IDAHO CLEANUP PROJECT ICP

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Integrated Safety Management System

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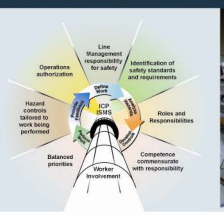

EXECUTIVE SUMMARY

Purpose and Scope

This program description document (PDD) describes the Integrated Safety Management System (ISMS) implemented at the Idaho Cleanup Project (ICP) for the protection and safety of the workers, the public, and the environment. This document applies to all ICP organizations, personnel, and subcontractors. CH2M♦WG Idaho, LLC (CWI) manages the ICP and is committed to the implementation of an ISMS that fulfills the requirements contained in the contract for managing ICP and accomplishes safe and efficient performance of work.

Company Mission

The mission of the ICP is to complete the environmental cleanup of the Idaho National Laboratory (INL) site. The project is funded primarily by the Department of Energy (DOE) Office of Environmental Management (DOE-EM) through CWI's contract DE-AC07-05ID14516.

The ICP mission is to reduce or eliminate risks posed by contamination and wastes left at the INL from past missions, while protecting workers, the public, the environment, and future generations. CWI also manages a number of facilities that will continue to operate and to fulfill a mission within the DOE complex. Operations within this mission include:

- Waste remediation activities in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) at the Subsurface Disposal Area and other projects
- Resource Conservation and Recovery Act (RCRA) closure activities
- Waste management (e.g., contact and remote-handled, low-level and transuranic), which includes retrieval, treatment, storage and disposal
- Excess nuclear materials disposition
- Management of spent nuclear fuel
- Treatment and disposal of sodium-bearing waste
- Emptying and disposal of all tank farm facility waste
- Deactivation, decontamination, disposition, and demolition of about 215 excess DOE-EM facilities, including several nuclear reactors.

ISMS Tailored to the ICP Mission

The broad ICP work scope necessitates an ISMS that addresses the full spectrum of facility life cycle phases, encompassing project planning phases (e.g., conceptual design), construction and

startup activities, nuclear facility operations, deactivation of hazardous facilities, and decontamination and demolition. Typical hazards related to the mission include radiological, industrial and occupational safety, environmental, and criticality. The ISMS guiding principles and core functions are addressed and integrated at three work levels – company level, facility/project/subproject level, and activity level – with the programmatic depth and breadth necessary to ensure all work, ranging from conceptual design to facility demolition, is performed safely.

The CWI ISMS processes for performing work safely at the three work levels are formally implemented in accordance with company manuals and supporting procedures and documents. These processes assign roles and responsibilities to management and workers who are competent and fully prepared to perform their duties. CWI line management has been assigned responsibility for safety and demonstrates ownership. This document describes the work processes and the safety management programs CWI has implemented for accomplishing work safely. An important aspect built into these programs is the feedback and improvement components and management oversight to support continuous improvement.

An additional important safety component of the CWI ISMS is the authority and responsibility assigned to all ICP workers and subcontractors to practice constant vigilance and an inquisitive attitude in the performance of their duties. Stop work authority and responsibility is assigned to all personnel working on the ICP, and management strongly encourages all workers to appropriately use this authority.

ISMS

ACRONYMS

AA	authorization agreement
ALARA	as-low-as-reasonably-achievable
ANS	American Nuclear Society
ANSI	American National Standards Institute
APM	Area Project Manager
BBWI	Bechtel BWXT Idaho, LLC
BEA	Battelle Energy Alliance, LLC
BM	building manager
CAS	contractor assurance system
CCR	competence commensurate with responsibility
CEO	Chief Executive Officer
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEST	Company Employee Safety Team
CFR	Code of Federal Regulations
CM	configuration management
COBRA	Changing Our Behavior Reduces Accidents
COE	center of excellence
COO	Chief Operating Officer
CTR	charter
CWI	CH2M♦WG Idaho, LLC
D&D	decontamination and decommissioning
DOE	Department of Energy
DOE-EM	Department of Energy Office of Environmental Management
DOE-ID	Department of Energy, Idaho Operations Office
D/PM	director/project manager
DSA	documented safety analysis
EDMS	electronic data management system
EE/CA	Engineering Evaluation and Cost Analysis
EM	environmental management
EMD	executive management directive
EMS	environmental management system
EP	Emergency Preparedness
EPA	Environmental Protection Agency
ESC	Electrical Safety Committee
ES&H	environment safety and health
ESH&Q	Environment, Safety, Health, and Quality
ESRB	Executive Safety Review Board
EST	Employee Safety Team
FFA/CO	Federal Facilities Agreement and Consent Order
FM	facility manager
FSA	functional support area
FSM	functional support manager
GDE	guide
H&R	hoisting and rigging
HAD	hazard assessment document
HAZWOPER	hazardous waste operations and emergency response
HEG	Hazard Evaluation Group
HIM	hazard identification and mitigation
HPSC	hazards profile screening checklist
HRB	Hazard Review Board
HSC	Hazards Screening Checklist
IAG	interface agreement
IAP	integrated assessment program
ICARE	issue communication and resolution environment
ICDF	Idaho CERCLA Disposal Facility
ICP	Idaho Cleanup Project
IH	industrial hygiene
INEEL	Idaho National Engineering and Environmental Laboratory
INL	Idaho National Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
IOC	Integrated Operations Council
ISM	Integrated Safety Management
ISMS	Integrated Safety Management System
ISRC	Independent Safety Review Committee
ITP	individual training plan
IWCP	Integrated Work Control Process
JSA	job safety analysis
LCB	life cycle baseline
LL	lessons learned
LLW	low-level waste
LRD	laboratory requirements document
LSS	life safety systems
LST	list
LTHC3	less than hazard category 3
M&O	management and operating
MCP	management control procedure
MSA	management self-assessments
MSC	Miscellaneous Sites
NDE	nondestructive examination
NEPA	National Environmental Policy Act
NFM	nuclear facility manager
NFPA	National Fire Protection Association
NRC	Nuclear Regulatory Commission
NTCRA	non-time-critical removal action
OM	operations management
ORR	operational readiness review
OSB	Operational Safety Board

OU	operable unit
PAAA	Price-Anderson Amendment Act
PBF	Power Burst Facility
PD	position description
PDD	program description document
PEB	Project Evaluation Board
PEP	project execution plan
PLN	plan
PMP	project management plan
POL	policy
PP&I	Project Planning and Integration
PRD	program requirements document
QA	quality assurance
QAP	quality assurance program
R&D	research and development
RA	readiness assessment
RCRA	Resource Conservation and Recovery Act
RD/RA	Remedial Design/Remedial Action
RG	regulatory guide
RH	remote-handled
RM	responsible manager
ROD	record of decision
RTC	Reactor Technology Complex
RWMC	Radioactive Waste Management Complex
SA	service agreement
SAC	Safety Assessment Center
SAR	safety analysis report
SAT	systematic approach to training
SBW	sodium bearing waste
SDA	Subsurface Disposal Area
SME	subject matter expert
SMP	safety management program
SNF	spent nuclear fuel
SPOMC	Safety Performance Objectives, Measures, and Commitments
SRM	Subcontractors Requirements Manual
SSC	structure, system, component
STD	standard
STR	subcontractor technical representative
STRIB	Site-Wide Training Review and Implementation Board
SWP	safe work permit
TAN	Test Area North
TCRA	time-critical removal action
TFR	technical and functional requirements
TRAIN	Training Records and Information Network
TRU	transuranic
TSDF	treatment, storage, and disposal facility
TSR	technical safety requirement
TUA	tenant use agreement
VCO	Voluntary Consent Order
VPP	Voluntary Protection Program
WBS	work breakdown structure
WGS	Waste Generator Services
WIPP	Waste Isolation Pilot Plant

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1. INTRODUCTION

1.1 Purpose and Scope

This program description document (PDD) describes the Integrated Safety Management System (ISMS) implemented at the Idaho Cleanup Project (ICP) for the protection and safety of the workers, the public, and the environment. This document applies to all ICP organizations, personnel, and subcontractors. CH2M♦WG Idaho, LLC (CWI) manages the ICP and is committed to the implementation of an ISMS that fulfills the requirements contained in the contract for managing ICP and accomplishes safe and efficient performance of work.

