

Jefferson Lab Safety Toolbox

- ✂ **ES&H Manual**
- ✂ **Worker Safety and Health Program**
- ✂ **Environmental Management System**
- ✂ **Quality Assurance Program**
- ✂ **Training**





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Jefferson Lab Policy Statement On Environment, Safety, Health And Quality

Jefferson Lab considers no activity to be so urgent or important that we will compromise our standards for environmental protection, safety, or health.

Jefferson Lab performs these obligations by:

- ✘ Protecting the environment, preventing pollution, and ensuring the safety and health of staff, users, visitors and the surrounding community.
- ✘ Integrating safety management principles in the planning and execution of all work including:
 - ✘ Defining the scope of work
 - ✘ Analyzing the hazards
 - ✘ Developing and implementing hazard controls
 - ✘ Performing work within controls
 - ✘ Providing feedback and continuous improvement
- ✘ Empowering everyone at JLab with the responsibility and expectation to stop work that endangers people, environment, property, or quality.
- ✘ Involving all levels of the organization in establishing ES&H objectives and targets.
- ✘ Integrating quality in all that we do.

Jefferson Lab's ESH&Q policy statement can be found at:

<http://wwwold.jlab.org/ehs/LabEHSPolicy.pdf>

Who Is Responsible For My Safety When I Am Working?

The Laboratory Director is ultimately responsible for the environment, safety and health posture of the Lab. However, each person at Jefferson Lab is responsible for establishing and maintaining a **knowledgeable control** of the hazards he or she encounters. This knowledgeable control is established by a combination of experience, awareness, written guidance, and formal training. This combination allows each person to recognize hazards that threaten human health or the environment and provides the means to control hazards and situations in a manner that continuously protects each person's safety. In other words, while line management is responsible for creating the safest work conditions possible, **YOU** are responsible for working safely.



What Are My ESH&Q Responsibilities?

All Jefferson Lab employees, users, and subcontractors shall:

- ✘ Stop activities that pose an unacceptable threat to personnel or the environment.
- ✘ Conduct activities safely in accordance with established procedures.
- ✘ Demonstrate knowledge of ESH&Q policies, standards, and procedures.
- ✘ Know what personal protective equipment is required to perform their job, any limitations, and use it appropriately after inspection.
- ✘ Notify their supervisor if they feel unqualified or insufficiently trained to perform assigned tasks or have a personal condition which might create or complicate a hazard.
- ✘ Dial 911 and extension 5822 to get emergency assistance.
- ✘ Report ESH&Q violations or concerns to their supervisor.
- ✘ Perform regular inspections of the equipment used to perform their job and confirm that all safety devices are in place.
- ✘ Report all work related injuries/illnesses to their supervisor as soon as reasonably possible.

A complete listing of individual responsibilities can be found in Section 2210 of the ES&H Manual.

Worker Safety and Health Program

10 CFR 851 is a law that mandates the formulation of a Worker Safety and Health Program. 10 CFR 851 requires that workers be provided with a workplace that is free from recognized hazards that can cause death or serious physical harm. It also establishes management and worker responsibilities, worker rights, safety and health standards, and required training.

When followed, the Jefferson Lab Worker Safety and Health Program will ensure:

- ✖ the workplace is **free of recognized hazards**. Training, hazard awareness, operating procedures, and hazard controls are a few examples of tools used to eliminate and mitigate hazards.
- ✖ workers are provided with **adequate protection from hazards**.
- ✖ work activities **comply with all workplace safety and health requirements**.
- ✖ the Lab will **investigate and analyze all unplanned events** – termed an occurrence – to discover the cause and prevent a similar incident from occurring.



Your Rights Under 10 CFR 851

You Have the Right to a Safe and Healthful Workplace

- ✖ You have the right to notify your employer or the local DOE office about hazards, without reprisal. You may ask that your name not be used.

If you wish to submit an informal ES&H concern report, you may visit the Jefferson Lab DOE Site Office in person or call 757-269-7139 or 757-269-7142.

If you wish to submit a formal concern report, you may contact the DOE Employee Concerns Management System Hotline (800-676-3267).

- ✖ You have the right to participate in Worker Safety and Health Program activities on official time.
- ✖ You have the right to access all relevant safety documents, procedures, etc. that apply to your workplace.
- ✖ You have the right to have access to your accident and illness and medical records.
- ✖ You have the right to observe monitoring or measuring of hazardous agents, to receive results, and be notified when monitoring results indicate overexposure.
- ✖ You have the right to have a representative accompany DOE during the inspection of your workplace.
- ✖ You have the right to request and receive results of inspections and accident investigations.
- ✖ You have the right to decline to perform an assigned task because you believe that the task poses an imminent risk of death or serious physical harm.

