

## Integrated Safety Management System Program Description



## Figure 1 – Jefferson Lab ES&H Policy



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Jefferson Lab strives to provide our employees, users, subcontractors, vendors, and visitors a safe and healthy workplace. No activity is so urgent or important that we will compromise our safety, health, or environmental standards. For this Policy to be effective all stakeholders must fully collaborate in achieving the shared vision expressed by this policy and demonstrate individual responsibility toward these objectives.

Jefferson Lab executes this policy by:

- Implementing a worker safety and health program that recognizes and mitigates hazards through deliberate ٠ planning and a hierarchy of controls
- Empowering everyone working on site with the responsibility to stop any activity that could endanger people, . environment, or property and immediately report injuries or concerns without any fear of retribution
- Integrating environment, safety, and health (ES&H) management principles into the planning and execution of work by always:
  - . Defining the scope of work;
  - Analyzing the hazards to the worker, the public, and environment;
  - Developing and implementing hazard controls;
  - Performing work within controls; and
  - Providing feedback and continuous improvement.
- Applying Human Performance Improvement (HPI) principles to better recognize and avoid error likely situations
- Including all levels of the organization in establishing ES&H objectives and targets
- Complying with all laws, regulations, and standards
- Protecting the environment by applying sound pollution prevention and waste minimization practices.
- Demonstrating that safety and quality are inextricably linked through:
  - Rigorous self-assessments to identify non-compliances and initiate improvement action
  - Conduct investigations to determine causal factors and corrective actions
  - Incorporate lessons learned and foster a culture of continuous improvement and learning
  - Promote a just culture that strives not to blame, but to understand the reasons why errors occur and reward anticipation and reporting of potential problems, errors and near misses
- Fostering a culture in which:
  - All workers have the information they need to carry out their work.
  - All are expected to report errors and near-misses,
  - We learn from our mistakes with the goal of improving as an organization, and
  - failures are acknowledged and handled justly

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## Figure 2 – Summary of the Jefferson Lab Work Initiation/Planning/Execution Process That Various Work Initiators Use (Each individual step correlates to an ISMS core function.)

