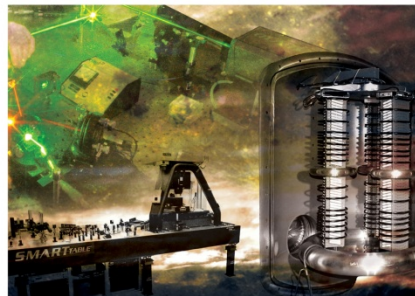
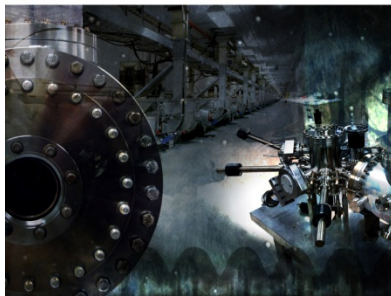


THOMAS JEFFERSON NATIONAL ACCELERATOR FACILITY

Integrated Safety Management System Program Description

REVISION 12
DECEMBER 2009



Jefferson Lab
Thomas Jefferson National Accelerator Facility

Approval

Prepared by:

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Date

Approval:

Laboratory Director

& JSA President

Signature

Date

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Acronyms and Abbreviations

AOD	Accelerator Operations Directives
AP	Assurance Program
ASE	Accelerator Safety Envelope
CATS	Corrective Action Tracking System
COO	Conduct of Operations
CFR	Code of Federal Regulations
DEAR	Department of Energy Acquisition Regulation
DOE	Department of Energy
DOE G	Department of Energy Guide
DOE M	Department of Energy Manual
DOE O	Department of Energy Order
DOE P	Department of Energy Policy
EA	Environmental Assessment
EMP	Environmental Management Procedures
EMS	Environmental Management System
ES&H	Environment, Safety and Health
ESAD	Experimental Safety Assessment Document
ESAF	Experiment Safety Approval Form
ESH&Q	Environment, Safety, Health and Quality
FEL	Free Electron Laser
FSAD	Final Safety Assessment Document
ISM	Integrated Safety Management
ISMS	Integrated Safety Management System
ISO	International Standards Organization
JSA	Jefferson Science Associates
LOD	Laser Operations Directives
MCC	Machine Control Center
NEPA	National Environmental Policy Act
ORPS	Occurrence Reporting and Processing System
OSP	Operational Safety Procedures
QA	Quality Assurance
RSAD	Radiological Safety Analysis Document
RPP	Radiological Protection Program
SSP	Subcontractor Safety Plan
STOP	Safety Training Observation Program
TJNAF	Thomas Jefferson National Accelerator Facility
TJSO	Thomas Jefferson Site Office
TOSP	Temporary Operational Safety Procedures
WSHP	Worker Health and Safety Plan

Introduction

As stated in the Thomas Jefferson National Accelerator Facility (Jefferson Lab) Environment, Safety, Health and Quality (ESH&Q) Policy (Figure 2), “Jefferson Lab considers no activity so urgent or important that we will compromise our standards for environmental protection, safety, or health.” This belief is translated into actions through Jefferson Lab’s Integrated Safety Management System (ISMS).

Implementation of the Jefferson Lab ISMS is primarily through the Worker Health and Safety Program (WSHP), the Radiological Protection Program (RPP), the Environmental Management System (EMS), and the Assurance Program (AP). Each of these programs is described generally in this document, and in more detail within the individual program descriptions.

This ISMS program description describes the formal, organized process to plan, perform, assess, and improve the safe and environmentally aware conduct of work as required by the Jefferson Lab operating contract DE-AC05-06OR23177, clause I-100. This clause implements the DEAR Clause 970.5223-1, “Integration of Environment, Safety and Health into Work Planning and Execution (DEC 2000)”. This program satisfies the intent of the Department of Energy (DOE) Policy 450.4 “Safety Management System Policy” as well as other safety management system requirements identified in Figure 1.

Document Number	Title
DOE O 226.1A	<i>Implementation of Department of Energy Oversight Policy</i>
DOE O 414.1C	<i>Quality Assurance</i>
DOE O 430.2B	<i>Renewable Energy and Transportation Management</i>
DOE O 450.1A,	<i>Environmental Protection Program</i>
DOE M 450.4-1	<i>Integrated Safety Management Manual</i>
DOE P 450.4	<i>Safety Management System Policy</i>
DOE P 450.7	<i>Department of Energy Environment, Safety and Health (ES&H) Goals</i>
DEAR 970.5204-2	<i>Laws, Regulations, and DOE Directives</i>
DEAR 970.5223-1	<i>Integration of Environment, Safety and Health into Work Planning and Execution</i>
10 CFR 851	<i>Worker Safety and Health Program</i>
10 CFR 835	<i>Radiation Protection Program</i>

Figure 1 Identifies the sources of relevant Integrated Safety Management System requirements

This program description is reviewed annually and updated as needed when program elements or the operating environment of the Lab changes. Interim modifications will be coordinated with the signatories of the document. Editorial changes will be made when necessary, an updated copy of the document will be transmitted to the signatories, and the revision maintained on the Jefferson Lab web site.

Approval of this document by DOE Thomas Jefferson Site Office (TJSO) indicates that the DOE agrees with Jefferson Lab's institutional methods and processes to meet the requirements of DEAR 970.5223-1. Where Jefferson Lab states that it directs, runs, controls, coordinates, supports, or otherwise participates in an activity, it is understood that the participation is in accordance with and at the level authorized by the operating Contract.