1.2 Company Mission and Goal

The mission of the ICP is to complete the environmental cleanup of the Idaho National Laboratory (INL) site. The project is funded primarily by the DOE-EM through CWI's contract DE-AC07-05ID14516.

The goal of the ICP is to complete as much cleanup work as possible by 2012 in order to protect the Snake River Plain Aquifer. Respecting safety as a prerequisite to all work, CWI will complete the ICP scope by 2012.

The project is funded primarily by the Department of Energy (DOE) Office of Environmental Management (DOE EM) and is managed by CWI for DOE through Contract DE-AC07-05ID14516.

In addition, CWI manages a number of facilities that will continue to operate and to fulfill a mission within the DOE complex. These facilities primarily are the Tank Farm and the associated liquid waste treatment facilities, the spent fuel storage basins in CPP-666, the dry spent fuel storage vaults in CPP-603 and CPP-749, the secure storage area for nuclear materials, and numerous support facilities including two NRC-licensed dry fuel storage facilities.

The major facilities in operation or under decontamination and decommissioning (D&D) today at ICP are shown in Figure 1, and include the following:

- Idaho Nuclear Technology and Engineering Center (INTEC)
- Radioactive Waste Management Complex (RWMC)
- Reactor Technology Complex (RTC)
- Central Facilities Area (CFA)
- Test Area North (TAN)

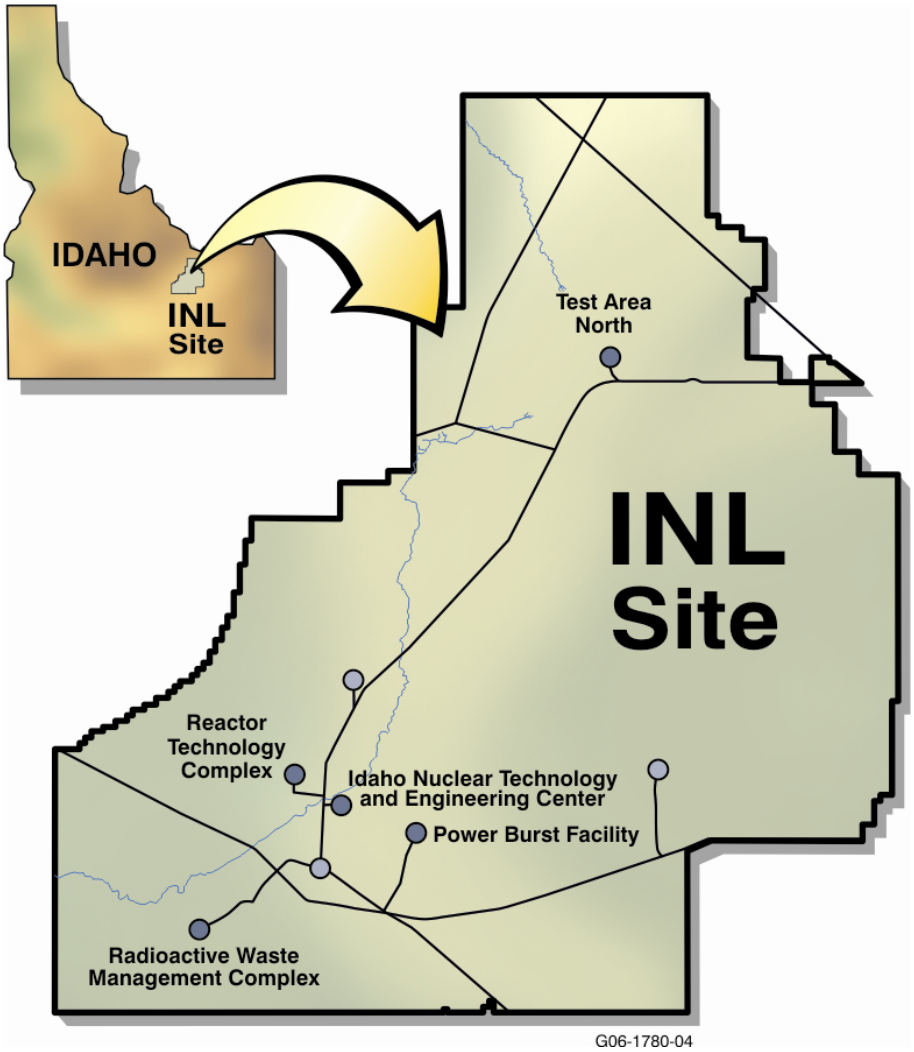


Figure 1. Diversity of the ICP mission.

The following is a summary of the work scope to be completed by September 30, 2012.

INTEC

- Spent fuel management and consolidation of DOE-EM fuel to dry storage
- Excess nuclear materials disposition
- Demolish or disposition all excess facilities
- Treat liquid sodium-bearing waste (SBW) and ship waste form to WIPP
- Empty and disposition all Tank Farm Facility waste tanks
- Deactivate SNF wet storage basins (CPP-603)

- Complete all Voluntary Consent Order (VCO) tank system actions
- Complete all required Operable Unit (OU) 3-13 remediation, including the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Tank Farm Interim Action.

Radioactive Waste Management Complex (RWMC)

- Retrieve stored remote-handled (RH), low-level waste (LLW) and dispose of it at the Subsurface Disposal Area (SDA), or other appropriate disposal facility
- Retrieve stored RH transuranic (TRU) waste and dispose of it at WIPP or transfer to the Materials and Fuels Complex
- Retrieve and dispose of waste resulting from EM cleanup activities including low-level, hazardous, mixed low-level, alpha-contaminated mixed low-level, and newly generated mixed and non-mixed TRU waste at an appropriate disposal facility
- Demolish and remove facilities no longer needed
- Continue operation of the vacuum vapor extraction system
- Continue groundwater monitoring program
- Complete remediation of buried TRU waste, including exhumation and disposal as necessary
- Complete and implement a final Comprehensive Record of Decision (ROD) for Waste Area Group 7, OU 7-13/14
- Maintain and operate the Idaho CERCLA Disposal Facility (ICDF).

Test Area North (TAN)

- Demolish all EM facilities (only facilities required for groundwater remediation remain)
- Complete all VCO tank system actions
- Complete all remediation of contaminated soils and tanks at TAN (OU 1-10)
- Continue CERCLA remedial pump and treat activities (OU 1-07B)
- Close or transfer TAN landfill to the INL contractor following completion of TAN demolition.

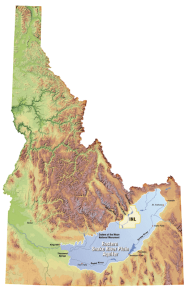
Reactor Technology Complex (RTC)

- Demolish all EM-owned facilities
- Disposition the Engineering Test Reactor and the Materials Test Reactor
- Complete all VCO Tank Systems actions

- Complete the five-year review of OU 2-13
- Complete remedial actions for RTC release sites under OU 10-08.

Power Burst Facility (PBF)

- Disposition waste and demolish and remove CERCLA storage unit at Auxiliary Reactor Area
- Disposition PBF Reactor
- Complete five-year review of OU 5-12.



Miscellaneous Sites (MSC)

- Complete all required remedial actions for OU 10-04
- Perform actions necessary to complete the OU 10-08 ROD by the enforceable milestone and implement the ROD if it is finalized and signed during the contract period.

1.3 Recent History

Prior to February 2005, the INL Site was known as the Idaho National Engineering and Environmental Laboratory (INEEL). The management and operating (M&O) contractor was Bechtel, BWXT Idaho LLC (BBWI). A DOE-approved ISMS was implemented at the INEEL.

In February 2005, the INEEL was split between two contractors. The INL was created from the research and development (R&D) divisions of the INEEL as a multipurpose laboratory with a mission of leading the renaissance in nuclear energy for the United States, splitting that work scope from the scope of work for cleaning up the INL. The contractor selected for the INL was Battelle Energy Alliance, LLC (BEA). The divisions performing cleanup of the INL stayed under management of BBWI until May 2005, when CWI became the environmental management cleanup contractor for the ICP. The ICP has, with DOE Idaho Operations Office (DOE-ID) concurrence, continued to operate under the pre-existing ISMS. The pre-existing ISMS was modified with DOE-ID approval in August 2005 to reflect the changed line management structure.