What Should I Do If I Am Injured On The Job?

- ✘ If the injury is serious, call or request someone else call **911** right away.
- ✘ Secure the scene and call Security (**5822** from a Lab phone or **757-269-5822** from a cell phone).
- ✘ If the injury requires medical attention, go to Occupational Medicine for evaluation. You may also contact Occupational Medicine at **757-269-7539**.
- ✘ **Report the injury to your supervisor as soon as possible** – no matter how minor the injury.
- ✘ If you have been referred to an outside physician, contact the Jefferson Lab nurse promptly after every visit to the doctor.
- ✘ When you are authorized to return to work, notify Occupational Medicine before resuming your work activities. Be sure to let your supervisor know you have returned to work.
- ✘ Follow all of the doctor's directions on work restrictions.
- ✘ Your supervisor will initiate an accident investigation to determine the cause of the accident and provide lessons learned to mitigate the risk of the accident happening again.

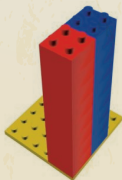


ES&H Concern Reporting

What should you do if you encounter an unrecognized hazard or a dangerous situation?

1. Fix it yourself, if you can safely and within established procedures.
2. If there is an imminent threat to people, the environment or property, declare a **STOP WORK** immediately.
3. If you cannot fix the situation by yourself, seek assistance from your supervisor, safety warden, or an ESH&Q staff member.
4. Together with the safety warden, complete an ES&H Concern Report form.
5. A copy of the form will be sent to your supervisor, the department manager, and the division safety officer (who tracks the concern until it is resolved).
6. Once the concern has been resolved, communicate the lessons learned to everyone, including other divisions and organizations.

SAFETY: BUILD IT IN



DON'T BOLT IT ON.

Stop Work Orders

Every Jefferson Lab employee, user, and subcontractor has the **authority** and **responsibility** to stop work for conditions that pose imminent hazard or danger. The JSA Worker Safety and Health Protection Plan gives every worker the right to decline to perform a task because of a reasonable belief that the task poses an imminent risk of death or harm to the worker. Jefferson Lab workers also have the right to stop work when he/she discovers another employee, user, or subcontractor exposed to a dangerous situation. Stop Work actions take precedence over all other priorities and procedures. Everyone (employees, users, and subcontractors) involved **MUST** honor a Stop Work request.



“Jefferson Lab considers no activity to be so urgent or important that we will compromise our standards for environmental protection, safety, or health.”

ESH&Q Training

The goal of Jefferson Lab's ESH&Q training is to give all employees, users, and subcontractors the skills, knowledge, and ability to work safely.

- ✖ Line managers, supervisors, sponsors, and subcontracting officer's technical representatives (SOTRs) are responsible for identifying skill requirements; requiring employees, users, and subcontractors to complete the training identified for their required skills; and ensuring that the required skills and training remain current.
- ✖ Everyone at the Lab is responsible for completing their ESH&Q training courses in a timely manner; keeping their training current; and maintaining awareness of their ESH&Q training status by checking their personal training record.
- ✖ The Jefferson Lab ESH&Q Individual Training Plan Checklist can be found in Section 4200-T3 of the ES&H Manual.



If you are unsure you have the knowledge and skills to perform an assignment safely, request training!

Environmental Management System

Jefferson Lab's Environmental Management System (EMS) integrates environmental protection with the Laboratory's activities.

The purpose of the Lab's EMS is to achieve, maintain, and demonstrate environmental excellence by assessing and controlling the impact of the Lab's experiments, facilities, and operations on the environment. The Lab's

EMS adheres to the requirements of ISO 14001, the international standard for environmental management systems.

The Jefferson Lab Environmental Management System Program Description can be found at http://www.jlab.org/div_dept/dir_off/oa/TIP.html.

The Plan defines the processes used to comply with environmental requirements, preventing pollution, minimizing waste, and continually improving environmental performance.



Quality Assurance Program

Jefferson Lab's Quality Assurance Program is implemented through the same management systems that support the ISMS Program. The Quality Assurance and Continuous Improvement Department is responsible for environment, safety and health reporting, the self-assessment program, quality assurance, and the ISMS plans. Through planned and periodic assessments, the Quality Assurance and Continuous Improvement Department identifies problems, evaluates the adequacy and effectiveness of Lab programs and systems, and recommends solutions. The Jefferson Lab Quality Assurance Program Plan can be found at http://www.jlab.org/div_dept/dir_off/oa/quality_assurance.html.