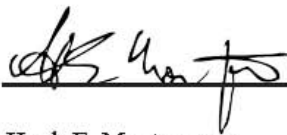


Jefferson Lab Policy Statement on Environment, Safety, Health and Quality (ESH&Q)

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 executes this policy by:

- Implementing a Worker Safety and Health Protection Program that ensures the safety and health of employees, users, and contractors by providing a place of employment free from recognized hazards.
- Protecting the environment and applying sound pollution prevention and waste minimization practices.
- Complying with all applicable Environment, Safety & Health (ES&H) laws, regulations, standards, and our contractual commitments to the Department of Energy.
- Integrating Environment, Safety, and Health Management principles in the planning and execution of all work, including:
 - o Defining the scope of work
 - o Analyzing the hazards to you, co-workers, public, and environment
 - o Developing and implementing hazard controls
 - o Performing work within controls
 - o Providing feedback and continuous improvement
- Empowering JSA employees, subcontractors, and users with the responsibility and expectation – without reprisal – to:
 - o Report concerns and/or injuries, and
 - o Stop work that endangers people, environment, and/or property.
- Involving all levels of the organization in establishing ESH&Q objectives and targets.
- Integrating quality and self-assessment into all activities for continuous improvement.



1/26/09

Hugh E. Montgomery
JSA President and Jefferson Lab Director



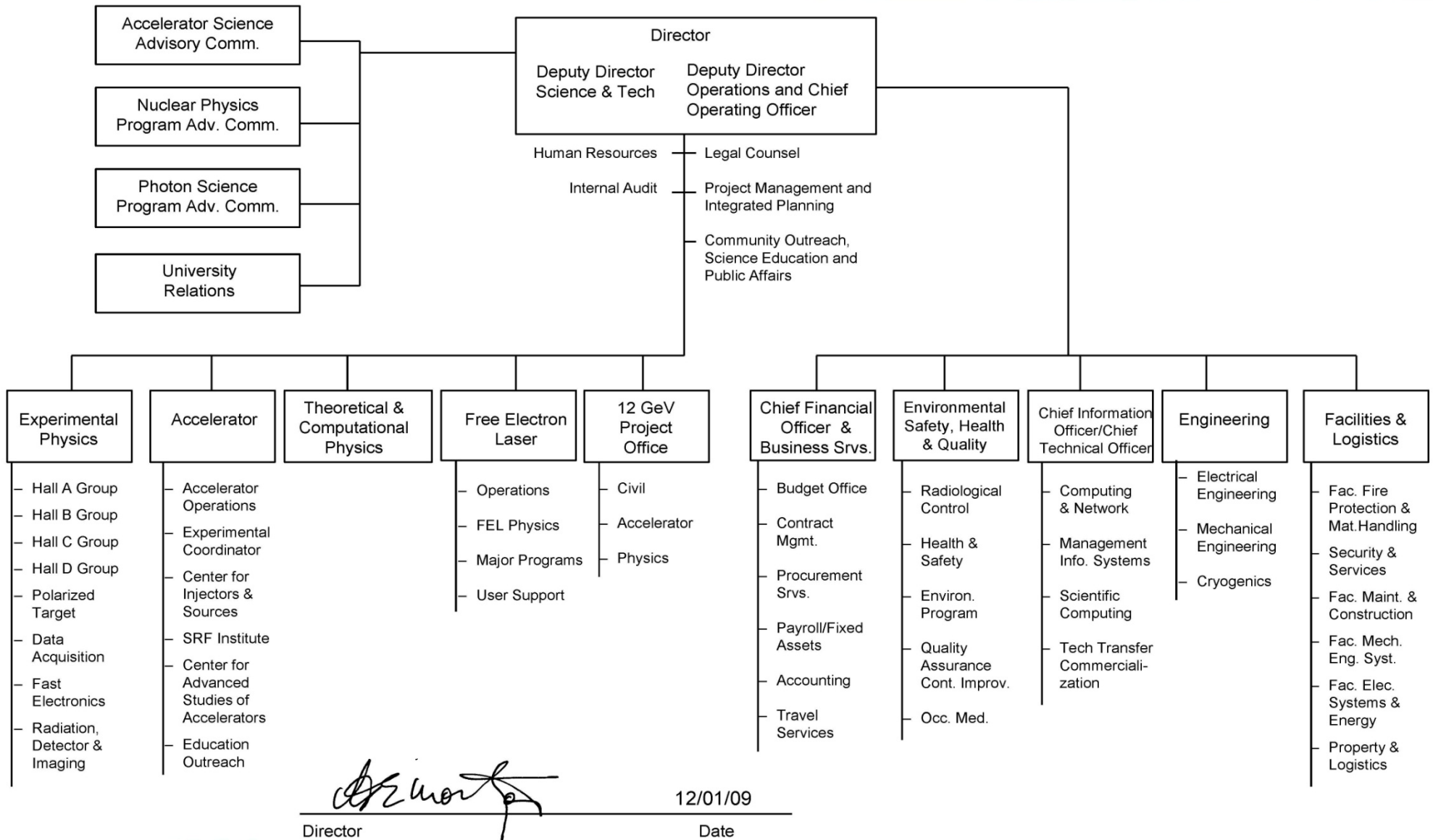
Figure 2 Jefferson Lab ESH&Q Policy

Section 1 - Jefferson Lab Operating Framework

The Jefferson Lab operating Contract establishes the expectations that Jefferson Science Associates (JSA) will provide the scientific leadership needed to conduct world class science and technological innovation in support of the research program of the Office of Nuclear Physics and other research programs and missions authorized by DOE.

Meeting the responsibilities and accountabilities assigned to management based on the organizational hierarchy of JSA (Figure 3) assures the protection and proper maintenance of research and information assets, the health and safety of workers, the public, and the environment. This strategy begins with the annual budget process that ensures that these priorities are balanced. Line organizations, support organizations, and employees are responsible and accountable for focusing Jefferson Lab resources to achieve strategic goals and providing objective evidence of performance and continual improvement as work is executed.