1.4 Document Organization

This document is organized to provide a comprehensive structure of CWI's ISMS with the ISMS core functions and guiding principles as the foundation. The guiding principles and core functions of Integrated Safety Management (ISM) are implemented at three levels within CWI – company level, facility/project/subproject level, and activity level. The sections of the ISMS Description Document that lend themselves to being organized according to those levels are written to reflect that implementation strategy. The CWI work scope is very broad and includes a multitude of hazards associated with that work.

Organizing the sections (in particular Section 7 "Integration of Safety Into Work,") to reflect the work levels also helps to clarify for the reader the broad work scope and to understand how that scope is managed at all levels.

ISMS is a systematic process by which line management ensures the integration of safety into work at the company level, the facility/project/subproject level, and the activity level.

The company's organization structure and how it implements the CWI ISMS is described in sections 1, 3, 4 and 5, including descriptions of the integrating methods used within the system. Section 2 provides an overview of CWI's ISMS. Section 6 describes CWI's business, budgets and contracts process. Section 7 describes how safety is integrated into the work at the company level, at the facility/project/subproject level, and at the activity level. Section 8 describes communication tools used by CWI to communicate ISMS items to company personnel. Section 9 describes the system for maintaining the ISMS current.

2. ISMS OVERVIEW

CWI's work scope includes safely accomplishing the INL environmental cleanup in compliance with regulatory requirements and customer commitments. Successful completion of this work is critical to DOE's vision of building a preeminent, internationally recognized national laboratory at INL. The ISMS implemented by CWI is critical to that success. An ISMS is a systematic, phased approach to performing work safely. ISM's seven guiding principles and the five core functions form the foundation of ISMS implementation at ICP. An eighth guiding principle—worker involvement—was added several years ago at the INL to acknowledge that those performing work are in the best position to provide feedback to improve safety.

CWI plans work using processes that ensure hazards and risks are identified and mitigated by defining controls necessary to ensure that work is done safely. Worker involvement in this process is fundamental to success. The goal of CWI is to implement ISMS guiding principles and core functions throughout all ICP work processes and procedures in that:

- Safety is a prerequisite in every activity
- Employees understand their safety responsibilities and consider safety to be a personal obligation
- Organization systems and processes provide added assurance that hazards are controlled and human errors are minimized and mitigated
- Continuous learning and improvement is expected and consistently achieved.

The cornerstone of ISMS success depends on employee involvement and management commitment. CWI managers at all levels take actions to ensure that they and the employees understand the meaning and importance of ISMS. Management is also committed to ensuring employees understand they are responsible for integrating safety considerations into their work activities. CWI's unified team of upper and middle management levels are committed to providing the resources and processes to enable safety to be integrated into work processes.

"We owe it to ourselves to have the strongest safety systems in the DOE complex. With a strong ISMS, we get our work done safely—that's the key to successful completion of the Idaho Cleanup Project, and we all have a share in ICP's safe success."

CWI President and CEO

As articulated by the CWI Office of the President, CWI is committed to safety as a prerequisite in performing work. Management (including line management) and workers must embrace safety as an integral part of every work activity and work practice. By effective integration of safety management into all facets of work planning and execution—integrated safety management is achieved. CWI's ISMS provides a proactive safety culture for continuous improvement with input from workers and line management.

In general, the guiding principles are more significant at the company level – establishing the infrastructure whereby work can be performed safely at all levels (e.g., balanced priorities, clear roles and responsibilities, competence commensurate with responsibilities). Using this safety infrastructure supports work being performed safely at the activity level.

The eight CWI ISMS Guiding Principles are:

- Line Management Responsibility for Safety. Line management is responsible for the safe and efficient conduct of work to ensure the protection of the public, the workers, and the environment.
- Clear Roles and Responsibilities. Clear and unambiguous lines of authority and responsibility for ensuring safety are established and maintained at all organizational levels.
- Competence Commensurate with Responsibilities. Personnel possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities.
- Balanced Priorities. Resources are effectively and adequately allocated to address safety, programmatic, and operational considerations. Protecting the public, the workers, and the environment is a priority whenever activities are planned and executed.
- Identification of Safety Standards and Requirements. Before work is performed, the associated hazards are evaluated, and standards and requirements are established that, when properly implemented, provide adequate assurance that the public, the workers, and the environment are protected from adverse consequences.
- Hazard Controls Tailored to Work Being Performed. Engineered and administrative controls to prevent and mitigate hazards are integrated and tailored to the work and associated hazards.
- Operations Authorization. The conditions and requirements to be satisfied for operations to be initiated and conducted are clearly established and agreed upon.
- Worker Involvement. Execution of the ISMS is focused where work is executed, at the company level, the facility/project/subproject level, and the activity level. Line management direction and ownership, worker input and support, and effective processes are present to ensure success of the ISMS.

The framework for the ISMS is organized around the following Five Core Functions:

- Define the scope of work
- Analyze hazards associated with the work
- Develop and implement hazard controls
- Perform work within controls
- Provide feedback and continuous improvement.

The five core functions provide a distinct, phased approach in the continuing cycle of conducting safe work. Two important components within the ISMS are the Voluntary Protection Program (VPP), a program that brings worker safety involvement into the ISMS, and the Environmental Management System (EMS), which is designed to implement the environmental policy and integrate environmental protection and compliance, and pollution prevention into the ICP ISMS. See Figure 2.

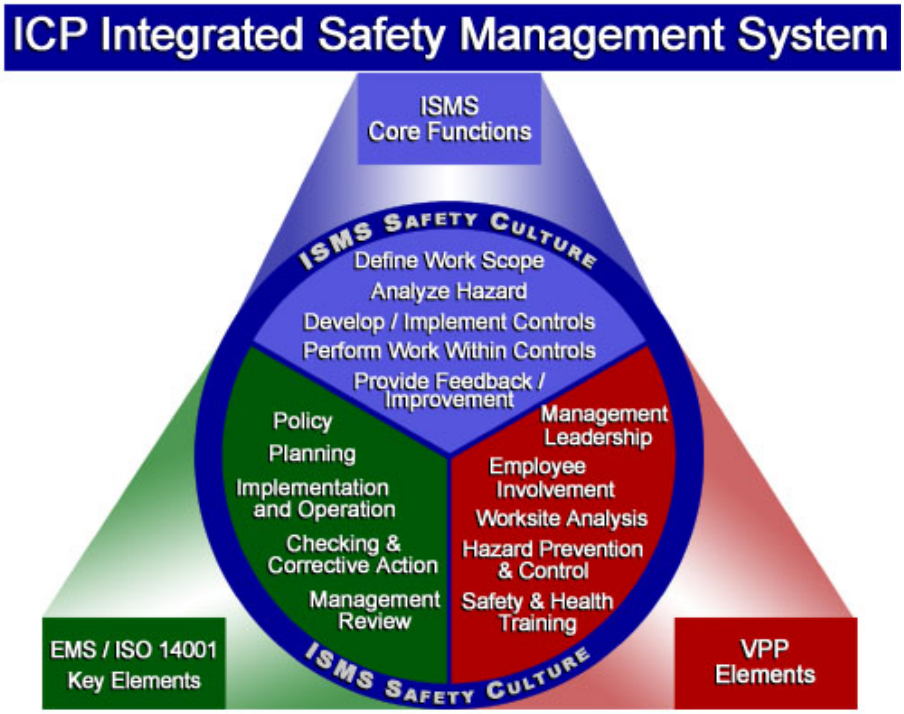


Figure 2. Relationship between ISMS, VPP, and EMS.

3. CWI ORGANIZATION STRUCTURE

3.1 Management Structure

The management structure, utilized by CWI as the environmental management cleanup contractor at the INL, is detailed in PDD-1005, "ICP Management and Operations Manual," and is a key component of the ISMS. Further described in sections 4 and 5, it identifies line management and functional management structures, summarizes their roles and responsibilities, and outlines interfaces between them. The roles, responsibilities, and processes described in PDD-1005 apply to all CWI organizations and personnel; it describes interfaces with, but does not directly apply to, non-CWI organizations at the INL.

