

U. S. Department of Energy, Richland Operations Office Integrated Safety Management System Description



United States
Department of Energy

U. S. Department of Energy, Richland Operations Office Integrated Safety Management System Description

September 2000



United States Department of Energy

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ACRONYMS

AA	Authorization Agreements
AWP	Annual Work Plan
BUG	Baseline Updating Guidance
DNFSB	Defense Nuclear Facilities Safety Board
DOE	U.S. Department of Energy
ES&H	Environmental, Safety, and Health
FEOSH	Federal Employee Occupational Safety and Health Program
FR	Facility Representative
FRA	Functions, Responsibilities, and Authorities
FRAM	Functions, Responsibilities, and Authorities Manual
FRPM	FR Program Manager
HAB	Hanford Advisory Board
HFTCP	Hanford Federal Technical Capabilities Panel
HQ	DOE-Headquarters
IDP	Individual Development Plan
IPL	Integrated Priority List
ISMS	Integrated Safety Management System
ISMSD	Integrated Safety Management System Description
MPG	Mission Planning Guidance
MYWP	Multi-Year Work Plan
PNNL	Pacific Northwest National Laboratory
RIMS	RL Integrated Management System
RL	DOE, Richland Operations Office
SER	Safety Evaluation Reports
SAR	Safety Analysis Report
SMB	Site Management Board
SME	Subject Matter Expert
SMS	Safety Management System
S/RID	Standards/Requirements Identification Documents
STSM	Senior Technical Safety Managers
TSR	Technical Safety Requirements
TLDP	Technical Leadership Development Program
WBS	Work Breakdown Structure
USQ	Unreviewed Safety Question

1.0 PURPOSE AND SCOPE

The purpose of this Integrated Safety Management System Description (ISMSD) is to describe the U.S. Department of Energy (DOE), Richland Operations Office (RL) ISMS as implemented through the RL Integrated Management System (RIMS). This ISMSD does not impose additional requirements but rather provides an overview describing how various parts of the ISMS fit together. Specific requirements for each of the core functions and guiding principles are established in other implementing processes, procedures, and program descriptions that comprise RIMS.

RL is organized to conduct work through operating contracts; therefore, it is extremely difficult to provide an adequate ISMS description that only addresses RL functions. Of necessity, this ISMSD contains some information on contractor processes and procedures which then require RL approval or oversight. This ISMSD does not purport to contain a full description of the contractors' ISM System Descriptions.

2.0 BACKGROUND

In 1995, the Defense Nuclear Facilities Safety Board (DNFSB) recommended that DOE institutionalize an ISMS across the complex. DOE responded to DNFSB Recommendation 95-2 by issuing an implementation plan in April 1996, followed by DOE Policy 450.4, *Safety Management System*, in October 1996.

DOE's ISMS establishes a hierarchy of components facilitating the orderly development and implementation of safety management throughout the complex. As described in DOE P 450.4, the Safety Management System (SMS) consists of six components:

- Objective of Integrated Safety Management
- Guiding Principles for Integrated Safety Management
- Core Functions for Integrated Safety Management
- Mechanisms for Integrated Safety Management
- Responsibilities for Integrated Safety Management
- Implementation of Integrated Safety Management.

The first three are the same for all DOE offices and contractors, while the latter three differ from site to site depending on hazards, work processes, and management styles. The RL SMS is based primarily on DOE philosophies, principles, and the following policies:

- DOE P 450.4, *Safety Management System Policy*
- DOE P 450.5, *Line Environment, Safety and Health Oversight*
- DOE P 450.6, *Secretarial Policy Statement - Environment, Safety and Health.*

The RL SMS is also based on specification and guidance for Environmental Management Systems as specified in the International Organization for Standardization 14001 Standard. Additional attributes of the RL SMS include:

- **Stakeholder Involvement** is coordinated through RL via the Office of Intergovernmental, Public, and Institutional Affairs. Described within the **Communications Management System** are the processes that coordinate public involvement activities. The Public Involvement Manager serves as the point-of-contact, both formal and informal, between RL and its stakeholders, the regulators and Tribal governments. The **Communications Management System** is the basis upon which public understanding and trust is built by recognizing the importance of honesty, forthrightness, credibility, and quality performance. The system provides a means to gather diverse public opinions, perspectives and values, and enables RL to make more balanced and informed decisions reflecting stakeholders concerns. Communication may vary in nature and scope and may include, but is not limited to, informal conversations, scheduled meetings and workshops, public meetings, hearings or focus groups, Hanford Advisory Board (HAB) meetings and activities, and federal-state-local-Tribal agreements. Several public involvement activities are ongoing, such as the HAB and its committees. The HAB is intended to be an integral component for Hanford Site general public involvement activities. A major focus of the HAB is the content and proposed changes to the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement; Ecology et al. 1998), and monitoring agency progress in meeting regulatory milestones.
- **Worker Involvement** is a vital key to the successes at the Hanford Site. An effective SMS ensures that workers are actively involved in preparing work, including planning, hazard and environmental impact identification and analysis, implementation of controls, and readiness reviews. This direct involvement by workers allows them to share their knowledge and experience, improve work efficiency, and ensure safe work performance. Each worker has the right, responsibility, and authority to report unsafe or environmentally unsound conditions or practices, and stop work without fear of reprisal as described in the **RL Integrated Management System**.

2.1 SAFETY MANAGEMENT SYSTEM OBJECTIVE

The objective of safety management is to ensure that DOE and its contractors 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 objective is to be accomplished through effective integration of safety management into all facets of work planning and execution. The bottom-line objective is to **Do Work Safely**.

2.2 GUIDING PRINCIPLES FOR INTEGRATED SAFETY MANAGEMENT

- A. **Line Management Responsibility for Safety.** An effective SMS must ensure that line management is directly responsible for the protection of the public, the workers, and the environment.
- B. **Clear Roles and Responsibilities.** An effective SMS must ensure that clear and unambiguous lines of authority and responsibility for safety are established and maintained at all organizational levels within the DOE and its contractors.
- C. **Competence Commensurate with Responsibilities.** An effective SMS must ensure that personnel possess the experience, knowledge, skill and abilities necessary to discharge their responsibilities.
- D. **Balanced Priorities.** An effective SMS requires that resources be appropriately allocated to address safety, programmatic, and operational considerations. Protecting the public, workers, and the environment shall be a priority when work activities are planned and performed.
- E. **Identification of Safety Standards and Requirements.** An effective SMS requires that before work is performed, associated hazards are evaluated and safety standards and requirements are established. Safety standards and requirements should provide adequate assurance that, if they are properly implemented, the public, workers, and environment will be protected from adverse consequences.
- F. **Hazard Controls Tailored to Work Being Performed.** An effective SMS requires that administrative and engineering controls designed to prevent and mitigate hazards be tailored to the work being performed and the associated hazards.
- G. **Operations Authorization.** An effective SMS requires that the conditions and requirements that must be satisfied for operations to begin and continue be clearly established and agreed upon.

2.3 CORE FUNCTIONS FOR INTEGRATED SAFETY MANAGEMENT

The safety management core functions provide the structure for integrating safety management with any work activity that could potentially affect the public, workers, or the environment. The functions are applied as a continuous cycle, with the degree of rigor appropriate to address the type of work activity and hazards involved.

- A. **Define Scope of Work.** Missions are translated into work, expectations are set, tasks are identified and prioritized, and resources are allocated.
- B. **Analyze Hazards.** Hazards associated with work are identified, analyzed, and categorized.

- C. Develop and Implement Hazard Controls.** Applicable standards and requirements are identified and agreed upon, controls to prevent or mitigate hazards are identified, the safety envelope is established, and controls are implemented.
- D. Perform Work Within Controls.** Readiness is confirmed and work is safely performed.
- E. Provide Feedback and Continuous Improvement.** Feedback information on the adequacy of controls is gathered, opportunities for improving the definition and planning of work are identified and implemented, line and independent oversight is conducted, and, if necessary, regulatory and enforcement actions occur.