Jefferson Lab's approach to ISM is to integrate key concepts and requirements into the programmatic infrastructure and then to reinforce these concepts and requirements with site personnel during the conduct of day-to-day activities until it becomes a transparent part of the operating culture. This in turn will provide a day-to-day safety, health, and environmental awareness into the working environment and provide for the continuous input to improve the conduct of work activities. This strategy involves key management systems translating the full set of relevant external requirements into policies, procedures, and plans for staff to follow to perform their work combined with consistent reinforcement by management.




 Director
 12/01/09
 Date

Figure 3 Jefferson Lab Management Organization Chart

Section 2 - Mapping Jefferson Lab's Operating Framework to DOE's Integrated Safety Management System

The Jefferson Lab's ISMS establishes a hierarchy of components to facilitate the orderly development and implementation of safety management. The safety management system consists of six components: 1) the objective, 2) guiding principles, 3) core functions, 4) mechanisms, 5) responsibilities, and 6) implementation. The mechanisms, responsibilities, and implementation components are established for all work and will vary based on the nature and hazard of the work being performed. This section discusses each component and provides roadmaps and examples of how each component is built into how work is planned and executed at Jefferson Lab.

2.1 Component 1: Objective

DOE Policy 450.4 provides the overall objective of an Integrated Safety Management System:

The Department 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 to be accomplished through effective integration of safety management into all facets of work planning and execution. In other words, the overall management of safety functions and activities becomes an integral part of mission accomplishment.

Jefferson Lab fully endorses the components of the DOE Policy as a sound methodology for effectively attaining integrated safety management. The goal of the Jefferson Lab ES&H program is to fully satisfy this objective.

2.2 Component 2: Guiding Principles

In order to accomplish the ISMS Objective as stated in Component 1, there are seven principles to be followed as the components of the system are designed and implemented. These guiding principles are reflected in the Lab's programmatic infrastructure that workers utilize in fulfilling environment, safety and health responsibilities. Figure 4 summarizes these "Guiding Principles" and provides examples of how they are translated throughout Jefferson Lab's policies and activities. This figure is not intended to show every link between ISM Guiding Principles and our activities, only to demonstrate that the Guiding Principles are reflected in various ways.

Guiding Principles	Example Implementation Methods
<p>(1) Line Management Responsibility for Safety Line management is directly responsible for the protection of the public, workers, and the environment.</p>	<ul style="list-style-type: none"> ➤ Responsibilities are articulated in the <i>ES&H Manual Section 2210, ESH&Q Rights and Responsibilities of Individuals</i> ➤ Expectations for safety program implementation are incorporated into all Line Management’s individual performance objectives.
<p>(2) Clear Roles and Responsibilities Clear and unambiguous lines of authority and responsibility for ensuring safety shall be established and maintained at all organizational levels.</p>	<ul style="list-style-type: none"> ➤ Roles and responsibilities are articulated in the <i>ES&H Manual Section 2210, ESH&Q Rights and Responsibilities of Individuals</i>. ➤ Roles and responsibilities for scope of work development, hazard analysis, and control implementation and work authorization are outlined in our various work planning and execution tools such as the electronic work authorization protocols (ATLis, FELis, TATLs, etc.) and the Experiment Review Process.
<p>(3) Competence Commensurate with Responsibilities Personnel shall possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities.</p>	<ul style="list-style-type: none"> ➤ Minimum competence is identified in position descriptions and additional competence is determined as responsibilities are assigned. ➤ Individual training records are centrally located. ➤ Automatic reminders are provided to line management when assigned personnel’s training has elapsed. ➤ Operational Safety Procedures (OSPs), ES&H Manual Chapters, and other operational control documents require specific training prior to work initiation.
<p>(4) Balanced Priorities Resources shall be effectively 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.</p>	<ul style="list-style-type: none"> ➤ ESH&Q Division budgets installation-wide activities based on contractual requirements, lessons learned, and industry best-practices. ➤ Line organizations develop an independent safety budget reflecting their activities. ➤ Annual Work Planning process ensures proper resources will be available.
<p>(5) Identification of Safety Standards and Requirements Before work is performed, the associated hazards shall be evaluated and an agreed-upon set of safety standards and requirements shall be established which, when properly implemented, will provide adequate assurance that the public, the workers, and the environment are protected from adverse consequences.</p>	<ul style="list-style-type: none"> ➤ All safety standards and requirements are identified in <i>Contract DE-AC05-06OR23177</i>. ➤ “Flow Down” of all contractual requirements occurs during procurement activities. ➤ All work planning and authorization processes include a safety requirements identification step.

Guiding Principles	Example Implementation Methods
<p>(6) Hazard Controls Tailored to Work Being Performed Administrative and engineering controls to prevent and mitigate hazards shall be tailored to the work being performed and associated hazards.</p>	<ul style="list-style-type: none"> ➤ The Final Safety Assessment Document (FSAD) analyzes hazards and establishes safety envelopes for the accelerator, FEL and associated research. This document informs all lower level operational procedures. ➤ Jefferson Lab’s work planning and execution processes and tools governing activities of Jefferson Lab’s employees, subcontractors, and the user community (ATLis, TATLs, FELis, Experiment Review Process, subcontract specifications) all require appropriate hazard prevention and mitigation measures be designed into all work activities.
<p>(7) Operations Authorization The conditions and requirements to be satisfied for operations to be initiated and conducted shall be clearly established and agreed-upon.</p>	<ul style="list-style-type: none"> ➤ Authorization documents such as the ASE and the FSAD outline conditions for safe operations of our major systems. Other activities, governed by work planning and execution mechanisms, such as ATLis, also require that hazard controls have been designed and placed prior to initiation of activities.