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Contractor Assurance System

Jefferson Lab developed the **Contractor Assurance System (CAS)** so that the laboratory achieves reliable, safe, and secure performance and is compliant with regulatory and contractual requirements. Work is measured against performance metrics using self assessments, independent assessments, internal audits/peer reviews, and work observations. The QOQA Department is responsible for the system. There are four key focus areas to the system:

- ✖ environment, safety and health
- ✖ safeguards and security
- ✖ cyber security
- ✖ emergency management

The CAS Program Description addresses how incident/events are reported; how we obtain worker feedback; how we document, track and close issues resulting from assessments and events; dissemination of lessons learned; and the process used to identify, monitor, and analyze performance measures.

The CAS Program Description can be found at: http://www.jlab.org/div_dept/dir_off/oa/quality_assurance.html.



What is ISM?

ISM stands for **Integrated Safety Management**. It is the DOE approach for incorporating safety awareness and good practices into all aspects of activities conducted at Jefferson Lab. The DOE and Contractors must systematically integrate safety into management and work practices at all levels so that missions are accomplished while protecting the public, the worker, and the environment. This is accomplished through effective integration of safety management into all facets of work planning and execution. In summary, ISM is the approach as specified by DOE to Jefferson Lab.

An **Integrated Safety Management System (ISMS)** is a management system that provides a formal, organized process whereby people plan, perform, assess, and improve the safe conduct of work efficiently and in a manner that ensures protection of workers, the public, and the environment.

At Jefferson Lab, the **Integrated Safety Management System** includes, but is not limited to, safety and environmental requirements and processes contained in the **program documents** (i.e., ES&H Manual, EMS Plan, Quality Assurance Program Description Radiation Protection Program); their **implementing procedures** (i.e., QA procedures, EMS procedures); and **project-specific procedures** (i.e., SOPs, OSPs, TOSPs, Accelerator Operations directives).

ISM Guiding Principles

Seven Guiding Principles were developed as a starting framework for ISM:

1. Line Management is Responsible for Safety.

Line management is directly responsible for the protection of the public, the workers, and the environment.

2. Clear Roles and Responsibilities.

Clear lines of authority and responsibility for ensuring safety shall be established and maintained at all organizational levels.

3. Competence Commensurate with Responsibility.

Personnel shall possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities.

4. Balanced Priorities.

Resources shall be allocated to address safety, programmatic, and operational considerations. Protecting the public, the workers, and the environment shall be a priority whenever activities are planned and performed.

5. Identification of Safety Standards and Requirements.

Before work is performed, the hazards shall be evaluated and a set of safety standards shall be established which will protect the public, the workers, and the environment.

6. Hazard Controls Tailored to Work Being Performed.

Administrative and engineering controls to prevent and mitigate hazards will be specific to the work and hazards.

7. Operation Authorization.

Operations will only be initiated once controls are in place.

What Are The ISM Core Functions?

The **ISM Core Functions** are the safety management “building blocks” that provide the necessary structure for any activity that could possibly affect the public; Jefferson Lab employees, users and subcontractors; and the environment. The five core functions of ISM are:

- ✕ **Define the Scope of Work**
- ✕ **Analyze the Hazards**
- ✕ **Develop and Implement Hazard Controls**
- ✕ **Perform Work Within Controls**
- ✕ **Provide Feedback and Continuous Improvement**



ISM Core Function 1

DEFINE THE SCOPE OF WORK

The objective of Core Function 1 is to define the scope of work for all activities so that work can be conducted in a safe and environmentally responsible manner.

WHAT KEY STEPS DO WE PERFORM TO MEET THIS OBJECTIVE?

1. We identify the nature of the required work.
2. We identify the task schedule.
3. We determine the cost of the project.
4. We review associated lessons learned from previous, similar projects and incorporate applicable lessons into the scope.



WHAT ARE SOME WAYS THESE KEY STEPS ARE DEMONSTRATED AT JEFFERSON LAB?

- ✖ The contract between Jefferson Lab and DOE states the scope of work to be accomplished at the Lab.
- ✖ Each Jefferson Lab organization has a work planning process that uses work planning tools such as ATLis, TATLs, and FEList to name a few.
- ✖ The Experimental Review Process (which can be found in Sections 3120 and 3130 of the ES&H Manual) evaluates the experiment's scientific merit and all environment, safety and health effects.
- ✖ Subcontract work is issued after the Jefferson Lab supervisor, subcontracting officer, and subject matter expert have reviewed the work scope.

ISM Core Function 2

ANALYZE THE HAZARDS

The objective of Core Function 2 is to identify and analyze all activity related hazards.

WHAT KEY STEPS DO WE PERFORM TO MEET THIS OBJECTIVE?