2.4 INTEGRATED SAFETY MANAGEMENT MECHANISMS

Safety mechanisms define how the core safety management functions are implemented. At RL, the RIMS, through process-based management systems and crosscutting processes, is the principal mechanism for implementing the SMS at the Hanford Site. The RIMS mechanisms are based on the following:

- An evaluation of external requirements (e.g., prepared and approved at the DOE-Headquarters [HQ] level [DOE policies and orders])
- Nongovernmental standards, such as orders, directives, federal, state, and local laws
- RL policies, which are prepared and approved at the RL-level (e.g., through RIMS, crosscutting processes and procedures).

2.5 RESPONSIBILITIES FOR INTEGRATED SAFETY MANAGEMENT

Responsibility for safety must be clearly defined in documents that can be linked to specific work activities. An overview of DOE responsibilities for safety management is provided in DOE M 411.1-1, *Safety Management Functions, Responsibilities, and Authorities Manual* (FRAM). These responsibilities are further defined and supplemented by HQ program offices and RL Functions, Responsibilities, and Authorities (FRA) documents. RL has developed a FRA Cross-Walk Matrix that flows these responsibilities into RIMS. These responsibilities are further expressed in the appropriate RIMS crosscutting processes and procedures. In addition, specific responsibilities flow down from departmental directives to site-specific implementing directives, site consensus standards, and other manuals of practice. Contractor responsibilities are defined in contracts, regulations, and contractor-specific procedures.

2.6 IMPLEMENTATION OF INTEGRATED SAFETY MANAGEMENT

Implementation refers to development and application of ISMS mechanisms to specific work activities. At RL, ISMS mechanisms are primarily implemented through RIMS Management Systems, crosscutting processes, and procedures. Figure 1 shows the hierarchy of RIMS documentation, and Figure 2 illustrates how the RIMS Management Systems implement ISM at RL.

Figure 1. RIMS Components and Documents Hierarchy.

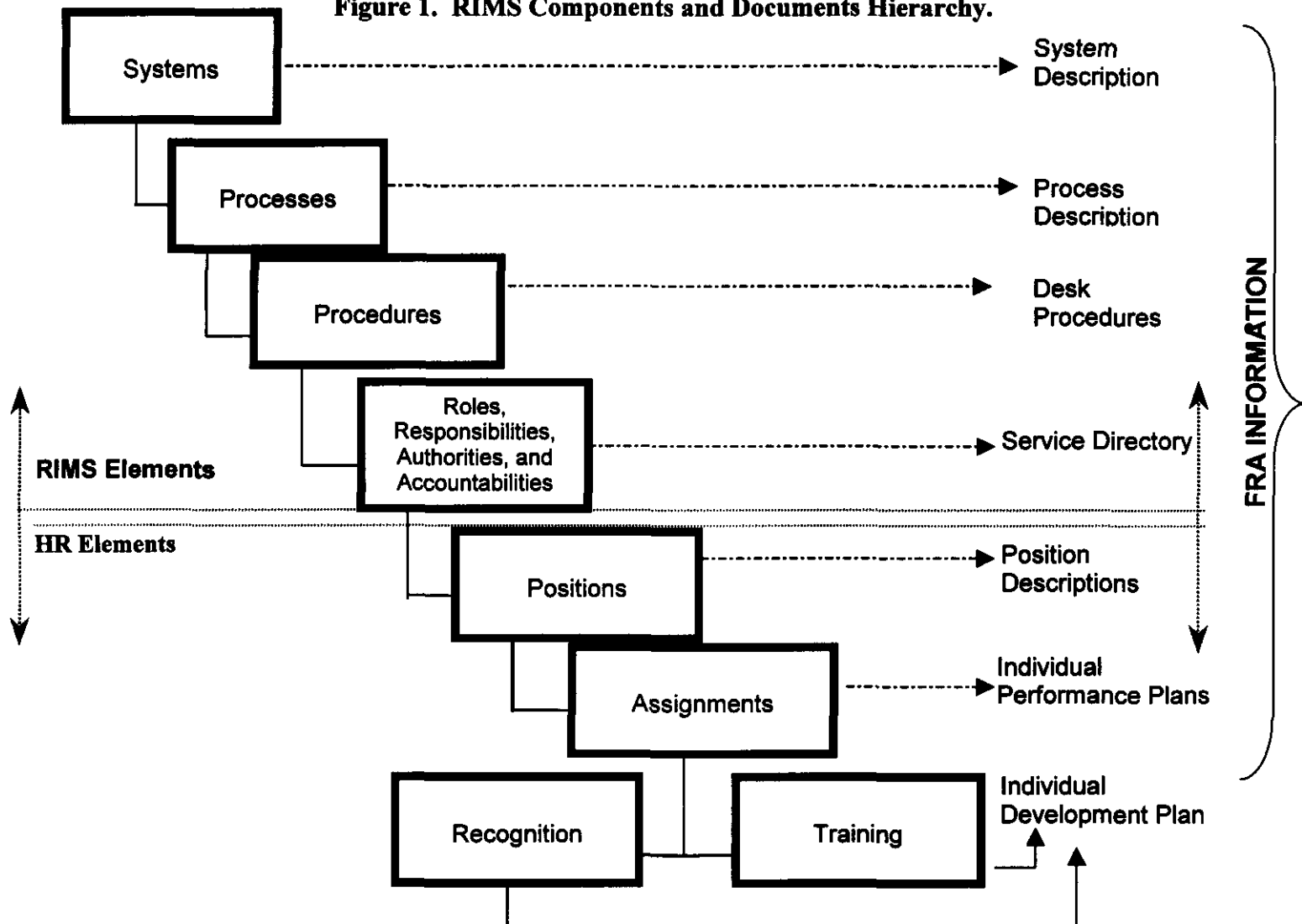
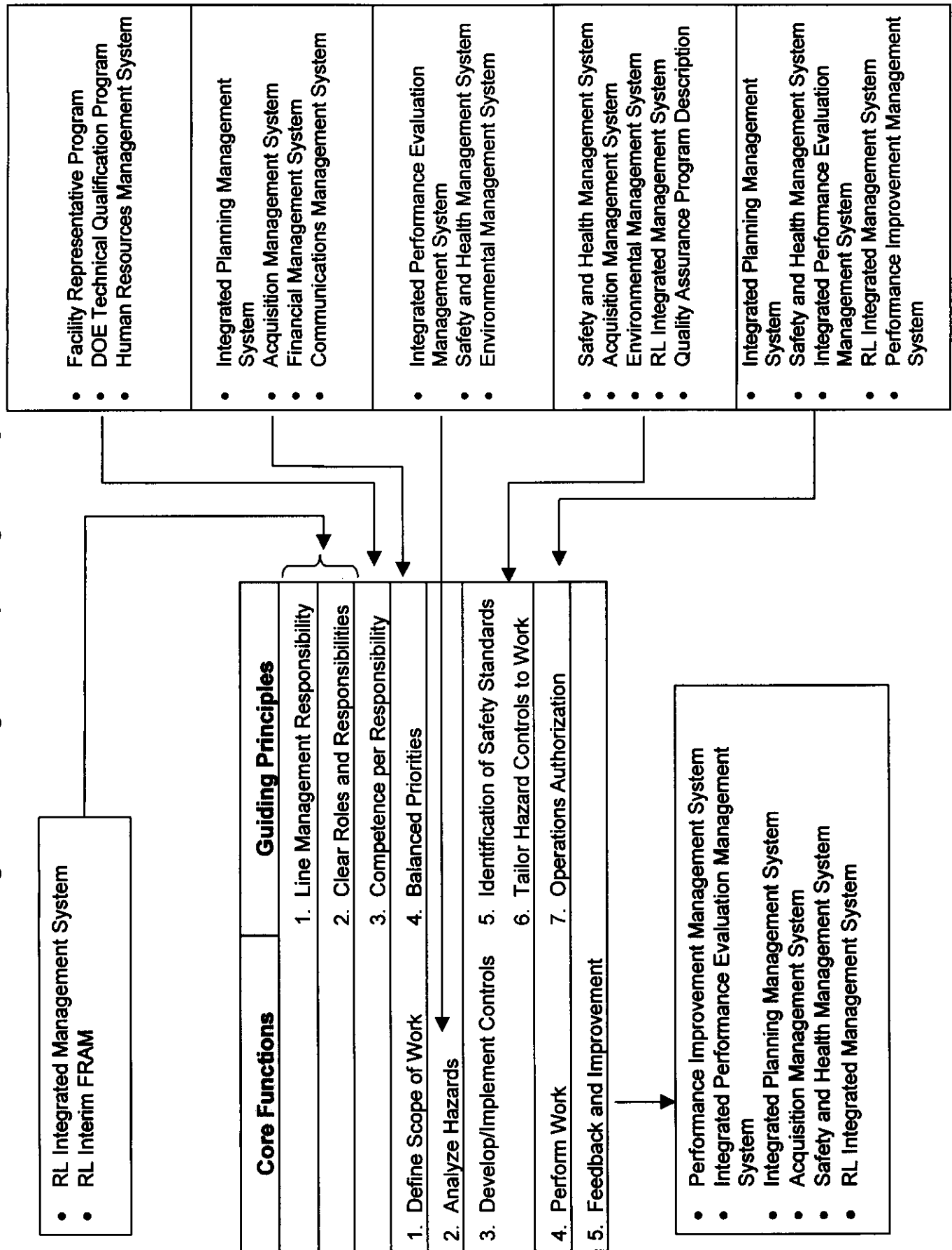