CWI uses a projectized process for the ICP as described by Project Management Plan (PMP) ICP/EXT-05-01082. The work and the management structures are divided into 5 projects under the main ICP PMP: INTEC, RWMC, TAN/RTC/PBF, and MSC, as well as Indirect activities. These projects and their associated scopes of work are clearly described in the respective Project Execution Plans (PEP) for each project, which can be found on the company's electronic data management system (EDMS) and listed below. Each of these projects also has subprojects under them responsible for specific scopes of work:

- Plan (PLN)-2084, "Project Execution Plan for the INTEC Area Cleanup Project," which includes the Integrated Waste Treatment Unit
- PLN-2085, "Project Execution Plan for the ICP RWMC," which includes Waste Area Group 7
- PLN-2086, "Project Execution Plan for the ICP TAN/RTC/PBF Project"
- PLN-2087, "Project Execution Plan for the Miscellaneous Sites Cleanup"
- PLN-2088, "Project Execution Plan for the ICP Indirect Project."

Organization charts, indicating CWI's management structure from the President and Chief Executive Officer (CEO) down through the projects and subprojects, can be found on the company intranet website.

3.2 Services

CWI's and BEA's contracts establish a list of "mandatory site services," which CWI is required to purchase from BEA, and "other site services," which the contractors share. In addition, a variety of "miscellaneous services," are not addressed in either contracts, but the contractors have chosen to buy these services from each other. PDD-1005 provides additional information on these services and the associated interface agreements.

CWI's contract specifies that CWI must obtain certain services from BEA through January 31, 2007. Conversely, CWI provides certain services to BEA. An overarching Interface Agreement (IAG) IAG-349, "Integrated Agreement for Site

Services and Site Service Agreements," between BEA and CWI establishes the general protocol for interface between the two contractors. In this agreement, BEA and CWI have agreed that each company, in providing services to the other, will meet the other's standards. Individual service agreements (SAs) have been established between the two contractors for site services categorized as mandatory, other, and miscellaneous.

Mandatory Site Services BEA provided to CWI include fire department and emergency management (IAG-271), safeguards and security (IAG-283), occupational medical program (IAG-272), information technology infrastructure (IAG-273), on-site monitoring activities (IAG-274), landfill and waste disposal (IAG-275), power management (IAG-276), life safety systems (IAG-277), bus services (IAG-278), laboratory directed research and development (IAG-279), calibration services (IAG-280), EDMS (IAG-281), and general infrastructure support for roads and grounds (IAG-282).

CWI and BEA provide "other site services" in accordance with SAs. Specific examples of other site services are mail services (IAG-310), technical library (IAG-312), and graphic design (IAG-289). There are also other miscellaneous services controlled by Service Agreements between CWI and BEA. Specific examples of these are nuclear safety (IAG-322); radiological control (IAG-323), engineering services (IAG-324), subsurface investigation team (IAG-330), waste generator services (IAG-331), environmental compliance support (IAG-337), document and records management (IAG-338).

Work processes and procedures used to control work supplied by CWI and BEA to each other are described in IAG-349, which states: "The work processes and procedures (including, without limitation, the safety requirements) of the Party responsible for the facility or area in which or for which the services are performed shall govern. Likewise, work control and work release responsibilities will remain with the facility or area manager/operator as appropriate or agreed to in the applicable tenant use agreement."

3.3 Tenant Use Agreement

CWI uses tenant use agreements (TUAs), which help control activities in facilities/buildings where space is shared. TUAs, fully addressed in management control procedure (MCP)-9141, "Developing Tenant Use Agreements," are a form of an interface agreement and are written when an organization (the tenant) has a need to perform experiments, operations, or work activities within a facility under a different line management organization. Within the limits and boundaries defined in the TUA, the TUA authorizes tenants to perform work activities within the defined boundaries. Using office space at a facility does not require a TUA. If the activity is service related with no hazardous chemicals, tasks, or work, the line management and tenant jointly agree that no TUA is required. A TUA ensures that the facility safety basis and operating limits are not exceeded or violated by tenant activities.

3.4 Subcontractor Services

CWI utilizes subcontractors and vendors to perform work in areas within facilities managed under the ICP contract, as well as within facilities managed under the BEA contract. CWI uses the acquisition process as defined in MCP-1186, "Service Acquisitions," to develop and flow down necessary safety, health, quality, and particularly ISMS requirements to subcontractors performing work at ICP. Specifically, the process flows down the applicable sections of the Subcontractor Requirements Manual, together with the Statement of Work and the General and Special Provisions of the subcontract, provide the necessary framework to establish the subcontractor's requirements for implementation of ISMS. A Subcontractor Technical Representative (STR) executes line management oversight over the subcontractor. Where necessary to support the STR, CWI's requisitioning manager may assign a team to assist in oversight and coordination. Appropriate disciplines may include Health and Safety, Quality, or other functional support resources.

The Subcontractor Requirements Manual includes the Subcontractor Requirements Program: as described in PDD-1001, "Subcontractor Requirements Program Description," and consolidates company requirements and expectations from various programs and disciplines to support the overall goal of the safe and efficient performance of subcontracted work. PRD-1501, "Work Control," from the same manual integrates the subcontractor into the Site work control process. Other Subcontractor Requirements Manual sections address health and safety (2000 series PRDs), radiological controls (3000), environmental (4000), and quality assurance (5000) requirements for subcontractors doing work at ICP.

Quality assurance requirements are flowed to subcontractors performing work both onsite and offsite, and suppliers providing materials and items using General and/or Special provisions as detailed in MCP-1186, "Service Acquisitions," and MCP-1185, "Material Acquisitions".

3.5 Safety Committees, Councils and Boards

Committees, councils, and boards are key ISMS components in that they promote the integration of safety across projects and facilities. For example, the Centers of Excellence integrate functional requirements and practices throughout the ICP.

The cornerstone of ISMS success depends on employee involvement and management commitment. CWI managers at all levels take actions to ensure they and the employees understand the meaning and importance of ISMS. Management is also committed to ensuring employees understand:

- They are responsible for integrating safety considerations into their work activities

- The unified team of upper and middle management levels are committed to providing the resources and processes to enable safety to be integrated into work processes.

CWI has established various forums for soliciting input from all levels of employees and performing oversight of ICP operations involving worker safety and protection of the environment. These are summarized in the following paragraphs:

3.5.1 INL Site-Wide ISMS Steering Committee

This committee provides communication, sharing of lessons learned, and cooperation among the three prime contractors at the INL Site: BEA, CWI, and BBWI, operator of the Advanced Mixed Waste Treatment Project. The committee comprises the ISMS Champions for each contractor and a DOE-ID ISMS representative. This committee ensures coordination and integration of key ISMS processes and discusses common issues for achieving continuous improvement. The charter for the committee is Charter (CTR)-178, "Charter for the INL Site-Wide ISMS Steering Committee."

3.5.2 Executive Safety Review Board

The Executive Safety Review Board (ESRB) is established to oversee the identification, analysis, reporting, and corrective actions of safety significant events, issues with programmatic implications, and other issues as determined by the Chair. The ESRB is composed of senior management, sponsored by the Environment, Safety, Health, and Quality (ESH&Q) Vice President, and chaired by the CWI President and CEO. The ESRB:

- Provides senior, seasoned, crosscutting perspective
- Ensures root causes are determined accurately
- Ensures proposed corrective actions adequately address the causes
- Provides strong corporate support for corrective action implementation
- Provides assurance that corrective actions have achieved the desired results
- Provides feedback and senior management direction concerning the focus and conduct of assessments based on the input received.

The charter for the ESRB is CTR-161, "Charter for the Executive Safety Review Board."

3.5.3 Integrated Operations Council

The Integrated Operations Council (IOC) is responsible for providing advice and recommendations to the ICP President and CEO, and to the Chief Operating Officer (COO) to ensure that operational excellence in the facilities associated with ICP is maintained, and constantly improving. The IOC focuses on ensuring effective and timely resolution of operations related problems and occurrences, the prevention of operational complacency, the prevention of recurrence of operational problems and occurrences, and the understanding and addressing of lessons learned both from within and external to the INL. The IOC charter is CTR-14, "ICP Integrated Operations Council."

3.5.4 Project Evaluation Board

Comprehensive, multi-disciplined independent assessments of CWI projects and programs are conducted by the Project Evaluation Board (PEB). The PEB also performs as needed assessments, as requested by CWI senior management, to review specific areas of concern or to validate project or program performance. The PEB is composed of a core team, functional support managers (FSMs), and subject matter experts (SMEs). The PEB is used to achieve operational excellence and maintain full implementation of ISMS. The results of PEB assessments are used to promote safety, promote continuous improvement, and identify areas of excellence in CWI projects consistent with DOE requirements. Independent assessment results and project risk determine the frequency of PEB assessments for CWI projects and programs. PDD-148, "Project Evaluation Board," describes the PEB process.