Figure 4 Summarizes the guiding principles that guide ISMS activities and examples of how these principles are reflected in Jefferson Lab programmatic infrastructure.

2.3 Component 3: Core Functions

Jefferson Lab’s ISMS is integral to the process of translating the Lab’s broad mission into specific work items. Five areas of emphasis, termed “core functions”, have been developed as the building blocks of a successful ISMS. The activities described in each core function are integrated into the planning and execution of all work activity that could potentially adversely affect the workers, the public, or the environment.

Individual organizations within Jefferson Lab have developed mission translation, work planning and work execution practices and tools that are tailored to their activities and structure. Despite the differences in tools and terminology, the five core functions are represented in each specific process. Figure 5 summarizes how site personnel implement the ISM core functions.

CORE FUNCTION 1, DEFINE SCOPE OF WORK

Each work planning and execution tool, regardless of the implementing organization, has a well-defined process to identify the nature of the required work, the schedule, and the costs of the activities. The level of detail of the scope of work varies in relation to its complexity and potential risks. Multi-disciplined teams are typically used to create, or review, the scope of work documents and workers are involved in the planning processes.

CORE FUNCTION 2, ANALYZE THE HAZARDS

The second grouping of activities depicted in Figure 4 is the mechanisms used within each process to identify and categorize work-related hazards and develop an understanding of the potential for the hazard to adversely affect the health and safety of the worker, public, or the environment. This hazard analysis process can vary in complexity based on activity type, hazard type, and hazard parameters; and builds upon previous analyses conducted on tasks ranging from

routine facility maintenance to accelerator and laser operations. Multi-disciplined teams are typically used with emphasis on identifying subject matter experts with significant Jefferson Lab experience.

CORE FUNCTION 3, DEVELOP AND IMPLEMENT HAZARD CONTROLS

During this next step of each process, parameters of the identified hazards are used to select or design engineering, administrative, and personal protective equipment controls and pollution prevention/waste minimization options to be integrated with the work activity. The type of control to be specified is tailored to the work activity and the associated hazards. In most cases, the controls are based on best practices and lessons learned gained from previous, similar activities as captured in the *Jefferson Lab's ES&H Manual*. Some work activities may require unique controls, which are typically documented in Operational Safety Procedures, activity-specific safety plans, and/or delivered to workers through specific training activities. In all cases, site-wide ES&H requirements and industry standards are identified; mechanisms are put in place to satisfy the requirements; and the controls are documented in work authorization documents.

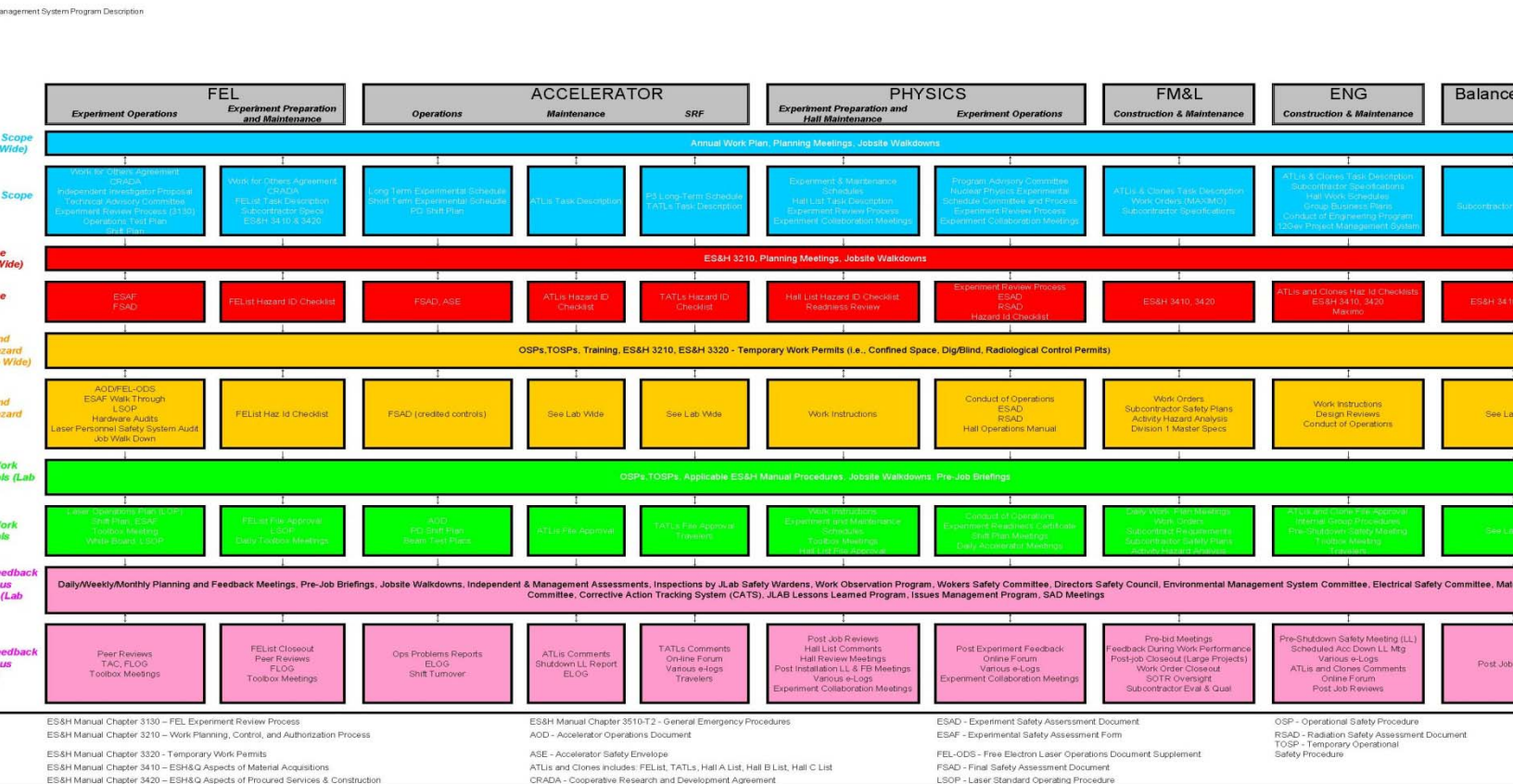
CORE FUNCTION 4, PERFORM WORK WITHIN CONTROLS