Figure 2. RL Integrated Safety Management Implementation.



3.0 IMPLEMENTATION OF INTEGRATED SAFETY MANAGEMENT AT RL

This section describes how the ISM guiding principles and core functions are implemented at RL.

3.1 RL IMPLEMENTATION OF THE SEVEN GUIDING PRINCIPLES

3.1.1 Principle 1: Line Management Responsibility for Safety

Primary RL Procedural Mechanism:

- **RIMS Integrated Management System Description**
 - Section 3.0, “Management System Operation”
 - Section 3.2, “Key Functions Services, and Processes”
 - Appendix A, “Core Roles, Responsibilities, Authorities, and Accountabilities”
- *U.S. Department of Energy (DOE), Richland Operations Office (RL) Functions, Responsibilities, and Authorities Manual (FRAM), 00-MSD-067 (Klein 2000)*

Discussion:

At RL, assignment of line management's responsibility for safety is accomplished via the **RIMS Integrated Management System Description, Section 3.0, “Management System Operation.”** RIMS provides RL management and mission elements the necessary and sufficient policies, procedures, and program descriptions for efficient, effective and safe conduct of work. Letter 00-MSD-067 (Klein 2000), Chapter 2.2 (the RL interim FRAM) served as a local benchmark of line management safety responsibilities during the transition to the RIMS Business Model.

The RIMS -Appendix A assigns applicable safety responsibilities to the Manager/Deputy Managers, Assistant Manager's and Director's (Level 1 Managers), Supervisors, Management System Stewards, Mission Element Managers, Mission Support Managers, Support Service Managers, Contracting Officer's, Subject Matter Experts, and RL staff. The processes for executing SMS functions are further delineated in RIMS crosscutting processes and procedures and existing Hanford Site contracts.

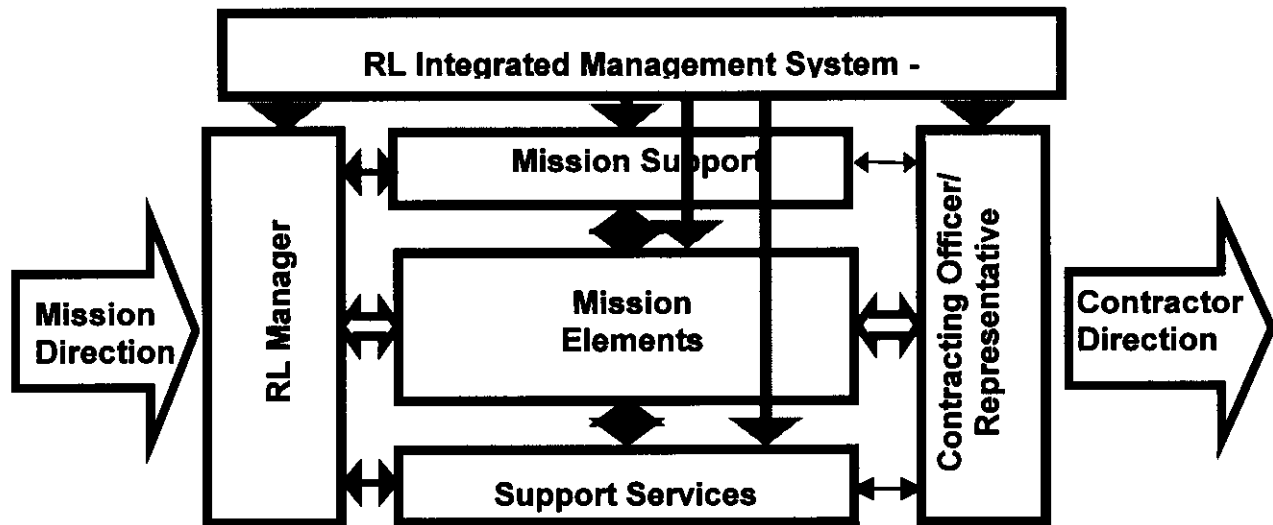
Specific examples of RL line management's responsibility for safety include approval of Authorization Basis documents (Safety and Health Management System), line authority to stop work (RIMS policies and operating principles), line management assessments and surveillances of contractor operations and oversight of contractors' self assessment programs (Integrated Performance Evaluation Management System), and line management determination of contractor award fee and performance-based incentives (Acquisition Management System and Integrated Planning Management System).

RIMS supports the implementation of the RL Business Model (shown in Figure 3) for defining federal employee responsibilities without regard to organization. This pictorially depicts the

principles upon which the RIMS management system is based. These principles relative to line management's responsibility for safety may be stated as follows:

- Line management from HQ to the Field Manager to the contractor
- All contractor direction is from either the Contracting Officer or Representative using authority derived from the Field Manager as the Head of Contracting Activity

Figure 3. The RL Business Model.



3.1.2 Principle 2: Clear Roles and Responsibilities

Primary RL Procedural Mechanism:

- **RIMS Integrated Management System Description**
 - Section 3.0, "Management System Operation"
 - Section 3.2, "Key Functions Services, and Processes"
 - Appendix A, "Core Roles, Responsibilities, Authorities, and Accountabilities"
 - Appendix F, "Service Directory."

Discussion:

At RL, the RIMS Integrated Management System establishes clear roles and responsibilities, down to the RL staff level. The Integrated Management System establishes the overall framework for RL's key operational processes and supports RL's mission, vision, values, and goals using key management systems and operational Roles, Responsibilities, Authorities, and

Accountabilities. It also defines the overall requirements information hierarchy for RL. The key processes for achieving these objectives are discussed in the Integrated Management System. As stated in Section 3.1.1, RIMS supports the implementation of the RL Business Model (shown in Figure 3) for defining RL federal employee responsibilities without regard to organization. This pictorially depicts the principles upon which the RIMS management system is based. These principles relative to roles and responsibility are stated as follows:

- RL staff must partner to support the Field Manager - interdependence is critical.
- RL staff responsibilities include the following:
 - Direct responsibility for authorizing and nurturing the mission elements, interacting with HQ sponsors, and achieving desired outcomes
 - Provide critical mission support to define work, establish standards and expectations, and evaluate progress of the mission elements
 - Provide support services to mission elements, mission support, and other support service providers.
- The RIMS process framework and the RL information architecture (framework) are key enablers of the business model.

RIMS enables effective implementation of other management systems by providing the following:

- Delivering their associated RL policies, processes, procedures, and guidelines on a web-based electronic delivery system
- Ensuring their implementation methods are integrated with other DOE-wide and RL documentation
- Managing their applicable requirement sources.

Specific roles and responsibilities are further clarified as appropriate in RL organization-specific manuals of practice, which may specify roles, responsibilities, and levels of authority for specific work activities and functions.