3.5.5 Centers of Excellence

Centers of Excellence (COEs) are established by the FSM or Safety Management Program (SMP) owner to provide a forum for effective and timely resolution of functional support area (FSA) or SMP-related issues. COEs include Nuclear Safety, Chemical Management, Radiological Control, and Integrated Work Control Process. The COEs provide an important role in the integration of safety issues across site projects and facilities, including lessons learned both from within and external to the ICP. The overall objective of the COE is to ensure that safety issues (with potential impact on ICP activities and mission) are identified and addressed in a manner consistent with ICP mission, project needs, and contract requirements. COEs are chartered under CTR-192, "Centers of Excellence."

3.5.6 Hazard Review Boards

The Hazard Review Boards (HRBs) review selected work activities to identify potential hazards and assist in mitigation of those hazards. The HRB process is implemented and directed by management at its discretion

when a need is identified. Activities and projects for HRB review are normally complex and high hazard. The HRB process is described in CTR-163, "Idaho Cleanup Project Hazard Review Board Charter."

3.5.7 ALARA Committee

CWI has implemented an ICP as-low-as-reasonably-achievable (ALARA) Committee, as well as project ALARA committees in accordance with MCP-91, "ALARA Program and Implementation." The committees serve as multi-disciplined forums that review and advise management regarding occupational radiation exposure. Members of the ALARA Committee are representatives from the organizations that anticipate personnel to receive occupational radiation exposure. The membership includes managers and workers from the line, the technical support organization, and the Radiological Control Organization. The ALARA program reports and tracks ALARA goals and performs ALARA reviews, and establishes the process for evaluating costs and benefits of implementing ALARA protective measures to reduce personnel dose and control radiological contamination.

3.5.8 Safety Assessment Center

The Safety Assessment Center (SAC) provides a centralized process for timely management involvement in routine reporting, reviewing, and assigning follow-up on safety events; supports safety performance monitoring; and provides a resource for periodic safety performance summary reporting. Data is collected about events and conditions that have the potential for adversely affecting safe operations now and in the future, as well as good practices. The data collected is analyzed for adverse and/or positive trends, and the results are disseminated. CTR-159, "Charter for the Safety Assessment Center," establishes and directs the actions of the SAC.

3.5.9 Company Employee Safety Team

The Company Employee Safety Team (CEST) provides an avenue for employees, at all levels of responsibility in the organization, to contribute to and promote continuous improvement in the safety and health program. CTR-26, "Charter for the Company Employee Safety Team," directs the team to solicit and encourage employee involvement in, and provides direction to, safety and health programs and awareness activities; develop and submit solutions for company level safety concerns/issues to senior management; utilize company level safety and health trending data and establish actions as appropriate; establish CEST-specific safety and health goals and action plans annually; and serve as the communication pathway between the Unit Employee Safety Teams (EST) and senior management.

3.5.10 Electrical Safety Committee

The Electrical Safety Committee (ESC) provides ICP employees with a competent technical resource for guidance concerning implementation of electrical safety and work practice issues. It has responsibility for all aspects of the Electrical Safety Program definition, including ownership of the electrical safety policies, related procedures, and electrical worker qualifications. The ESC directly supports ICP and coordinates electrical safety related issues with the INL. CTR-171, "CWI Electrical Safety Committee," establishes and directs the actions of the electrical safety committee. This committee includes representatives from numerous disciplines and workers.

3.5.11 Engineering Council

The Engineering Council provides a vehicle for company engineering managers to discuss and resolve or verify resolution of significant company engineering issues. The Engineering Council is a forum for engineering management representing the Engineering Directorate, operating facilities, and support functions to ensure consistent integration of engineering activities across the INL. The Council ensures that the formulation and implementation of engineering practices for the site are based on best commercial practices and benchmarks and are tailored as required to meet applicable DOE and ICP unique requirements. CTR-49, "Engineering Council," establishes and directs the actions of the council.

3.5.12 Hoisting and Rigging Committee

The Hoisting and Rigging (H&R) Committee is used to uniformly interpret and convey H&R requirements from codes and standards and INL operation practices. This committee represents the interests of ICP and interfaces with the INL program and the DOE H&R program and its representatives. CTR-650, "Hoisting and Rigging Committee," establishes and directs the actions of the H&R Committee, which is made up of line management, technical experts and workers.

3.5.13 Independent Safety Review Committee

The Independent Safety Review Committee (ISRC) provides an independent oversight and review of safety basis documents associated with nuclear facilities and operational activities, non-nuclear facilities and operational activities, and decontamination and decommissioning (D&D) activities to ensure attention to safety requirements. CTR-156 "Independent Safety Review Committee (ISRC) for the Idaho Cleanup Project (ICP)" establishes and directs the actions of the ISRC.

3.5.14 Criticality Safety Committee

The Criticality Safety Committee was established to support management in ensuring the Criticality Safety Program established for ICP facilities is

in accordance with the governing American Nuclear Standards Institute (ANSI)/American Nuclear Society (ANS) Standards and DOE rules and regulations required for safe operations involving fissionable materials. CTR-189, "ICP Criticality Safety Committee," establishes and directs the actions of the Criticality Safety Committee.

3.5.15 Operational Safety Boards

Operational Safety Boards (OSBs) oversee implementation of the line manager's responsibility for safety. Line managers are responsible for the safe execution of work in their facilities, and for ensuring the work is performed within the facility's safety envelope. Projects and subprojects establish OSBs for their areas and work scope as they determine is needed. Several OSBs have been established within ICP to oversee line management in areas such as the design process; hazard identification and analysis results; procedure development, review, and approval; the work control process; and startup reviews. PRD-5043, "Operational Safety Boards," identifies the requirements for the development, implementation, and execution of OSBs.

3.5.16 Site-Wide Training, Review and Implementation Board

The Site-Wide Training, Review, and Implementation Board (STRIB) provides a vehicle for communications among training personnel associated with all ICP organizations. The STRIB is a forum for consistent programmatic integration of activities, problem identification and resolution, and policy development. The STRIB provides a systematic forum for governing the analysis, design, development, and evaluation of ICP site-wide training. The STRIB is chartered in CTR-16, "ICP Site-Wide Training Review and Implementation Board."

4. MANAGEMENT EXPECTATIONS

CWI line management, as outlined in PDD-1005, is directly responsible for ensuring work is performed safely, in accordance with ISMS Guiding Principle 1, "Line Management is Responsible for Safety." PDD-1005, in conjunction with project-specific roles and responsibilities documents, provides clear and unambiguous lines of authority and defines the responsibility for ensuring that safety is established and maintained at all organizational levels, in accordance with ISMS Guiding Principle 2, "Clear Roles and Responsibilities."

Line and functional management work to similar expectations when carrying out roles and responsibilities listed in this document. Each has roles in integrating key ISMS functional support and processes and implementing VPP and EMS to perform quality work safety, securely, environmentally responsibly, and efficiently.

4.1 Worker Expectations

- Take safety personally - develop a questioning attitude; participate in the identification and resolution of safety and health issues.
- Participate in the preparation and review of technical procedures, hazards analyses, and work package walk-downs.
- Use Stop Work or Step Backs for unsafe acts or conditions or when there is uncertainty/lack of clarity for any task.
- Procedural Compliance - follow procedures, directives, and other ISMS work control requirements.
- Report to work fit for duty and prepared to work, have the proper tools, protective equipment, and attitude. Minimize distractions that could serve as error precursors
- Report those procedures, requirements, or work control process that are in error or lack sufficient clarity.
- Use the ICP Corrective actions/ICARE process to report and track applicable issues.
- Identify and help recognize co-workers for safe behavior through your employee safety team and managers.
- Support VPP goals and initiatives.
- Provide ideas and feedback for improvement, submit ideas for innovative approaches, streamlined processes and eliminate non-value added activities.
- Support EMS policy and objectives.