Each work process has a defined authorization protocol for concluding that Core Functions 1-3 have been satisfied, and establishes defined roles and responsibilities for authorizing work to proceed in accordance with identified controls. Additionally, each work planning and execution tool assures that the hazards and controls are discussed with all workers prior to commencing work; that the controls will remain in place for the duration of the activity; and that all workers are qualified to participate in the activity.

CORE FUNCTION 5, PROVIDE FEEDBACK AND CONTINUOUS IMPROVEMENT

Lessons learned are collected and shared to improve the performance of the ISMS. Jefferson Lab has established lessons learned collection, evaluation, and communication tools which are available to all site organizations and employees. Each main Lab organization has a Lessons Learned Coordinator who is responsible for interfacing with the Lab's Corporate Operating Experience system. This system is designed to identify appropriate lessons learned from within and outside Jefferson Lab, consider this information for action, and share the information throughout the Lab. Organizations or groups within organizations have additional tools and meetings that best support their activities and work tempo. Jefferson Lab's Issues Management program provides a consistent, lab-wide approach to managing findings and opportunities for improvement.

Figure 5 Summarizes the work initiation/planning/execution process used by the various work initiators at Jefferson Lab. Each individual step is correlated to an ISMS Core Function.



2.4 Component 4: Integrated Safety Management Mechanisms

Safety management mechanisms define how the core safety management functions are applied at Jefferson Lab based on the specific activities being performed, the associated hazards and work, and performance expectations.

DOE expectations for how the core functions are to be performed are conveyed to Jefferson Lab through DOE Directives and contract clauses:

Program descriptions, policies, procedures and other documents in the programmatic infrastructure contain the expectations for how site personnel are to implement the ISM core functions and principles, fulfill commitments made to DOE, and meet DOE expectations. Figure 5 summarizes many of the ISMS mechanisms that are relied upon to ensure that work is properly described, hazards are identified and controlled, and feedback is collected. Each individual step of the various work planning and authorization tracks depicted in Figure 5 represent a prescribed action, process, or activity that supports the overall system. For example, the FEL Experiment Review Process ensures that work hazards are identified by correctly utilizing the Environmental Safety Approval Form (the mechanism).

Other mechanisms are routinely relied upon to support the ISMS but do not appear in Figure 5. Examples of these include individual training plans, which specify and track completion of required training site access and work authority, and the annual work planning process, which ensures proper resources are assigned to ISMS implementation functions. Together, this inter-related set of mechanisms work to ensure the core functions are applied to all work activities.

2.5 Component 5: Responsibilities for Integrated Safety Management

In order to be successful, the ISMS must have clear and unambiguous lines of authority and responsibility for ensuring that safety, environmental, and health protection shall be established and maintained at all organizational levels. These roles and responsibilities are defined in several ways.

- Jefferson Lab roles and responsibilities for the overall ISMS are defined in our contract, regulations, and Jefferson Lab programmatic infrastructure documents.
- Work planning and authorization protocols are established from the Lab Director down to the most basic work activities. These protocols are established in Jefferson Lab policies and procedures, applying a risk-based graded approach.

2.6 Component 6: Implementation of Integrated Safety Management

The ISMS mechanisms are implemented at Jefferson Lab, beginning with the Annual Work Plan and ending with individual work activities through existing procedures, plans, and policies on a risk-based graded approach. Implementation of ISM at Jefferson Lab begins at the lab-wide level by:

- Identifying the governing requirements, customer expectations, and responsibilities that must be fulfilled in the management and operation of Lab activities. This step results in the “umbrella” of standards encompassing Jefferson Lab activities that include applicable DOE Directives, laws, regulations, contractual requirements, and industry standards.
- Developing Jefferson Lab programmatic infrastructure based on the “umbrella” of governing requirements and expectations, to guide work activities and ensure responsibilities and commitments are established.

These two steps, performed on a continuous cycle, form the foundation of the ISMS at the institutional, facility and activity level.

Section 3 – Supplemental Safety Culture Elements

Jefferson Lab has incorporated into its ISMS the following four supplemental safety culture elements defined in DOE M450.4-1 to be used, along with the existing ISM guiding principles, to help develop the appropriate context or environment for effective implementation of ISM systems.

- Individual Attitude and Responsibility for Safety
- Operational Excellence
- Oversight for Performance Assurance
- Organizational Learning for Performance Improvement

3.1 Individual Attitude and Responsibility for Safety

Each Jefferson Lab employee is expected to accept personal responsibility and accountability for safe operations. Individuals are encouraged to demonstrate a questioning attitude by challenging assumptions, finding the facts for themselves, and considering potential adverse consequences of planned activities. The ISMS is enhanced by employees at all levels actively participating in the decisions that affect personnel health, safety, and impacts on the environment.