3.1.3 Principle 3: Competence Commensurate with Responsibilities

Primary RL Procedural Mechanisms:

- Facility Representative Qualification Program (FRI-014)
- DOE Technical Qualification Program
- **Human Resources Management System**
 - Workforce Management Crosscutting Process
 - Training and Employee Development Crosscutting Process
 - Individual Development Plan (IDP) Procedure
 - Participation in Qualification Programs Procedure
- Employee/Labor Relations Management Crosscutting Process

Discussion:

The Training and Employee Development Crosscutting Process describes the processes to be used by mission and support managers and employees to identify and document the development objectives and developmental activities that can help RL staff successfully perform their current position functions, prepare them for their next office assignment, and their future career goals. The Training and Employee Development Crosscutting Process provides the building blocks necessary to equip the federal workforce with the knowledge, skills and abilities to be successful. RL staff must meet requisite skills for their current position, but additionally there is a need to prepare for job-specific skills to meet new or changing requirements for the future.

As prescribed in the Performance Management System each employee meets with their supervisor to discuss and agree on an annual Individual Development Plan (IDP) that contains qualification activities tailored to specific job duties. This process applies to all employees and ensures that employee competence is not just maintained, but continually enhanced. In addition, this process applies to any supervisor and employee assigned to RL. More specifically, the IDP could include qualification or continuing training under the DOE Technical Qualification Program (i.e., Hanford Federal Technical Capabilities Panel [HFTCP], Federal Acquisition Regulations, Financial Management Regulations, Office of Personnel Management Supervisory requirements, Federal Occupational Safety and Health requirements, Hanford Site or facility-specific requirements, etc.) Participation in Qualification Programs Procedure is only for those supervisors who believe that the qualification program(s) for their employees are unique enough to be highlighted in the IDP process. This process is referenced in the IDP process.

RL has established an HFTCP, derived from Federal Technical Capabilities Panel, to lead the development and implementation of strategies and action plans involving the preservation and improvement of RL technical capabilities. Key responsibilities of the HFTCP that significantly affect workforce capability include the following:

- Analyzing and recommending RL technical staffing and position management actions

- Planning and conducting technical capability assessments
- Providing recommendations for resolution of identified technical capability deficiencies and technical capability improvements
- Representing RL and the Office of River Protection on complex-wide technical capabilities issues
- Ensuring integrated processes have been developed and implemented for maintenance of federal technical capabilities, including maintenance of the Critical Technical Capabilities List, Subject Matter Expert (SME) List, and Technical Qualification status
- Coordinating and providing information for maintenance of Critical Technical Capabilities and SME lists.

The HFTCP reports to the Site Management Board (SMB) (see Section 3.2.5) for RL functions and also reports to the Office of River Protection, Manager when applicable. The HFTCP also performs additional functions as discussed below.

- Technical Leadership Development Program (TLDP)

The HFTCP oversees the implementation of the TLDP at RL. The TLDP objective is to hire high-quality technical interns and develop technically competent engineers who will manage a variety of programs and projects within RL.

- Senior Technical Safety Managers (STSM)

The HFTCP is actively involved in the rigorous qualification of those STSM at RL who oversee safe operations of defense nuclear facilities. The HFTCP also performs the oversight function for submittal of STSM status reports to HQ. This includes endorsement of the additions or deletions of positions designated as STSM.

- Facility Representative (FR) Qualification

The FR Program Manager (FRPM) is the primary manager of the FR Qualification Program and provides support to all Hanford Site FRs for conduct of FR training, qualification, and technical support. The FRPM conducts monthly meetings with the FRs to get feedback and improve the program, and provide lessons learned and continuing training to help the individual FR's performance.

3.1.4 Principle 4: Balanced Priorities

Primary RL Procedural Mechanisms:

- **Integrated Planning Management System**
 - Baseline Performance Objectives, Measures, and Expectations Crosscutting Process
 - Mission Planning Guidance
 - Review and Approve Contractor Work Plans Crosscutting Process
 - Baseline Updating Guidance
 - Baseline Change Control Crosscutting Process
 - Maintain Change Control Baselines Procedure
- **Acquisition Management System**
 - Contract Management Crosscutting Process
 - Contractor Performance Agreement and Fee Incentive Procedure
 - Performance Agreement and Incentive Fee Guide (RPL 540.1A does not deploy conditional payment of fee clause [970-5204-86], whereas the Draft Performance Agreement and Incentive Fee Guide will. Scheduled completion of the Draft Fee Guide is mid-September 2000.)
 - Acquisition Planning Crosscutting Process
 - Develop Acquisition Requirements Package
- **Financial Management System**
 - Acquire Funds Crosscutting Process
 - RL Environment Safety and Health Fiscal Year - Risk Management Summary Report

Discussion:

The **Integrated Planning Management System** ensures that RL has a process in place to effectively balance priorities. Comprehensive planning ensures that safety, programmatic, and operational considerations are appropriately considered in decision-making processes. The integrated planning process is designed to ensure that decision-makers (external to and within RL) and the contractor organizations can make fully-informed decisions, including appropriate allocation of limited resources. At RL, integrated planning begins with the RL Strategic Plan, a document prepared by RL that identifies the Hanford Site's focus on safety and the emphasis placed on protecting workers, the public, and the environment. The Strategic Planning Crosscutting Process includes the preparation of a Strategic Vision Plan, an Outcome Plan, and a site specification.

For EM-funded activities strategic plans are translated into definable work scope and provides strategic and outyear planning guidance to EM contractors via the **Integrated Planning Management System**, the Review and Approve Contractor Work Plans Crosscutting Process Crosscutting Process and the Acquire Funds Crosscutting Process. These processes develop the Mission Planning Guidance (MPG) and Baseline Updating Guidance (BUG), respectively, and are described in the **Financial Management System** and the **Integrated Planning Management System**. The Multi-Year Work Plan (MYWP) and the Annual Work Plan (AWP) are the primary EM documents developed by the contractors that drive the RL execution year

work, which is then reviewed and approved by RL and HQ. Development and updates to the MYWP are aligned with the budget cycle, enabling RL managers to make informed resource allocation decisions during each update. The approved MYWP update serves as the execution document for each fiscal year's work. RL's process for defining work scope, translating mission needs into work, setting expectations, prioritizing tasks, allocating resources, authorizing and controlling work, and reporting results is described in both the Integrated Planning Management System and the Financial Management System, which governs development of the MYWP/AWP annual update.

In addition to the Work Authorization Process, all RL EM work scope is prioritized through an Integrated Priority List (IPL) during budget formulation which is described in the **Financial Management System**. The IPL is developed against prioritization criteria that effectively balances competing factors including environment, safety, and health (ES&H); regulatory requirements; safeguards and security; mortgage reduction; and mission viability.

For non-EM scope, strategic planning for the Pacific Northwest National Laboratory (PNNL) is performed in accordance with the HQ Office of Science Institutional Planning Process. The Office of Science provides Institutional Planning guidance to PNNL, and the Laboratory operating contractor develops the Institutional Plan. RL reviews and concurs the plan and then forwards it to the Office of Science for final approval.

3.1.5 Principle 5: Identification of Safety Standards and Requirements

Primary RL Procedural Mechanisms:

- **RL Integrated Management System**
 - Requirements Management Crosscutting Process
- **Safety and Health Management System**
 - Review and Approval of Nuclear Safety Documents Crosscutting Process
- **Environmental Management System**
 - Environmental Compliance and Permits Crosscutting Process
 - Radiation Protection of the Public and Environment Crosscutting Process
 - Managing National Environmental Policy Act (NEPA) at Hanford Crosscutting Process

Discussion:

RL manages standards and requirements for both its federal staff and contractors. Requirements are managed through the Requirements Management Crosscutting Process, which includes evaluation of requirements and identification of implementation mechanisms for new or revised DOE directives, state and federal regulations and laws, and internal decisions. Requirements that affect RL staff are generally implemented through RIMS documentation (management system descriptions, program descriptions, crosscutting processes, or procedures, etc.) Standards, however, are considered guidance and managed through the **Safety and Health Management System**. Standards and requirements that affect the contractors are incorporated

into the contracts through direct reference, contract clauses, or contractor requirements documents.

In addition to the Requirements Management Crosscutting Process facility-specific requirements are determined through the contractor's S/RIDs processes. The **Safety and Health Management System** contains the crosscutting processes and procedures to address the periodic evaluation of facility-specific S/RIDs.