1. First we **STOP** and **THINK** about the activity from start to finish.
2. We identify the hazards and possible accidents that might result from each hazard.
3. We evaluate the consequences of each possible accident.
4. We estimate the probability of each possible accident.

WHAT ARE SOME WAYS THESE KEY STEPS ARE DEMONSTRATED AT JEFFERSON LAB?

- ✖ We use the Hazard Analysis Worksheet and/or the Task Hazard Analysis Worksheet found in Section 3210 of the ES&H Manual.
- ✖ We solicit the advice of our co-workers, ES&H subject matter experts, and safety wardens at the Lab.
- ✖ We consult Section 6700 of the ES&H Manual for environmental protection and waste management procedures.
- ✖ The Experimental Safety Approval Form is used to describe the hazards of a proposed experiment and the measures taken to eliminate or control those hazards.



ISM Core Function 3

DEVELOP AND IMPLEMENT HAZARD CONTROLS

The objective of Core Function 3 is to identify and implement controls to eliminate or minimize hazards.

WHAT KEY STEPS DO WE PERFORM TO MEET THIS OBJECTIVE?

1. We select or design **engineering** and **administrative controls***.
2. We select or design pollution prevention/waste minimization controls.
3. We identify the **personal protective equipment*** necessary for the activity.
4. We apply lessons learned from previous activities.
5. We implement our agreed upon controls.

WHAT ARE SOME WAYS THESE KEY STEPS ARE DEMONSTRATED AT JEFFERSON LAB?

- ✳ **Hazard controls*** are documented in JLab's SOPs, OSPs, TOSPs, and activity-specific hazard analyses.
- ✳ Everyone at JLab attends Environmental Health and Safety, Security Awareness, and Environmental Management System awareness training. Task-specific training is also conducted.
- ✳ Subcontractors must submit a project hazard analysis/safety plan. The plan must address the hazards that can reasonably be anticipated while working at the Lab.



* A glossary of hazard controls terms is located on page 22.

Hazard Control Terms

Controls are administrative and engineering mechanisms that can affect the health and safety of the public and workers, or the protection of the environment.

Hazard Controls are measures to eliminate, limit, or mitigate hazards to workers, the public, or the environment. Hazard controls include physical, design, structural, and engineering features (engineering controls); safety management programs (administrative controls); and other controls necessary to provide adequate protection from hazards.

Hierarchy of Controls are: (1) elimination of the hazards, (2) engineering controls, (3) work practices and administrative controls, and (4) personal protective equipment.

Engineering controls eliminate or reduce exposure to a physical hazard through the use of engineered machinery or equipment.

Administrative controls are provisions related to organization and management, procedures, record keeping, assessment, and reporting necessary to ensure safe operation of a facility.

Personal Protective Equipment (PPE) is equipment which is intended to be worn or held by a person at work which protects that person from risks to his/her health or safety.



ISM Core Function 4

PERFORM WORK WITHIN CONTROLS

The objective of Core Function 4 is to perform work safely within the controls established in Core Function 3.

WHAT KEY STEPS DO WE PERFORM TO MEET THIS OBJECTIVE?

1. We obtain authorization before work begins.
2. We ensure that workers have appropriate qualifications/training as identified in the work control documents.
3. We conduct pre-job briefing to discuss the hazards and controls.
4. We perform the work and follow the controls identified in the work control document for the duration of the activity.

WHAT ARE SOME WAYS THESE KEY STEPS ARE DEMONSTRATED AT JEFFERSON LAB?

- ✘ We follow procedures, BUT we recognize when to call a **STOP WORK** should the situation arise.
- ✘ Shift Plan approval.
- ✘ FEL operations plan approval.
- ✘ Daily work plan approval.
- ✘ Work permit.



ISM Core Function 5

PROVIDE FEEDBACK AND CONTINUOUS IMPROVEMENT

The objective of Core Function 5 is to identify opportunities for improving safety and protection of the environment.

WHAT KEY STEPS DO WE PERFORM TO MEET THIS OBJECTIVE?

1. We conduct independent assessments, management self-assessments, and work observations, and use the results to improve the way we work.
2. We report, analyze, and address operational events, accidents, and injuries.
3. We share lessons learned, collected both internally and outside the Lab, at pre- and post-job reviews, staff meetings, through Lab-wide emails, and the Lessons Learned webpage (<http://www.jlab.org/intralab/emergency/lessons>).
4. We share information while participating in the Worker Safety Committee, the Director's Safety Council, the EMS Committee, the Emergency Management Committee, the Radiation Review Panel, the ES&H Training Committee, the Electrical Safety Committee, and the Material Handling Committee.