4.2 Additional First Line and Middle Management Expectations

- Support workers in meeting expectations
- Earn and maintain the trust and respect of workers and peers.
- Treat all personnel fairly, consistently, and positively recognize them for safe practices and work innovations.
- Provide frequent, focused, and honest communication with workers. Address topics of interest from other projects, job specific information, and feedback on previously identified issues/concerns.
- Be present in the field to ensure safe, compliant work execution. Actively solicit worker input on process improvements. Challenge the status quo; resolve issues or escalate to upper management.
- Maintain an open door policy for personnel to encourage discussion and seek feedback. Promote positive acceptance of step back/stop work practices. Encourage and support an employee's right to identify safety concerns without concern for reprisals.
- Lead by example. Maintain a positive attitude, demonstrating integrity and high ethical standards. Be an active champion and a positive influence for ISMS, VPP, and EMS. Ensure schedule pressure does not impact safety.
- Participate in development of work packages and project approaches. Utilize the workforce in the planning phase. Perform quality pre-job briefings.
- Provide prompt notification of issues to appropriate personnel (NFM, SM, supervisor, etc.)
- Ensure workers are properly trained and have the necessary tools to complete their assigned tasks. Provide workers the opportunity for personal and professional growth.

4.3 Additional Senior Management Expectations

- Support worker and first line/middle management in meeting expectations through leadership and providing needed resources.
- Actively reinforce that safety and compliance are prerequisites to performing work at the ICP.
- Actively participate in the resolution of safety and compliance issues and ensure that there is a consistent application of safety practices across the ICP.
- Provide meaningful and consistent support of employee safety programs and positive reinforcement when employees utilize the "Stop Work/Step Back" process. Ensure active support to employees who report safety concerns.

- Be champions for VPP, EMS and ISMS programs and support human performance initiatives.
- Invest in people's futures through workforce training, tuition reimbursement, and identifying other corporate career opportunities.
- Be open and honest with our employees at all times. Be accessible to our employees and communicate often, clearly and concisely. Actively listen to employees and promptly follow up on concerns.
- Trust our employees to make the right decisions.
- Do what we say we will do (We walk our talk.)
- Establish clear roles and responsibilities commensurate with accountability and authority.
- Actively recognize and reward employees for innovations that improve safety and performance.

5. FUNCTIONAL SUPPORT AREAS

The CWI ISMS infrastructure includes a management structure with company-level FSAs (Figure 3), many of which have existed for years. These FSAs are identified in List (LST)-1, "Responsible Managers, Functional Support Managers and Subject Matter Experts." FSAs are the foundation of the CWI ISMS. The associated management structure and responsibilities of the FSAs includes both matrixed and deployed personnel who work closely together to ensure implementation of standards and requirements is consistent throughout the company. The Office of the President, and in particular the COO, has significant functional responsibilities as described in PDD-1005.

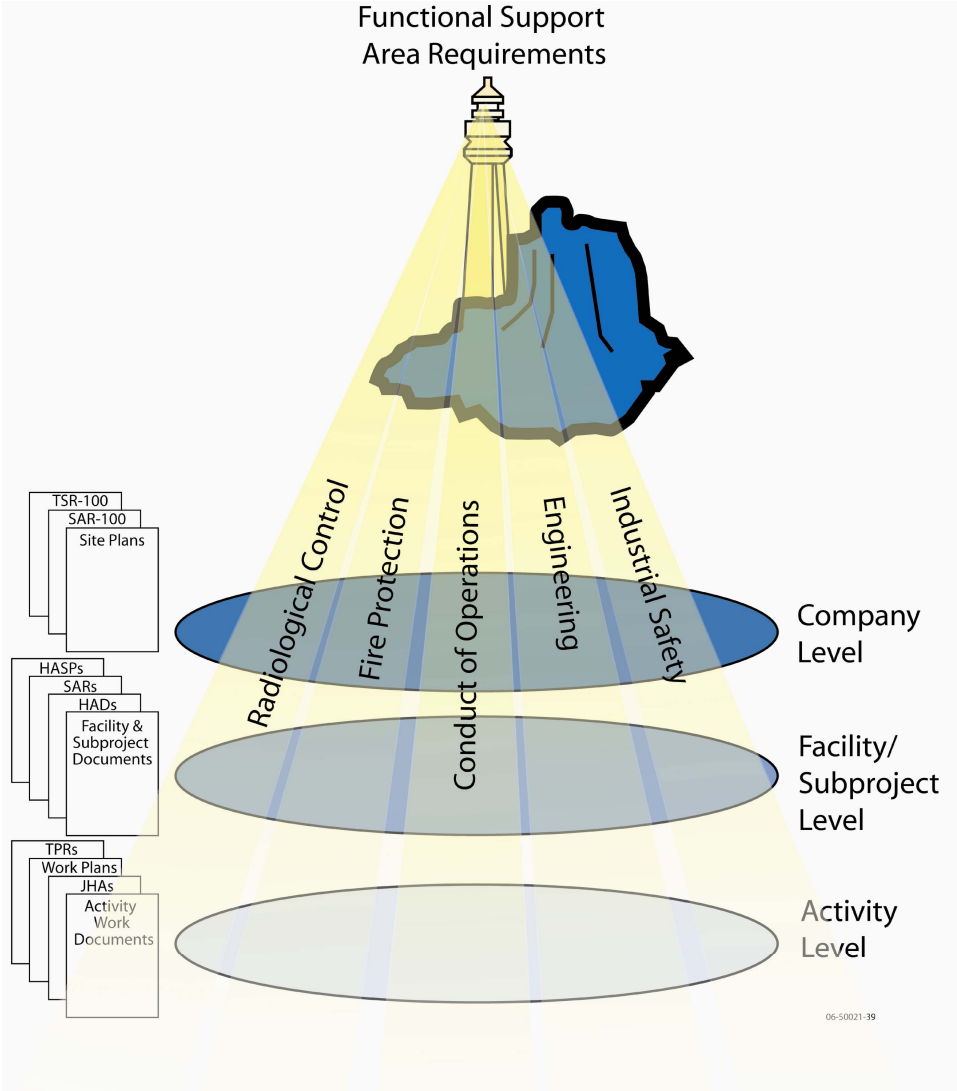


Figure 3. Functional Support Areas.

CWI's ISMS focuses on integrating safety through FSAs using the line manager as the focal point through which all work activity is planned and authorized. The integration of FSAs and the work control processes, which exist at the core of the ISMS, rely on implementation of a requirements management system. Programmatic requirements flow down from DOE requirements and regulations and from applicable industry standards. Company-level programs, which implement these requirements, are institutionalized through company-level procedures. These procedures and manuals define roles and responsibilities for implementing the FSA requirements, with a strong focus on the responsibilities of line management for effective performance.

At the facility/project/subproject level, project teams establish the project set of requirements that flow down from the FSA requirements to their facility/project/subproject. Project teams also establish requirements for individual activities providing necessary and sufficient controls for performing work safely. Built into this process is the expected use of a graded approach that is based on the risk, consequence, and complexity of identified work. Responsible Managers (RMs) for FSAs provide leadership, direction, and integration for their FSA with projects and subprojects.

There are a total of 38 FSAs (including ISMS); 33 of which are provided by CWI and 5 which are provided by BEA. In addition, SAR-100, "Safety Analysis Report for the ICP Standardized Safety Analysis Report (SAR) Chapters," identifies 14 SMPs that are required to be implemented to ensure safe operation of the ICP facilities and projects. Programmatic failure of any of these programs, if it occurs, constitutes a Technical Safety Requirements violation. In most cases, the SMP and the FSA are the same; however, an SMP can also be specific to a portion of the FSA (e.g., Configuration Management is an SMP within the Engineering FSA). The SMPs are shown in color to the right on Figure 4. One of the SMPs, Emergency Preparedness, is BEA managed and provided, the rest are CWI.