The original S/RIDs were developed and reviewed by the contractor's SMEs, regulatory compliance staff, functional area managers, and line management at the highest levels. These documents were then submitted to RL. After a thorough review by program and line management organizations and resolution of comments, these documents were approved by the RL Manager. This review and approval process is followed for revisions to the S/RID (which are considered "living" documents) subject to formal change control requirements. These documents are invoked by the contracts. Each prime contractor is expected to maintain, revise, and update their respective S/RID to reflect appropriate changes to source documents, changes in site missions, and changes resulting from operating experience, lessons-learned, and site re-engineering initiatives. S/RID requirements are sorted into 20 functional areas and assigned to applicable facility categories.

The contractors' facility and non-facility S/RIDs identify requirements and standards applicable to the design, construction, operation, and decommissioning of defense nuclear and non-nuclear facilities and operations. Each S/RID requirement is incorporated into applicable contractor management control documents, such as policies and procedures, and specifies the specific actions and conditions necessary to ensure compliance. Compliance assessments are performed both by RL as part of its oversight and assessment programs (see **Integrated Performance Evaluation Management System**) and by contractors as part of their ongoing self-assessment program, to determine whether procedures specify the actions and conditions necessary to ensure compliance. The compliance assessment results are provided electronically as updates to the S/RIDs are made and are available on the Hanford Local Area Network at <http://www.rl.gov/srid/index.htm>.

The **Environmental Management System**, with its accompanying process, procedures, and program descriptions provide additional guidance on the process for the review of new, changed, or proposed environmental requirements (e.g., regulations, laws, directives, etc.), the review of regulatory enforcement and compliance situations, and the review of new, modified, or renewed environmental permits. Those standards and requirements requiring contractor attention will be implemented via use of other RIMS management systems or processes; i.e. the **Acquisition Management System** or through the Requirements Management Crosscutting Process.

3.1.6 Principle 6: Hazard Controls Tailored to Work Being Performed

Primary RL Procedural Mechanisms:

- **Acquisition Management System**
 - Acquisition Planning Crosscutting Process
- **Environmental Management System**
 - Environmental Compliance and Permits Management Crosscutting Process
 - NEPA Management Crosscutting Process
 - Environmental Protection Program Description
 - Radiation Protection of the Public and the Environment Program Description
- **RL Integrated Management System**
 - Requirements Management Crosscutting Process
 - RIMS Products Development Crosscutting Process
 - Changes, Variances, and Appeals to RIMS Products Crosscutting Process
- **Safety and Health Management System**
 - Review and Approval of Nuclear Safety Documents Crosscutting Process
- Quality Assurance Program Description

Discussion:

RL's graded approach ensures that as hazards increase, increasing controls are established to prevent and mitigate activity-specific hazards. For example, RL facilities are categorized by hazard: high-hazard facilities must have a comprehensive Safety Analysis Report (SAR), less hazardous facilities utilize a less-comprehensive SAR, and low-hazard facilities require only an Auditable Safety Analysis.

Responsibility for hazard analysis and development and approval of operational controls derived from hazard analyses of non-nuclear facilities rests with the operating contractor, with periodic oversight by RL personnel. For high-hazard nuclear facilities, RL utilizes formal Authorization Agreements (AA) (Review and Approval of Nuclear Safety Documents Crosscutting Process), which incorporates the results of RL reviews of the contractor's proposed Authorization Basis (i.e., Safety Basis) for a defined scope of work. AAs are developed in conjunction with startup (or restart) approval by DOE, approval of Authorization Basis documents by DOE, or any other direction provided to the contractor that alters the scope of operations, special terms, or conditions specified by DOE.

The Acquisition Planning Crosscutting Process provides the contractual mechanisms to identify essential support requirements and standards relative to worker, environmental, public, nuclear safety, and quality assurance (also see Quality Assurance Program Description) with the assistance of appropriate SMEs, thereby assuring appropriate hazard control standards are being tailored to the work to be performed.

The RIMS Crosscutting Processes (Requirements Management; RIMS Products Development; Changes, Variances, and Appeals to RIMS Products) provide the mechanisms to ensure that requirements are appropriately tailored and deployed for use by RL Staff.

3.1.7 Principle 7: Operations Authorization

Primary RL Procedural Mechanisms:

- **Integrated Planning Management System**
 - Review and Approve Contractor Work Plans Crosscutting Process
- **Safety and Health Management System**
 - Engineering, Safety and Health Crosscutting Process
- **Integrated Performance Evaluation Management System**
 - Facility Representative Program

Discussion:

The contract between DOE and its contractors constitutes the basic agreement by which all work is performed. S/RID and “Work Smart” standards and requirements (discussed in Section 3.1.5) define the process for analyzing hazards and “developing hazard controls.” For the majority of activities conducted at RL, the contracts (as supplemented by the RL AWP/MYWP and S/RID requirements and “Work Smart” standards) serve as the only specific agreement required.

Contractors are also provided references to integration of safety requirements/aspects into their respective work planning processes via the BUG and MPG as described in the **Integrated Planning Management System**. However, for some high-hazard activities, such as Hazard Categories 1 and 2 nuclear facilities, RL recognized the need for additional specific documents authorizing operations, including the incorporation of those limits necessary for the safe operation of all project activities. These limits are based on documented design limitations, controls, regulatory constraints, and assumptions or commitments that are required and based on identified hazards and environmental impacts associated with the project facilities and activities.

AAs (described in the **Safety and Health Management System**) are documented agreements between RL and its contractors for high-hazard facilities. The AA contains key terms and conditions under which the contractor is authorized to perform work, and incorporates RL's review of the contractor's proposed Authorization Basis for a defined scope of work. “Authorization Basis” includes aspects of facility design and operational requirements relied upon by DOE to authorize operation, and is described in documents such as facility SARs, hazard classification documents, Technical Safety Requirements (TSR), and DOE-issued Safety Evaluation Reports (SER). DOE recognized that depending upon the governing document, there may be differences in the scope of work or range of operations. For example, DOE may have issued a Record of Decision affecting scope of work in a facility that may differ from the scope of work defined in the current execution year work plan, and may differ from the scope of work that was analyzed by the SAR. The AA reconciles any differences into a single, integrated set of

conditions and requirements for operation. Although specifically designed for Hazard Categories 1 and 2 facilities, RL may elect to utilize AAs in special situations for lower hazard activities if their use is warranted due to the complexity of the work and control required.

The RL process for development, review, and approval of AAs and Facility Startup/Restart Approval is defined in the **Safety and Health Management System**. The **Integrated Performance Evaluation Management System** does not provide any formal role in the authorization process, but the Facility Representative Program provides a “real world” review of the final Operations Authorization before it is transmitted to the contractors.

3.2 RL IMPLEMENTATION OF THE FIVE CORE FUNCTIONS

3.2.1 Core Function 1: Define Scope of Work

Primary RL Procedural Mechanisms:

- **Financial Management System**
 - Acquire Funds Crosscutting Process
 - Decisions on Allocations and Adjustments of Funds Crosscutting Process
- **Integrated Planning Management System**
 - Review and Approve Contractor Work Plans Crosscutting Process
 - Baseline Performance Objectives, Measures and Expectations Crosscutting Process
 - Baseline Change Control Crosscutting Process
 - Strategic Planning Crosscutting Process
- **Communications Management System**
 - Stakeholder Participation and Involvement Crosscutting Process

Discussion:

The **Integrated Planning Management System** and the **Financial Management System** describe RL's process for defining the scope of work, translating mission needs into work, setting expectations, prioritizing tasks, allocating resources, authorizing and controlling work, and reporting results.