As is described in more detail within this document, and as specifically discussed in the *Jefferson Lab WSHP Description and the Jefferson Lab ES&H Manual*, strong worker involvement is a key element in the implementation of the Jefferson Lab safety and health program. The *Jefferson Lab ES&H Manual* defines the processes and establishes the management support systems necessary to incorporate significant worker involvement.

Other areas where worker involvement and individual attitude and responsibility for safety are key aspects of the Jefferson Lab ISMS are in the identification of hazards associated with work activities and during the performance of basic and applied research. Jefferson Lab processes for work planning and control rely on active worker involvement (including pre-job walk downs, hazard identification and assessment of work, and identification of mitigation measures) to ensure that the staff involved with the activities understand the hazards, the specified controls, and management expectations for working safely. By rewarding worker involvement, employees are mindful of work conditions that may affect safety and are encouraged to assist a fellow worker in preventing an unsafe behavior.

3.2 Operational Excellence

Jefferson Lab sustains high levels of operational performance in science and technology, safety, quality, and environmental protection. This performance posture is achieved through open communication, deference to expertise, and a systematic approach to eliminating unsafe conditions, accidents, injuries, and errors.

Typical tools used to support this performance include tool box meetings, electronic log books (maintained for ES&H issues and Accelerator operational issues), the Machine Control Center (MCC) Scheduling Whiteboard, Run Coordinators Weekly Summary, run plans, Interlock Inhibit Log, Program Deputy Shift Plans, and the Hall A/B/C and Accelerator Operability report.

3.3 Oversight for Performance Assurance

Competent and independent oversight is an essential source of feedback to management and is defined more fully in the *AP Description*. This oversight verifies that expectations are being met and the resultant feedback identifies opportunities for improvement. Some examples of how Jefferson Lab meets this expectation include:

- Self-assessment plans are prepared to ensure a base level of relevant management processes are reviewed.
- Line managers throughout Jefferson Lab participate in oversight activities and associated performance improvement through the self-assessment process, work activity safety observations, and workplace inspections.
- Senior management personnel participate in Director's Safety Council meetings during which oversight activities are addressed to gain insight into organizational performance and to determine needed corrective action.
- Internal and independent assessments of the ISM Program are used to identify opportunities for improvement.

3.4 Organizational Learning for Performance Improvement

Jefferson Lab demonstrates excellence in performance monitoring, problem analysis, and solution implementation. Management personnel encourage openness and trust and cultivate a continuous learning environment. Jefferson Lab organizations actively and systematically monitor performance and identify opportunities for improvement through:

- Management and Safety Warden inspections,
- Issue reporting and management,
- Performance indicators,
- Trend analysis,
- Self-assessments, and
- Lessons learned process.

Issues Management programs are in place to solve safety issues identified during performance monitoring and problem analyses. The *Corrective Action Tracking System (CATS)* used to facilitate this activity can readily track action items that result from the performance of inspections, assessments, and audits.

Section 4 – Integration of Other Jefferson Lab ESH&Q Programs with ISM

Jefferson Lab’s ISMS integrates four core programs to protect human health and the environment; the WSHP, the RPP, the EMS, and the AP.

