bumping into objects?	☐	☐	☐
Are sprinkler heads kept clear of storage material, where the clearance between sprinkler heads and the top of storage is at least 18 inches?	☐	☐	☐
Sanitation and Health	Yes	No	N/A
Have you noticed the presence of insects, rodents, or other vermin?	☐	☐	☐
Any water damage to ceilings, walls, and floors, or presence of a musky, mold odor?	☐	☐	☐
Are there ever any unusual persistent or noxious odors present? Or are chemicals ever used in or near you workstation that you are able to smell?	☐	☐	☐
Hazardous Job Duties	Yes	No	N/A
Do you ever work with a chemical substance, are exposed to noise that is uncomfortable, are required to lift or move heavy objects, work with machinery (other than typical office equipment such as copiers etc.)	☐	☐	☐

Do you ever travel to other DOE facilities where you may be required to wear a respirator, enter a radiation control, beryllium, asbestos, hazardous waste, demolition, or other controlled area?

☐☐☐

Do you believe that there have been any changes in your job duties or conditions that should be evaluated by a safety and health expert?

☐☐☐

Supervisor Review of Employee Checklist

Supervisor Signature:

Date:

Supervisor actions taken (i.e.: repair order, etc.)

Distribution:

Employee: 1 copy

Supervisor: 1 copy

EH FEOSH Program Manager: 1 copy