Strategic planning is the first step in defining work scope. HQ maintains a Strategic Plan that establishes goals and direction for each DOE business line and focus area. Utilizing the DOE-wide Strategic Plan, as part of the comprehensive planning process and in partnership with contractors, stakeholders, and support agencies, RL develops and maintains a site-specific strategic plan used to develop the site specification and project specifications as part of the planning process. Strategic planning for non-EM scope at PNNL is performed in accordance with the HQ Office of Science Institutional Planning Process. The Office of Science provides Institutional Planning guidance to PNNL, and the Laboratory operating contractor develops the Institutional Plan. RL reviews and concurs the plan and then forwards it to the Office of Science for final approval. The Strategic Vision Plan defines strategic goals, vision, mission, key success measures, objectives and high-level strategies for the site. A second document in the strategic

planning process is the “Outcome Plan” that further defines strategies and helps to provide a flow down of requirements to the site EM specification. Strategic plans are periodically updated, and changes impacting work scope are integrated as part of the comprehensive planning process.

RL uses Mission Planning Guidance document to translate the site specification into definable work scope and provide strategic and outyear planning guidance to contractors for EM work scope. For effective planning, guidance development and updates are aligned with the budget formulation and execution cycle. The BUG is the primary document driving development of the annual update of the MYWPs/AWPs.

Work scopes are defined by the Work Breakdown Structure and supporting dictionaries.

The annual update of the MYWP is developed by the contractors and approved by RL. The annual update serves as the execution planning document for each fiscal year's EM work at RL. The MYWP defines technical, schedules (milestones), performance measures, and carry-over and new encumbrances and resources (estimated manpower and costs) for the fiscal year. This execution document is also a collection point for all fiscal year performance measures and milestones from higher-tier and program-specific planning documents. The process for resource allocation during the execution year is defined in the **Financial Management System**. The Baseline Change Control Crosscutting Process defines the formal process for changing the baseline. The Baseline Change Control Crosscutting Process helps to ensure that a formal method is in place to control changes to the approved project technical, schedule, and cost baselines. RL approval is required for all change control actions exceeding thresholds (established by RL) on the annual or life cycle plan. The change control process also ensures that baselines are not changed unless interdependencies and impacts are evaluated between the technical, schedule, and cost baseline.

The **Communications Management System** defines both formal and informal processes for public involvement. One of the ongoing public involvement activities is the HAB and its committees. The HAB is an integral public component focussing on changes to the content of the Tri-Party Agreement (Ecology et al. 1998), and monitoring RL's progress in meeting regulatory milestones, including other inputs to RL's Mission Outcomes (see **RL Integrated Management System**).

3.2.2 Core Function 2: Analysis of Hazards

Primary RL Procedural Mechanisms:

- **Integrated Performance Evaluation Management System**
 - Contractor Oversight and Evaluation Planning Crosscutting Process
 - Facility Representative Program

- **Safety and Health Management System**
 - Federal Employee Occupational Safety and Health Program (FEOSH)
 - Review and Approval of Nuclear Safety Documents Crosscutting Process
- **Environmental Management System**
 - Environmental Compliance and Permits Management Crosscutting Process
 - NEPA Management Crosscutting Process
 - Environmental Protection Program Description
 - Radiation Protection of the Public and the Environment

Discussion:

Both the **Safety and Health Management System** and **Environmental Management System** establish requirements for RL oversight of contractor nuclear safety programs, and environmental protection programs, and other related activities, including hazard analyses. The **Safety and Health Management System** documents that RL uses S/RIDs to establish the level of hazard analysis and documentation required for site activities. Except for nuclear facilities, responsibility for development and approval of auditable hazard analyses rests with the site management and operating contractors.

Safety analysis is a documented process that includes systematic identification and assessment of hazards posed by a nuclear facility or operation. For nuclear facilities, RL personnel review facility safety documentation, including hazards analyses; facility classifications; Unreviewed Safety Questions (USQ); and Structures, Systems, and Components classifications. RL issues SER documenting review of contractor safety documentation and the basis for approval of the Authorization Basis documents. RL organizations continuously monitor and assess contractor processes for identifying, analyzing and categorizing facility and activity hazards. RL personnel oversee management of the technical baseline for all facility process and safety systems, and conduct surveillances on contractor engineering organizations in support of operations. This ensures that safety documentation accurately reflects the plant/system technical basis and that required safety evaluations are performed. Test plans and test procedures are verified to ensure they accurately reflect plant configuration and to ensure that test acceptance personnel evaluate the performance of contractor engineering organizations as part of operations support. Review and approval of the SARs by RL requires development of a SER. This process is defined in Review and Approval of Nuclear Safety Documents Crosscutting Process.

Operational awareness and monitoring of contractor work activities related to the identification, analysis, and categorization of hazards associated with the scope of work is provided within the **Integrated Performance Evaluation Management System** via FRs and other RL oversight as described in the Contractor Oversight and Evaluation Planning Crosscutting Process. The FRs monitor ongoing operational hazards and analyses processes of the contractors through periodic observation of enhanced work planning and job hazards analysis processes used by contractor organizations.

3.2.3 Core Function 3: Develop and Implement Hazard Controls

Primary RL Procedural Mechanisms:

- **Safety and Health Management System**
- **Acquisition Management System**
 - Acquisition Planning Crosscutting Process
- **Environmental Management System**

Discussion:

The **Safety and Health Management System** documents that responsibility for development and approval of operational controls derived from hazard analyses of non-nuclear facilities rests with the site management and operating contractor. For high-hazard nuclear facilities, DOE developed the concept of AAs, incorporating the results of RL reviews of the contractor's proposed Authorization Basis for a defined scope of work.

The AA contains key terms and conditions (controls and commitments, including environmental controls and commitments [see **Environmental Management System**]) under which the contractor is authorized to perform work. Any changes to these terms and conditions require DOE approval. In many respects, an AA parallels the license issued by the Nuclear Regulatory Commission for operation of commercial nuclear facilities. Unless specifically exempted by the RL Manager, AAs are required for all high-hazard activities. AAs are developed in conjunction with startup (or restart) approval by DOE, approval of Authorization Basis documents by DOE, or any other direction provided to the contractor that alters the scope of operations, special terms, or conditions specified by DOE.

The Authorization Basis (or Safety Basis) consists of the facility design basis and operational requirements relied upon by DOE to authorize operation. The Authorization Basis is described in documents including the facility SAR and other safety analyses, hazard classification documents, TSRs, DOE-issued SERs, and other facility-specific commitments made to ensure compliance with DOE rules, orders, or policies.

TSRs are important Authorization Basis documents that define the conditions, safe boundaries, and the management or administrative controls necessary to ensure the safe operation of a nuclear facility. TSR controls are also designed to reduce potential risk to workers and the public from uncontrolled releases of radioactive materials or from radiation exposures due to inadvertent criticality. TSRs include safety limits, operating limits, surveillance requirements, administrative controls, use and application instructions, and their bases, in support of the facility SAR. The TSR constitutes an agreement or contract between DOE and the facility operating management regarding the safe operation of the facility.

USQ evaluations are also important in maintaining the integrity of Safety Basis documents. A USQ exists if one or more of the following conditions result:

- The probability of occurrence or the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the facility safety analysis could be increased
- The possibility for an accident or malfunction of a different type than any previously evaluated in the facility safety analysis could be created
- Any margin of safety as defined in the bases of the TSR could be reduced.

Inherent in an activity resulting in a USQ is the need for additional controls to be approved by RL, necessitating a change to the facility Authorization Basis. RL oversight of the contractor's USQ program ensures the Authorization Basis approved by DOE remains current and provides adequate level of protection to workers, the public, and the environment.

The Acquisition Planning Crosscutting Process provides the contractual mechanisms to identify essential support requirements and standards relative to worker, environmental, public, and nuclear safety, quality assurance (also see Quality Assurance Program Description) with the assistance of appropriate SMEs, thereby assuring appropriate hazard control standards are being tailored to the work to be performed.