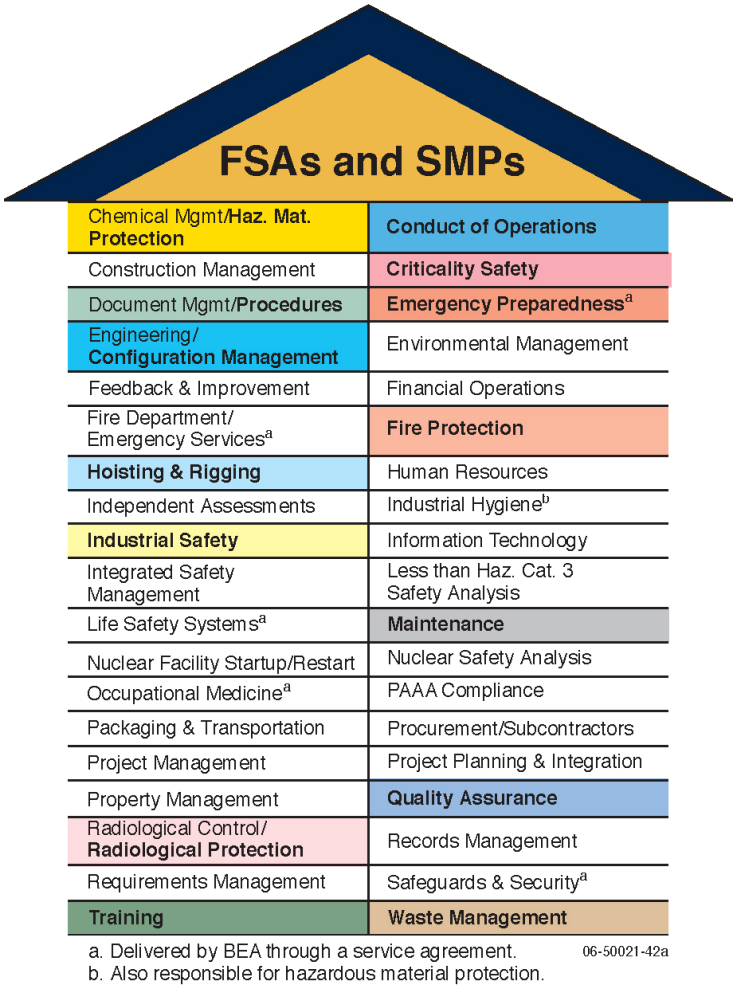


Figure 4. FSAs and SMPs.

5.1 BEA Provided FSAs

There are five FSAs provided by BEA to CWI through service agreements.

5.1.1 Emergency Services

There are two FSAs relating to emergency services. CWI has established positions to oversee these service agreements and their operation, and the operations in the Emergency Operations Center. These include a CWI Emergency Management Program Lead and a CWI Senior Management Advisor.

- **Emergency Preparedness** – This functional support area is designed to protect lives, property, and the environment in the event of an emergency. BEA laboratory requirements document (LRD)-16100, "Emergency Management System," provides requirements and references for emergency management.

Laboratory-wide Manual 16A, "INL Emergency Preparedness Base Plan," describes the program. The program provides expertise, guidance, oversight, training, and counsel related to the elements of emergency preparedness planning and readiness assurance. It is an all-hazards program in that it includes considerations for mitigation, response, and recovery from hazards presented by radiological, toxicological, and all other potential sources of injury or harm to personnel, the environment, or material resources.

- **Fire Department** – provides the firefighting services, emergency medical services, hazardous material release response and mitigation, and rescue services at the INL and surrounding communities and agencies as identified in reciprocal agreements.

5.1.2 Additional BEA Provided FSAs

The remaining two BEA-provided FSAs include the following:

- **Occupational Medicine** – establishes organizational goals for preventing occupational injuries and illnesses, and educating workers in methods of optimizing their physical and mental health.
- **Safeguards and Security** – provides security services to CWI as addressed in IAG-283, "Service Agreement for Safeguards and Security Services." CWI employees receive annual security training, and Safeguards and Security reports, tracks, and trends all security incidents for feedback and continuous improvement. PLN-2158, "Safeguards and Security Management Plan," identifies CWI roles and responsibilities.
- **Life Safety Systems (LSSs)** – provides inspections, testing, and maintenance of the LSSs, including fire alarm systems, emergency notification systems, suppression systems, industrial monitoring systems, and fire extinguishers.

5.2 CWI Provided FSAs

There are 33 FSAs provided by CWI, including ISMS.

5.2.1 Chemical Management Program

The chemical management FSA implements standardized processes and controls that support compliant hazardous material protection practices for SAR-100-8. MCP-2873, "Chemical Services Processes," provides life cycle management instructions for INL organizations, management, and personnel to perform their responsibilities in support of the management of chemicals and chemical product information and processes. The MCP defines the process used by trained Chemical Services chemical coordinators to support acquisition, receipt, inventory and usage tracking

and disposition of chemicals and chemical products. Hazardous material protection is identified as an SMP.

5.2.2 Conduct of Operations

This program ensures that facility operations are managed, organized, and conducted in a manner that result in a high level of performance and, therefore, contributes to safe and reliable operations. The program consists of company procedures that are based on DOE O 5480.19, Chg 2, and governs facility and activity operations. PRD-185, "Conduct of Operations," describes the requirements, and PDD-60, "Conduct of Operations," describes the implementing procedures, which are located in Company Manual 9, "Operations."

5.2.3 Construction Management

This FSA is responsible for identifying and managing the requirements for CWI Construction Management. MCP-2863, "ICP Construction," and MCP-9106, "Management of Construction Projects," integrate the requirements of the project management system, as described in PRD-4, "Project Management System Requirements," with Standard (STD)-101, "Integrated Work Control Process." This integration implements the five core functions of the company's ISMS into construction-related work activities.

5.2.4 Criticality Safety

The Criticality Safety program ensures appropriate actions are taken to prevent and mitigate the consequences of a nuclear criticality accident. Program requirements and recommendations are based on:

- DOE orders
- Industry standards as reflected in American National Standards Institute/American Nuclear Society (ANSI/ANS)-8, nuclear criticality safety standards
- NRC Regulatory Guide (RG) 3.71, "Nuclear Criticality Safety Standards for Fuels and Material Facilities"
- Best management practices.

Criticality safety requirements and recommendations apply to the design, construction, operation, maintenance, and decommissioning of all facilities that contain or handle fissile material, with the exception of fissile material in nuclear reactor cores, which is exempt. The complexity and type of facility determines the applicable requirements and recommendations for that facility. PRD-112, "Program Requirements Document for Criticality Safety Program," provides the program requirements and source documents.

5.2.5 Document Management

The controlled document management program provides technically correct and readily accessible information to support company operations. This information is provided through controlled documents as defined by the program document structure. The document structure comprises various controlled document types such as policies, plans, procedures, drawings, safety analysis reports, and program requirements documents. These documents must be accurate, concise, usable, and include the most current information, requirements, and work methods to support safe and efficient company operations. This program is implemented through MCP-135, "Document Management."

5.2.6 Engineering

PDD-1027, "Conduct of Engineering," along with other controlled documents from company Manual 10A, "Engineering," describe the approach and identify the procedures for implementing the quality, design, and system engineering requirements that are applicable to engineering processes and activities. The basic objectives of the engineering program are to define the processes that must be performed to consistently produce high-quality design products, to perform system engineering, to maintain configuration management of technical baselines, and to perform other technical activities. Procedures and other programmatic guidance are used to ensure competent personnel are assigned to perform engineering tasks under an appropriate level of supervision; identify the organizational positions responsible for making process and technical decisions related to engineering design; and provide guidance to support that decision making. Establishment and maintenance of policies and procedures for engineering programs are the responsibility of the company Chief Engineer. Implementation of engineering requirements within the individual area projects is the responsibility of area engineering management designated by the Area Project Managers (APMs).

An important aspect of the Engineering FSA is configuration management (CM). CM is a structured process for controlling the design requirements, documentation (including safety documentation), and configuration of ICP structures, systems, and components (SSCs). This includes software that is important to the protection of workers, the public, the environment, and critical missions and operations. The CM elements of program management, design requirements, document control, change control, and assessment are integrated into the implementing documents contained in company Manual 10A, "Engineering." Integrating the CM elements into the engineering processes in this manner ensures that CM is integral to the design requirements, documentation, and configuration of ICP SSCs that are important to the protection of workers, the public, the environment, and critical missions and operations.

5.2.7 Environmental Management

DOE O 450.1, "Environmental Protection Program," requires DOE contractors to ensure their ISMS includes an Environmental Management System (EMS) that:

- Provides for systematic planning, integrated execution, and evaluation of programs for public health and environmental protection, pollution prevention, and compliance with applicable environmental protection requirements
- Includes policies, procedures, and training to identify activities with significant environmental impacts, to manage, control, and mitigate the impacts of these activities, and to assess performance and implement corrective actions where needed
- Includes measurable environmental goals, objectives, and targets that are reviewed annually and updated when appropriate.