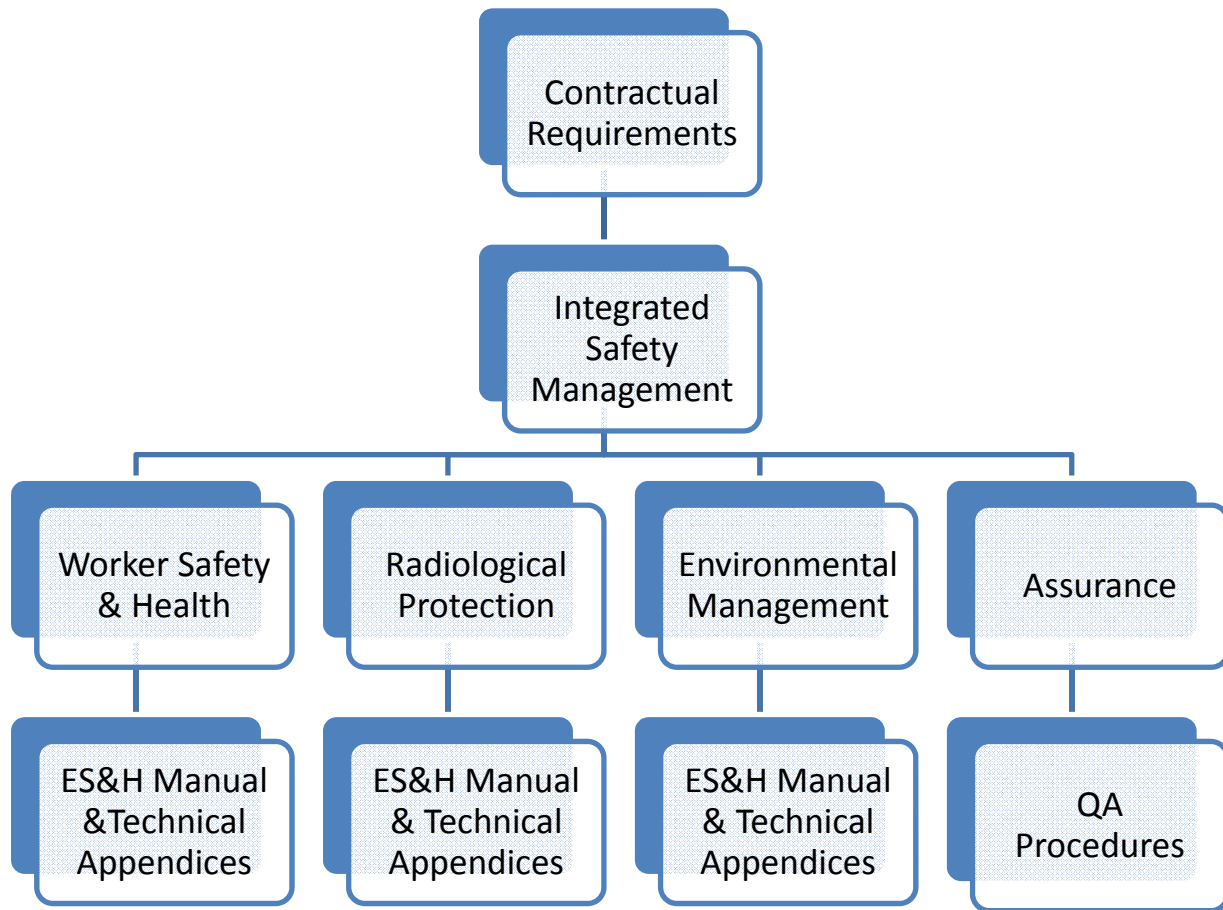


Figure 6 Summarizes Jefferson Lab’s integration of ESH&Q elements into the ISMS

4.1 Worker Safety & Health

The WSHP described in the EWSHP Description (Rev 2.1, September 2009) is a core element of the ISMS and integrates, through Lab policy, procedures, and processes, a strong health and safety program that allows employees, subcontractors, and visiting scientists to work safely at Jefferson Lab in accordance with 10 CFR 851.

4.2 Radiological Protection

The RPP implements a hazard analysis, mitigation, and program improvement system under which all work that may involve radiological exposure occurs at Jefferson Lab and is described in the RPP Description (Rev. 1, December 2006). The RPP is integrated into the ISMS through the use of operational controls during the planning and execution of work activities including training, workplace monitoring, work controls, material controls, and environmental monitoring.

4.3 Environmental Management System

The purpose of the Jefferson Lab EMS is to achieve, maintain, and demonstrate environmental excellence by assessing and controlling the impact of Jefferson Lab experiments, facilities, and operations on the environment. The Jefferson Lab EMS described in the *Environmental Management System Plan* (Rev 6, November 2009) defines the management process used to assure compliance with environmental requirements, preventing pollution, minimizing waste, and continually improving environmental performance through all facets of Lab operations. The EMS manages risk to the environment in a similar fashion as risk to the workers and public. This has been achieved by incorporating EMS planning and operational controls into existing site programs.

4.4 Quality Assurance

The Jefferson Lab Assurance (QA) Program is implemented through the same management systems that support the ISMS Program deployment. Therefore, quality applicable aspects and requirements are seamlessly integrated into Jefferson Lab's work practices common to both the Quality and ISMS programmatic expectations. Risk is the fundamental consideration in determining to what extent the Jefferson Lab Quality Assurance Program will apply to mission and financial management. Through planned and periodic administrative and/or performance-based management assessments, Jefferson Lab can identify problems, to conduct objective evaluations of adequacy and effectiveness, and to recommend solutions. The integration of QA programs is described in the *Assurance Program Description* (August 2009).

4.5 Implementing Procedures

Each of the four core programs are implemented by a series of policies and procedures.

Section 5 - ISM Performance Measurement, System Description Maintenance, and Continuous Improvement

5.1 ISM Annual Safety Performance Objectives, Measures and Commitments Process

Performance measures are established through the Performance Evaluation Measurement Program (PEMP). PEMP metrics are established for eight broad areas: mission accomplishment; construction/operation of user research facilities; science and technology research project/program management; leadership and stewardship of the Lab; integrated safety, health, environmental protection; business systems; and integrated safeguards/security/emergency management.

The PEMP is monitored regularly and formal reports are provided to DOE-TJSO quarterly with an annual review. PEMP metrics are monitored through electronic mechanisms, where available, and results and progress posted to JLab Insight. The web application uses a “dashboard” of color-coded indicators to denote levels of ESH&Q performance.

In addition performance is measured and evaluated by periodic trend analysis using data and information from the site AQIS/CATS system, Work Observation Database, and monitoring of lessons learned. Trends and Performance status are shared with the senior Lab organization as part of the Director Safety Council and Senior Leadership Council meetings. All of these safety performance objectives and measures are updated periodically to reflect changing DOE direction, mission changes, or trending results.

5.2 ISM System Description Maintenance and Continuous Improvement

Jefferson Lab’s Associate Director for ESH&Q has been assigned responsibility for providing leadership for implementation and continually seeking opportunities for improvement of Jefferson Lab’s Integrated Safety Management System. This responsibility is considered when developing the organization’s mission, goals and budget during the Lab’s Annual Work Planning (AWP) process.

Jefferson Lab conducts an Annual Effectiveness Review on the ISMS. During this review, our ISM and ESH&Q subject matter experts review and consider the following:

- Mission or operational changes – any changes to our mission(s), operations or special research activities are evaluated with respect to impacts on the ISMS.
- Organizational changes – changes are evaluated with respect to ISM roles and responsibilities.
- ES&H trends – our performance with respect to protecting the public, workers and environment is analyzed and improvements are identified.

- Internal and external assessment results – the Lab conducts numerous assessments, including hundreds of work observations throughout the year and uses these assessments to identify improvements to how we do work.
- Internal and external lessons learned – lessons learned and best practices, collected internally through our various feedback mechanisms, as well as lessons learned and best practices collected from numerous sources outside the Lab.
- Revisions to safety measures and goals – a detailed review of our performance against internal measures and goals and industry standards and best practices is conducted.
- Best practices – we review other ISM systems to identify improvements to ours and collect information at industry and DOE conferences.