3.2.4 Core Function 4: Perform Work Within Controls

Primary RL Procedural Mechanisms:

- **Safety and Health Management System**
- **RL Integrated Management System**
 - Appendix A, Core Roles, Responsibilities, Authorities, and Accountabilities
- **Integrated Performance Evaluation Management System**
 - Contractor Oversight and Evaluation Planning Crosscutting Process
 - Coordinate and Disseminate Information Crosscutting Process
 - Facility Representative Program
- **Performance Improvement Management System**
 - Lessons Learned Crosscutting Process
 - Improvement Action Management Crosscutting Process

Discussion:

RL's mission is to provide leadership, direction, and oversight to ensure that site programs, operations, and resources are managed in an open, safe, environmentally-sound, and cost-effective manner. The **Integrated Performance Evaluation Management System** establishes the requirements for RL oversight of contractor activities, including industrial and nuclear safety programs. The **Integrated Performance Evaluation Management System** documents that generally, RL's safety oversight of the contractor includes the following:

- Maintaining a continuous presence and awareness of contractor activities involving nuclear facilities and operations, and associated Authorization Basis, and identifying, communicating, and resolving safety issues
- Performing technical assessments of safety programs and activities
- Assisting with the review and approval of applicable compliance packages, AAs, Authorization Basis documents, and USQ documentation (as described in the **Safety and Health Management System**).

RL maintains operational awareness and oversight of contractor work activities primarily through direct involvement of the FRs and other RL elements under the Contractor Oversight and Evaluation Planning Crosscutting Process. FRs monitor ongoing operational hazards and analysis processes and safe work by contractors. In accordance with the **Integrated Performance Evaluation Management System**, FRs spend most of their time observing and assessing contractor operations via operational awareness and performance-based assessments. RL FRs are formally qualified as part of the HFTCP Program, subject to continuing education requirements, and must qualify on a facility-specific basis. Within the **Integrated Performance Evaluation Management System**, internal but formal departmental instructions are used to perform oversight of contractors as they work to identify, analyze, and categorize hazards associated with the scope of work.

The **Integrated Performance Evaluation Management System** details the assessment processes for RL staff to monitor contractor performance to ascertain facility and program status, determine whether implementation of requirements is effective, and evaluate the effectiveness of the contractor's self-assessment program. An assessment is defined as an evaluation of contractor performance based on awareness of contractor work activities, data analysis, and comparison to the results of the contractor's self-assessment. RL assessments are performance-based, focusing heavily on results and effectiveness in addition to ascertaining compliance with requirements.

The **Integrated Performance Evaluation Management System** provides guidance for the performance of for-cause review, the "reactive assessment." Reactive assessments and other "for-cause" reviews are conducted whenever there is a perception that an area needs to be examined more closely. The trigger may be an adverse trend; an abnormal event at RL or another site, resulting in an occurrence report; environment, safety and health issues; or judgment of the cognizant line or program manager (see **Performance Improvement Management System**).

RL is also responsible for performing reviews and assessments in support of contractor readiness assessments and operational readiness reviews. The **Safety and Health Management System** documents the process for RL review and approval of nuclear facility startups and restarts.

3.2.5 Core Function 5: Provide Feedback and Continuous Improvement

Primary RL Procedural Mechanisms:

- **Performance Improvement Management System**
 - Lessons Learned Crosscutting Process
 - Continuous Improvement Crosscutting Process
 - Improvement Action Management System Crosscutting Process
- **Integrated Performance Evaluation Management System**
 - Management (Self) Assessment Crosscutting Process
 - Contractor Oversight and Evaluation Planning Crosscutting Process
 - Facility Representative Program
 - Coordinate and Disseminate Information Crosscutting Process
 - RLP 1000.1, *RL Corrective Action Management System*, dated July 1996, (to be phased out by September 2000)
 - HFID 232.1B, *Notification, Reporting, and Processing of Operations Information*, dated September 1999
- **Integrated Planning Management System**
 - Establish Baseline Performance Objectives, Measures, and Expectations Crosscutting Process
- **Acquisition Management System**
- **Safety and Health Management System**
 - Employee Concerns Program Crosscutting Process
- **RL Integrated Management System**

Discussion:

Two primary mechanisms exist for RL self-assessments. RL conducts management assessments (Management (Self) Assessment Crosscutting Process), which are self-assessments conducted by managers of the activities under their purview and RL Office of Performance Evaluation (OPE) independent assessments of RL organizations and activities. HQ also monitors RL's performance through selected performance indicators and technical assessments (typically assembling a team including HQ's staff, federal and contractor staff from other DOE sites, and outside consultants). Outside organizations, such as the DNFSB, the U.S. Environmental Protection Agency, the Washington State Department of Ecology, and the Benton County Health District also assess activities and provide valuable feedback. Some of these assessment activities result in recommendations for improvement; others could result in fines or penalties if performance is not satisfactory. Numerous formal and informal mechanisms exist to obtain and communicate feedback on RL and contractor activities. The Contractor Oversight and Evaluation Planning Crosscutting Process describes both formal and informal oversight by RL. RL FRs observe facility operations and provide real-time informal and formally documented feedback related to facility operations and program implementation. Facility Technical Specialists and

Site Technical Specialists monitor activities under their cognizance. The RL Analysis and Evaluation Division is the lead organization responsible for coordinating formal contractor assessments. These formal assessments serve as a documented source of feedback to the contractor. Technical assessments include evaluations, validations, or verifications of any applicable contractor self-assessments. Results of this evaluation are documented in the assessment and are also provided to the RL program manager overseeing the contractor self-assessment program.

Management walkthroughs provide another perspective on facility operations and program implementation. Special RL assessments, including Readiness Assessments, Operational Readiness Reviews, and Authorization Basis document reviews also evaluate contractor performance and are sources of feedback information.

Other activities, ranging from surveillances and document reviews to task team participation, may serve as feedback sources. Feedback may be generated by employees raising concerns outside their chain of command through use of the site Employee Concerns Program Crosscutting Process. Employee concerns are investigated, and pertinent feedback information is provided to the appropriate organization. Regular monthly meetings with contractor counterparts are important feedback sources. The formal contractor fee and performance evaluation process provides additional contractor feedback as described in the **Integrated Planning Management System** and the **Acquisition Management System**. Contractors are encouraged to self-identify and report problems and may reduce fines and penalties in certain areas if self-initiated (e.g., Price Anderson Amendments Act activities).

Effective and timely feedback is critical to identification of improvement opportunities. In addition to the feedback mechanisms discussed above, the contractor's Lessons Learned Program sorts and screens lessons learned pertaining to the operation of facilities at RL, as well as other sites in the DOE complex. RL is currently developing an RL Lessons Learned Program to focus on DOE-related lessons learned, and complement the contractor's Lessons Learned Program to promote synergy between the programs and prevent overlap. RL line and program offices continually look for ways to improve contractor and DOE activities as part of the daily conduct of business. RL personnel observe and participate in contractor critiques. Technical Assessments and other evaluations of the contractor usually reveal opportunities for improvements, and committees that cut across organizational lines help disseminate information.

Continuous improvement requires action in areas where feedback has been provided and opportunities for improvement have been identified. The **RL Integrated Management System** has incorporated a continuous improvement and feedback process in the design of the web-based electronic architecture for each of the 14 management systems. Some of the RIMS incorporate work improvement steps identifying the continuing need for the System Steward and Point-of-Contact to assess/evaluate the management system for effectiveness and factor improvements into the subsequent evaluations. The management systems are revised, updated, and improved as necessary. Specific direction to the contractor is given in accordance with contract provisions. Management direction and/or a change in procedure is used to effect change within RL. Changes to be made in response to an outside review are usually logged and tracked to closure, with a specific organization assigned the responsibility. With regard to safety and

environmental actions, RL personnel and FRs are authorized to issue "Environment, Safety, and Health Stop Work Orders" when conditions merit.