ORGANIZATION		CCELERATO MAINTENANCE	<b>R</b> SRF	PHY: EXPERIMENT PREPARATION & HALL MAINTENANCE	EXECUTE EXPERIMENTS WITH BEAM	FM8	٢L	ENG		BALANCE OF LAB		
Define the Scope of Work	(Labwide) Annual Work Plan, Planning Meetings, Jobsite Walkdowns											
	Experimental Schedule	ATLis Task Description	P3 Long-Term Schedule TATLs Task Description	Experiment & Maintenance Schedules Hall List Task Description Experiment Review Process Experiment Collaboration Meetings	Program Advisory Committee Nuclear Physics Experimental Schedule Committee and Process Experiment Review Process Experiment Collaboration Meetings	ATLis & Clones Task Work Orders Subcontractor Spec	Description	ATLis & Clones Task Descriptio Subcontractor Specifications Hall Work Schedules Group Business Plans Conduct of Engineering Progr Project Management System	on	Subcontractor Specifications CRADA		
2 Analyze the	(Labwide) ES&H 3050, 3060 and 3240, Planning Meetings, Jobsite Walkdowns											
Hazard	SAD	ATLis ePAS	ePAS Incorporation into ATLis (Hall List, TATL)	Hall List ePAS Readniess Review	Experiment Review Process ESAD RSAD Hazard ID Checklist	ES&H 3410 ePAS		ATLis and Clones ePAS Maximo		ePAS		
3 Develop & Implement	(Labwide) SOPs, ePAS Permits, LOSPs, Training, ES&H 3240 and 3320 - Temporary Work Permits (e.g., Confined Space, Dig/Blind, Radiological Control Permits)											
Hazard Controls	SAD/ASE ES&H 3500 AOD	See Labwide	See Labwide	See Labwide	Conduct of Operations ESAD RSAD Hall Operations Manual	Work Orders Subcontractor Safet Activity Hazard Ana ePAS	ty Plans Iysis	Work Instructions Design Reviews Conduct of Operations ePAS		See Labwide		
Perform Work Within Controls	(Labwide) SOPs, ePAS Permits, LOSPs, Applicable ES&H Manual Procedures, Jobsite Walkdowns, Pre-Job Briefings											
	AOD Shift Plan Approval	ATLis File Approval ePAS	TATLs File Approval Travelers ePAS	Work Instructions Experiment and Maintenance Schedules Toolbox Meetings Hall List File Approval ePAS	Conduct of Operations Experiment Readiness Certificate Shift Plan Meetings Daily Accelerator Meetings	Daily Work Plan M Work Orders Subcontract Requi Subcontractor Safe Activity Hazard An ePAS	fleetings irements ety Plans ialysis	ATLis and Clone File Approva Internal Group Procedures Pre-Shutdown Safety Meeting Toolbox Meeting Travelers ePAS	1	See Labwide		
5 Provide Feedback & Continuous	Daily/Weekly/Monthly Planning and Feedback Meetings, Pre-Job Briefings, Jobsite Walkdowns, Independent & Management Assessments, Inspections by JLab Safety (Labwide) Wardens, Work Observation Program, Worker Safety Committee, Director's Safety Council, Environmental Management System Committee, Electrical Safety Committee, Material Handling Committee, Corrective Action Tracking System (CATS), JLab Lessons Learned Program (external and internal sources), ePAS											
Improvement	Ops Problems Reports ELOG Shift Turnover	ATLis Comments Shutdown LL Report ELOG ePAS	TATLs Comments Online Forum Various e-logs Travelers ePAS	Post-Job Reviews Hall List Comments Hall Review Meetings Post-Installation LL Meetings Various e-Logs Experiment Collaboration Meetings ePAS	Post Experiment Feedback Online Forum Various e-Logs Experiment Collaboration Meetings	Pre-bid Meetings Feedback During W Post-Job Closeout ( Work Order Closeou SOTR Oversight Subcontractor Eval & ePAS	ork Performance Large Projects) ut & Qual	Pre-Shutdown Safety Meeting Scheduled Acc Maint LL Mtg Various e-Logs ATLis and Clones Comments Online Forum Post-Job Reviews ePAS	3 (LL)	Post-Job Reviews ePAS		
ACRONYMS	ES&H Manual Chapter 3130 - Accelerator Experiment Safety Review Process			Accelerator Operations Directives - Subcontracting Officer's Technical	ASE - Accelerator Safety Env FEL-ODS - Free-Electron Las	elope er Operations	ATLis and Clones in TATLs, Hall A List, H	cludes: LERFList, CTList, Iall B List, Hall C List	ES&H Ma Control,	H Manual Chapter 3240 - Work Planning, trol, and Authorization Using ePAS		
	ES&H Manual Chapter 3500 - Emergency Rep Response Activities RSA ESAD - Experiment Safety Assersement Doc			sentative - Radiation Safety Assessment nent	Document Supplement ePAS - Electronic Permit Adn System	ninistration	SAD - Safety Assessment Document CRADA - Cooperative Research and Development Acreement		ES&H Ma High-Cor ES&H Ma	жн Manual Chapter 3050 - High-Risk & gh-Consequence Work S&H Manual Chapter 3060 - Policy for Extended		
	Document ES&H SOP - Standard Operating Procedure Work			Manual Chapter 3320 - Temporary Permits	ES&H Manual Chapter 3410 - Subcontractor Construction Safety		LOSP - Laser Operational Safety Procedure		Work Ho LL - Less	ions Learned		