WHAT ARE SOME WAYS THESE KEY STEPS ARE DEMONSTRATED AT JEFFERSON LAB?

- ✱ The Jefferson Lab Worker Safety Committee members will “actively engage employees, users, and subcontractors regarding strengths, areas for improvement, and overall perception of Lab safety.”
- ✱ The Lab’s Operating Experience Feedback and Lessons Learned Program procedure documents the processes and responsibilities for sharing lessons learned at Jefferson Lab and throughout the DOE complex.

What Documents Are Part of The Jefferson Lab ISMS ?

While many documents are integral to the Jefferson Lab ISMS, a few key documents include:

1. Integrated Safety Management System Description (<http://www.jlab.org/ehs/ISM>)
2. Environment, Safety and Health Manual (<http://www.jlab.org/ehs/ehsmanual/index.html>)
3. Quality Assurance Plan (http://www.jlab.org/div_dept/dir_off/oa/quality_assurance.html)
4. Environmental Management System Plan (http://www.jlab.org/div_dept/dir_off/oa/TIP.html)
5. Contractor Assurance System Program Description (http://www.jlab.org/div_dept/dir_off/oa/quality_assurance.html)
6. Operational Safety Procedures (<http://www.jlab.org/ehs/workcontrol.html>)
7. Standard Operating Procedures (<http://www.jlab.org/ehs/workcontrol.html>)
8. Environmental Operational Safety Procedures(<http://www.jlab.org/ehsworkcontrol.html>)
9. Temporary Operational Safety Procedures (<http://www.jlab.org/ehs/workcontrol.html>)

Director's Safety Council

The Director's Safety Council was chartered to review the structure and performance of environment, safety and health efforts at Jefferson Lab. The members of the Council review the Lab's safety performance and develop plans for improvement; provide direction for important safety issues; and evaluate the effectiveness of corrective action plans. The Council meets with the Worker Safety Committee chairman on at least a quarterly basis to discuss feedback, ideas and recommendations from Jefferson Lab employees, users, and subcontractors.



Worker Safety Committee

The Worker Safety Committee was formed to “*promote and continuously improve work place safety at Jefferson Lab.*” The committee members are employees whose goal is to actively engage other employees, users and subcontractors to find areas for improvement and to improve the overall impression of Lab safety. The committee provides a framework for safety stakeholders (employees, users, and subcontractors) to communicate their issues and concerns.

Through quarterly briefings, the committee provides Lab management with workforce feedback, ideas, and recommendations for improving safety laboratory wide.



The Worker Safety Committee website can be found at <http://www.jlab.org/ehs/wsc/>.

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.....**Committee**

Jefferson Lab's Sustainability and Environmental Management (SEM) Committee has two primary responsibilities:

- (1) Support the development and implementation of sound sustainable practices at Jefferson Lab.
- (2) Oversee the implementation and evolution of the of the Lab's Environmental Management System (EMS).



Safety Incentive Program

The Safety Incentive Program was created to promote safe behaviors, activities, and accomplishments through positive reinforcement. There are three levels of recognition in this incentive program.

- **On-The-Spot Incentive Award:** This award recognizes safe behavior observed by any supervisor/manager and includes a gift of modest value.
- **Safety Achievement Award:** This award recognizes individual employees that have performed above and beyond normal job duties to ensure the safety of their coworkers, the public, or the environment. This is a cash award and is presented by the Associate Director, Chief Operating Officer, or Chief Scientist and is accompanied by a JSA Certificate of Appreciation.
- **Director's Safety Award:** This award recognizes employees that have gone significantly above and beyond their normal job duties in achieving a major safety related accomplishment. This is a cash award and is presented by the Associate Director, Chief Operating Officer, Chief Scientist, or Laboratory Director.



Subcontractors and users can be awarded On-The-Spot Awards.

Emergency Phone Numbers

IN THE EVENT OF AN EMERGENCY

MEDICAL EMERGENCIES

Dial **911** (Medical Response Team)

Give the dispatcher:

- Your name
- Injured worker's name
- Work location
- Type of problem

EVERY EMERGENCY

Dial 5822 (Security)

Or 757-269-5822 from your cell phone

FIRST AID

Dial 7539 (Occupational Medicine)

Or 757-269-7539 from your cell phone

PROBLEM INSIDE THE ACCELERATOR FENCE

Dial 7050 (Crew Chief)

Or 757-630-7050 from your cell phone

Remember to check the website (<http://www.jlab.org/ehs>) for frequent updates.

For more information or to provide suggestions, contact ISM@JLAB.ORG

If this booklet is lost, please return to

_____.