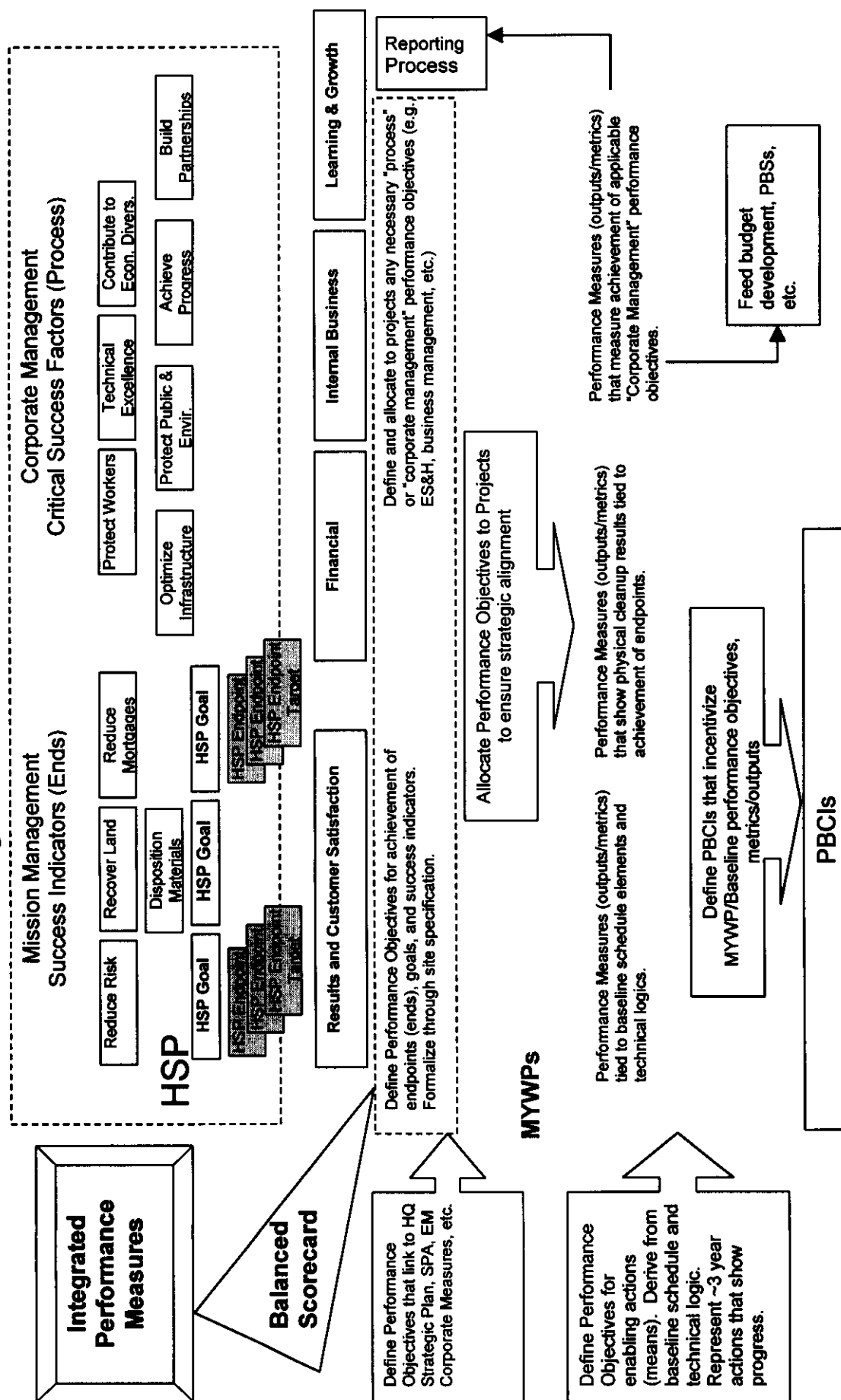
DOE P 450.5 also defines DOE field office oversight responsibility to include reviewing performance against formally established ES&H performance measures. In accomplishing RL's oversight function, cognizant RL staff review contractor performance against formally established ES&H performance measures and criteria set forth in the AWP, and in procedures and guidance for specific programs and activities, such as emergency drill/exercise evaluations; oversight of contractor training and qualification program activities, fire protection, radiation protection, environmental protection, and natural phenomena hazards mitigation. RL also uses information on reportable events that is documented and tracked in the Occurrence Reporting and Processing System to identify trends and assess corrective action effectiveness.

Some contractor performance measures roll up to the RL Manager's attention, while others are used as tools by RL staff. RL has a top-down approach in the performance measure system involving a set of targets integrating a variety of data into performance indicators and is described in the **Integrated Planning Management System** and incorporated via the BUG. These indicators are tiered, with the highest roll-up showing performance against four focus areas in Mission Management (Reduce Risk, Recover Land, Reduce Mortgages, and Disposition Materials); and five focus areas in Corporate Management Critical Success Factors (Protect Workers, Technical Excellence, Contribute to Economic Diversification, Optimize Infrastructure, Protection of the Public and the Environment, Achieve Progress, and Build Partnerships). Figure 4 shows the Performance Indicator Chart.

On a monthly basis, charts are prepared by each contractor addressing ES&H performance and are presented via the Project Hanford Management Contract monthly President's Zero Accident Council. The President's Zero Accident Council represents a bottoms-up approach for statusing ES&H performance both at the site- and activity-level. This input is provided by workers and management from each contractor, as well as worker and management representatives from RL. Currently, performance measure charts are displayed in prominent locations around the Hanford Site and are also available on the Hanford Local Area Network.

RL has established an SMB, which is chaired by the RL Manager. The members are the Deputy Manager for Site Transition, Deputy Manager for Business Services, Assistant Manager for Planning and Integration, the Administrator of the Office of Performance Evaluation, and the Director of the Office of Intergovernmental, Public, and Institutional Affairs. The SMB is chartered for the purpose of reviewing and making recommendations on site policies, strategies, issues, and decisions that span more than one mission element area. The SMB also supports the transition from individual programmatic emphasis to an integrated site concept, thereby sustaining the RL culture of safety, security, competence, and technical excellence and institutionalizing the principles of ISM.

Figure 4. Performance Indicator Chart.



4.0 REFERENCES

- DOE P 450.4, *Safety Management System*, U. S. Department of Energy, Washington, D.C., as amended.
- DOE P 450.5, *Line Environment, Safety, and Health Oversight*, U. S. Department of Energy, Washington, D.C., as amended.
- DOE P 450.6, *Secretarial Policy Statement - Environment, Safety and Health*, U. S. Department of Energy, Washington, D.C., as amended.
- DOE M 411.1-1A, *Safety Management and Functions, Responsibilities, and Authorities Manual*, Washington, D.C., as amended.
- Ecology, EPA, and DOE, 1998, *Hanford Federal Facility Agreement and Consent Order*, Washington State Department of Ecology, U. S. Environmental Protection Agency, and the U. S. Department of Energy, Olympia, Washington.
- HFID 232.1B, *Notification, Reporting, and Processing of Operations Information*, U. S. Department of Energy, Richland Operations Office, Richland, Washington, as amended.
- Klein, K. A., 2000, *Submittal of the U. S. Department of Energy (DOE, Richland Operations Office (RL) Functions, Responsibilities, and Authorities Manual (FRAM)* (Letter 00-MSD-067 to Carolyn L. Huntoon, EM-1, U. S. Department of Energy -Headquarters), U. S. Department of Energy, Richland Operations Office, Richland, Washington, dated March 1.
- RLP 540.1A, *Performance-Based Contract Incentives*, U. S. Department of Energy, Richland Operations Office, Richland, Washington, as amended.
- RLP 1000.1, *RL Corrective Action Management System*, U. S. Department of Energy, Richland Operations Office, Richland, Washington, as amended.

APPENDIX

DOCUMENTS CONTAINING RL SAFETY MANAGEMENT SYSTEM IMPLEMENTING MECHANISMS

DOE/Other Documents

- DOE O 210.1, *Performance Indicator and Analysis of Operations Information*
- DOE O 232.1A, *Occurrence Reporting and Processing of Operations*
- DOE O 420.1, *Facility Safety*
- DOE P 450.5, *Line Environment, Safety, and Health Oversight*
- DOE O 451.1, *National Environmental Policy Act Compliance Program*
- DOE 5480.21, *Unreviewed Safety Questions*
- DOE 5480.22, *Technical Safety Requirements*
- DOE 5480.23, *Nuclear Safety Analysis Reports*
- DOE M 411.1-1A, *Safety Management and Functions, Responsibilities, and Authorities Manual*
- DOE-EM-STD-5502-94, *Hazard Baseline Documentation*
- DOE-STD-1027-92, *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports*
- DOE-HDBK-3027-99, *Integrated Safety Management Systems (ISMS) Verification Team Leader's Handbook*, June 1999
- 10 *Code of Federal Regulations* 835, "Occupational Radiation Protection"

RL Directives System DOE-RL Directives can be found on
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