Guiding Principles	Examples of Implementation Methods						
(1) Line Management Is Responsible for the Protection of Employees, the Public, and the Environment.	<ul> <li>Responsibilities are articulated in ES&amp;H Manual Chapter 2210, "Overarching Responsibilities to Ensure Compliance with ES&amp;H Requirements."</li> <li>Expectations for safety program implementation are incorporated into all of line management's individual performance objectives (see ES&amp;H Manual Chapter 2210 for specific objectives).</li> <li>Objectives and targets aimed at improving the lab's performance in the areas of ES&amp;H are established annually, monitored by senior management, and tracked to completion.</li> </ul>						
(2) Roles and Responsibilities Are Clear. Clear and unambiguous lines of authority and responsibility for ensuring the protection of environment, safety, and health are established and maintained at all organizational levels.	<ul> <li>Roles and responsibilities are articulated in ES&amp;H Manual Chapter 2210, "Overarching Responsibilities to Ensure Compliance with ES&amp;H Requirements."</li> <li>Roles and responsibilities for scope of work, hazard analysis and control, and work authorization are outlined in various work planning and execution tools — such as the electronic work authorization protocols (ATLis, Hall Lists, TATLs, etc.), the Electronic Permit Administration System (ePAS), and the Experiment Readiness Review Process. ES&amp;H Manual Chapter 3240, "Work Planning, Control, and Authorization Using ePAS," provides specific direction.</li> </ul>						
(3) Competence is Commensurate With Responsibilities. Personnel possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities.	<ul> <li>Minimum competence is identified in position descriptions; additional competence is determined as responsibilities are assigned.</li> <li>The Job Task Analysis (JTA) identifies training requirements based on work assignment and associated hazards. Training records are centrally located.</li> <li>Automatic reminders are provided to line management when assigned personnel's training has elapsed.</li> <li>Work Planning and Control (WPC) documents, ES&amp;H Manual chapters, and other operational control documents require specific training prior to work initiation.</li> <li>Verification of skills for work permit recipient(s) are incorporated into the WPC system.</li> </ul>						
(4) Priorities Are Balanced. Resources are effectively allocated to address ES&H, programmatic, and operational considerations. Protecting the employees, the public, and the environment is a priority whenever activities are planned and performed.	<ul> <li>The ES&amp;H and Facilities Management and Logistics (FM&amp;L) divisions budget installation-wide activities based on contractual requirements, lessons learned, and industry best practices.</li> <li>Line organizations develop an independent safety budget reflecting their activities, including maintaining the credited controls found in the Accelerator Safety Envelope (ASE). The annual work planning process ensures that proper resources will be available.</li> <li>The lab's ES&amp;H performance is routinely reported to senior management with authority to make funding decisions.</li> </ul>						

## Table 2 – Principles Guiding ISMS Activities and Examples of Their Reflection in Jefferson Lab's Programmatic Infrastructure

Guiding Principles	Examples of Implementation Methods					
(5) Safety Standards and Requirements Are Identified. Before work is performed, the associated hazards are evaluated and an agreed-upon set of ES&H standards and requirements are established — which, when properly implemented, provide adequate assurance that employees, the public, and the environment are protected from adverse consequences.	<ul> <li>All safety standards and requirements are identified in Contract DE-AC05-06OR23177 and clarified in the ES&amp;H Manual, the WSHP, and the RPP. "Flow down" of all contractual requirements occurs during all procurement activities.</li> <li>All work planning and authorization processes include a step for identifying safety requirements.</li> <li>New projects, experiments and other major activities are reviewed for potential environmental impact.</li> </ul>					
(6) Hazard Controls Are Tailored to Work Being Performed. Administrative and engineering controls to prevent and mitigate hazards are tailored to both the work being performed and associated hazards.	<ul> <li>Administrative and engineering controls to prevent and mitigate hazards are tailored to both the work being performed and associated hazards. Emphasis is placed on designing the work and/or controls to reduce or eliminate hazards and to prevent accidents and unplanned releases and exposures.</li> <li>The Safety Assessment Document (SAD) analyzes hazards, and the ASE establishes safety envelopes for the Continuous Electron Beam Accelerator Facility (CEBAF) and Low Energy Recirculator Facility (LERF) accelerators and associated research. This document informs all lower-level operational procedures.</li> <li>The EMS annual planning process includes a review of the adequacy of operational controls designed to protect the environment and ensure compliance.</li> </ul>					
(7) Operations Are Authorized. The conditions and requirements to be satisfied for operations to be initiated and conducted are clearly established and agreed upon.	• Authorization documents, such as the ASE and the SAD, outline conditions for safe operations of the lab's major systems. Approval and authorization roles and requirements for the planning and execution of specific work activities are incorporated into the WPC system.					