This information is then used to improve our ISMS, and the Program Description is revised to address identified weaknesses and reflect changes. The Program Description revision (draft) is then distributed to senior Jefferson Lab management, the Director's Safety Council, and various committees made up of Lab employees such as the Workers Safety Committee and the Environmental Management System Committee. This information is also used to support a formal declaration that ISM is fully implemented at Jefferson Lab.

Section 6 - Conclusion

Jefferson Lab has developed and implemented an Integrated Safety Management System that effectively weaves safety into the fabric of daily operations; thereby ensuring the safety and health of all employees as well as the user community, and protection of the public and environment. In our quest for continuous improvement in all aspects of work, Jefferson Lab will continue to identify safer and more efficient ways to conduct business. Consequently, changes in work processes, equipment, and training will continue to emerge; and modifications to this document will reflect those methods that evolve to improve the Jefferson Lab ESH&Q Program.

Appendix A- Jefferson Lab Management Systems Comprising the ISMS Program

Management System Activity	Organizational Participant (* Lead)
<p>Acquisition and Property <i>Maintains the processes for the purchase and delivery of services, materials, equipment, and supplies as well as lifecycle property management for Jefferson Lab operation.</i></p>	<p>Facilities and Logistics* Chief Operating Office - Contracts - Procurement</p>
<p>Environmental <i>Maintains and supports an Environmental Management System to demonstrate environmental excellence by assessing, minimizing, and controlling the impact of Lab activities; research and development (R&D) projects; and facility operations on the environment, public, and employee health and safety.</i></p>	<p>ESH&Q Division - Environmental Program Department*</p>
<p>Facility Management <i>Supports the work of the Lab by: planning and forecasting facility needs; acquiring and constructing new facilities to meet emerging needs; operating, maintaining, and renewing the facility portfolio; disposing of facility and land assets that are excess to need; and providing a set of core and purchased staff services.</i></p>	<p>Facilities and Logistics* Accelerator Operations*</p>
<p>Facility Safety <i>Management systems and technical support services that are provided to technical group, technical resource, facility, and project managers, as well as research and support staff of the Lab.. Facility Safety encompasses the development, maintenance, and operation of systems designed to support the effective and efficient implementation of facility safety requirements. The technical support service is executed by a staff of fire protection, mechanical, electrical, and chemical engineers who provide assistance to the organizations they support.</i></p>	<p>Engineering Division* Accelerator Division</p>
<p>Financial Management <i>Supports the life cycle of a project and the business management process while meeting external requirements of DOE, and taxing and regulatory entities.</i></p>	<p>Financial and Business Operations* Chief Operating Office - Internal Audit</p>

Management System Activity	Organizational Participant (* Lead)
<p>Human Resources <i>Supports the Lab by developing and implementing programs, processes, and policies that enable the Lab to attract, hire, develop, compensate, and reward highly qualified human assets within the guidelines of applicable labor agreements and federal and state laws and/or guidelines. The Human Resource Management System has six components: workforce planning; benefits administration; employee programs, training, development, and education; performance management and rewards; labor relations; and Human Resources Information Resource.</i></p>	<p>Chief Operating Office - Human Resources*</p>
<p>Quality <i>Maintains the Jefferson Lab Quality Assurance Program, identifies processes and tools for self- assessment evaluations (e.g., critiques, peer reviews, staff concerns, independent oversight, internal audit), and supports effective and efficient continuous improvement (e.g., Assessment Closure [Corrective Action Management], Lessons Learned and Best Practices, Price-Anderson Amendment Act, Suspending Work Activities).</i></p>	<p>ESH&Q Division - Quality Assurance and Continuous Improvement*</p>
<p>Project Management <i>Supports the Lab's project management requirements by providing applicable processes and tools for meeting established project goals in terms of technical scope, schedule, and budget. The Project Management System provides staff with the tools needed to plan, organize, manage, and control projects to meet schedule and budgetary constraints.</i></p>	<p>Project Management and Integration*</p>
<p>Radiological Control <i>Maintains a Radiological Protection Program to protect staff from unnecessary exposure to ionizing radiation, protect facilities and equipment from contamination with radioactive materials, and promote compliance with applicable regulatory and contractual requirements.</i></p>	<p>ESH&Q Division - Radiological Control* - Radiological Protection Program</p>
<p>Safeguards, Security and Emergency Preparedness <i>Maintains preparedness and serves as a resource to line management for emergency and security preparedness activities.</i></p>	<p>ESH&Q Division Chief Information Office Facilities and Logistics</p>
<p>Training and Qualification <i>Maintains an integrated and effective training system that supports Lab managers and management system owners with training and qualification activities needed for staff, visitors, and contractors to perform their assigned work.</i></p>	<p>Chief Operating Office Experimental Nuclear Physics Theoretical Computational Physics Accelerator Operations Free Electron Laser Facility</p>
<p>Worker Safety and Health <i>Supports line and operations management in providing a safe and healthful workplace for all employees, visitors, vendors, and subcontractors. The management system addresses the identification, evaluation, and control of hazards in the workplace by providing direct technical assistance to those conducting work. This includes line, facility, and project managers as well as all staff.</i></p>	<p>ESH&Q Division - Health and Safety Programs* - Occupational Medicine*</p>
<p>Science and Technology <i>Researchers performing research at Jefferson Lab carry out basic and applied research, develop advanced technologies, and disseminate technical knowledge.</i></p>	<p>Experimental Nuclear Physics Theoretical Computational Physics Accelerator Operations Free Electron Laser Facility</p>