PDD-1012, "Environmental Management System," describes the CWI EMS program, which is designed to integrate environmental protection, pollution prevention, environmental compliance and continued improvement into work planning and execution throughout all work areas as a function of the ISMS. The EMS program is founded on the five elements of ISO 14001, "Environmental Management Systems – Requirements with Guidance for Use," which closely parallel the five core functions of the ISMS. The five elements of an effective EMS include planning, implementation and operation, checking, corrective action, and management review. Policy (POL)-104, "Environmental Policy," is implemented through the EMS program.

The environmental protection and compliance program's policies and procedures are located in Company Manual 8, "Environmental Protection and Compliance." Requirements are given in PRD-5030, "Environmental Requirements for Facilities, Processes, Materials and Equipment," instructions given in MCP-3480, "Environmental Instructions for Facilities, Materials and Equipment," and environmental aspects listed in LST-96, "Environmental Aspects of ICP Work Activities."

5.2.8 Feedback and Improvement

PDD-155, "Feedback and Improvement," describes the feedback and improvement programs CWI has implemented for the ICP. It prescribes that all aspects of an ISMS are subject to continuous improvement through an assessment and feedback process, which functions at each level of work and at every stage in the work process. The PDD outlines the elements of the CWI feedback and improvement programs, as they relate to each level of work: company, project, and activity. The feedback and improvement program is a key element of the ICP contractor assurance system, a

required by DOE O 226.1, "Implementation of Department of Energy Oversight Policy."

The fifth ISM core function provides for feedback and continuous improvement in safety performance. Improvements in safety performance, in turn, lead to improvements in productivity and the successful and timely completion of the ICP work scope. Safety and protection of the environment support the schedule – investigations, safety stand downs, and critiques due to failures in performance can delay work and expend valuable resources. The CWI feedback and improvement program consists of numerous processes, both formal and informal, for communicating information to and from each work level. It is this acquisition, handling, tracking, analysis, and communication of data that becomes the feedback and improvement program.

5.2.9 Fire Protection

The fire protection program is implemented through Company Manual 14A, "Safety and Health – Occupational Safety and Fire Protection." The program consists of the ICP Fire Marshall and qualified facility fire protection engineers. The fire protection program focuses on recognizing, evaluating, preventing, and controlling fire hazards in the work place, minimizing fire losses, and ensuring that the level of life safety complies with applicable National Fire Protection Association (NFPA) codes and standards. Specific fire protection program responsibilities also reside with the INL fire department, the life safety systems organization, and engineering. PRD-199, "Idaho Cleanup Project Fire Protection Program," ensures compliance with applicable fire protection requirements and establishes a level of fire protection sufficient to achieve the programmatic goals identified in PDD-1009, "Idaho Cleanup Project Fire Protection Program Plan."

5.2.10 Hoisting and Rigging

The H&R program plan and implementing documents are located in Company Manual 2, "Hoisting and Rigging." Program requirements are defined in PRD-650, "ICP Hoisting and Rigging Requirements." The program is based on regulatory requirements cited in the contract and on DOE-STD-1090, "Hoisting and Rigging Standard" (formerly "Hoisting and Rigging Manual") in accordance with SAR-100/TSR-100. PDD-650, PRD-650, and MCPs-6501 through 6506 comprise the H&R program.

5.2.11 Independent Assessment

The process for performing independent assessments of activities, operations, and facilities is described by MCP-552, "Performing Independent Assessments." Independent assessments, a component of the ICP Contractor Assurance System, are performed to support Operational Excellence and ISM. This is accomplished by using the assessment results

to verify that performance criteria are met and to determine the adequacy and effectiveness of programs and management systems. Independent assessments satisfy requirements specified in 10 CFR 830.122 Criterion 10, "Independent Assessment," DOE O 226.1, and DOE O 414.1C, Criterion 10, "Independent Assessment." Independent Assessments are performed by the PEB, DOE, corporate teams, OSHA, and other organizations independent of the affected organization or project.

5.2.12 Industrial Hygiene

The industrial hygiene (IH) organization is involved in the recognition, evaluation, and control of environmental factors or stresses, arising in or from the workplace, which may cause illness, impaired health and well being, or significant discomfort among workers. IH personnel work as members of a safety and health team using ISMS principles in the evaluation of work areas and employee work activities. Specific IH requirements, procedures and general policies are presented in Company Manual 14B, "Occupational Medical and Industrial Hygiene."

5.2.13 Industrial Safety

The industrial safety program is established to prevent employee injury from industrial hazards that may be encountered in the workplace. Site-wide program requirements and procedures that establish a baseline for compliance with applicable industrial safety codes and standards are found in Manual 14A, "Safety and Health – Occupational Safety and Fire Protection." Industrial safety requirements are integrated in various safety management processes as they apply to the identification and analysis of hazards and to determining the appropriate controls for employee protection.

5.2.14 Less than Hazard Category 3 (LTHC3), Radiological, and Nonnuclear Facility Safety Analyses

In addition to the institutional programs and procedures, facilities containing radioactive and hazardous materials are required to have a facility-specific Hazard Assessment Document (HAD), which documents the results of a hazard assessment and establishes the required controls for the identified hazards. MCP-2451, "Safety Analysis for Less than Hazard Category 3 Facilities," directs communication and coordination of activities necessary to put into practice the program for facility hazard analysis. The MCP applies to all LTHC3 facilities and describes the processes to verify that a facility's radioactive material and hazardous material inventories are identified, analyzed, and controlled.

5.2.15 Maintenance

The conduct of maintenance program establishes the management and performance of safe, efficient, and cost-effective maintenance of facilities and equipment. The maintenance processes ensure that facility systems

remain functional and perform as intended when needed. The program consists of company procedures based on DOE O 433.1, "Maintenance Management Program for DOE Nuclear Facilities," and DOE Order 430.1B, "Real Property Asset Management." PDD-600, "Site Maintenance Management Program," describes the implementing procedures, which are located in Company Manual 6, "Maintenance." The maintenance organization is responsible for STD-101, "Integrated Work Control Process," which is also contained in Manual 6 and describes the work control process for both maintenance and non-maintenance work (e.g., building modifications, construction, grounds keeping).

5.2.16 Nuclear Facility Startup/Restart

This FSA is responsible for identifying and managing the requirements associated with startup or restart of a nuclear facility. Prior to performing a startup or restart of a nuclear facility, CWI evaluates the need to perform an operational readiness review (ORR) or a readiness assessment (RA) in accordance with the requirements of DOE O 425.1C, "Startup and Restart of Nuclear Facilities." These readiness reviews are based on a graded approach; the appropriate readiness review is performed against a set of minimum core requirements that are identified in DOE O 425.1C. These startups and restarts are identified in a CWI Startup Notification Report, which is submitted and approved by DOE-ID and submitted to DOE-EH. MCP-2783, "Startup and Restart of Nuclear Facilities," provides criteria to be used to determine whether an ORR or an RA may be required.

Line management is responsible for determining the readiness of a nuclear facility to startup or restart. As specified by MCP-2783, a Management Self-Assessment (MSA) may be required to formally document readiness in all functional areas. The MSA process is described in MCP-1126, "Performing Management Self-Assessments for Readiness."

5.2.17 Nuclear Safety Analysis

Nuclear Safety Analysis is responsible for identifying and managing requirements associated with nuclear safety analyses. Requirements for performing hazard categorizations and safety analyses for nuclear facilities and for preparing implementation plans and nuclear Documented Safety Analyses (DSAs) are derived primarily from 10 CFR 830.

MCP-1176, "Safety Analysis Process," outlines the standardized safety analysis process for safety basis documents for nuclear and LTHC3 facilities. MCP-2449, "ICP Nuclear Safety Analysis," implements the nuclear safety analysis requirements for these documents for hazard category 2 and 3 new or existing nuclear facilities including hazard categorization DSAs and technical safety requirements (TSRs). LST-268, "ICP Nuclear Facility/Nuclear Facility Manager List," identifies the

facilities that are nuclear facilities as approved by the DOE-ID and individuals assigned responsibility for these facilities.

5.2.18 Packaging and Transportation

The ICP packaging and transportation program and methodology for complying with the rules, laws, and regulations governing onsite and offsite transportation is addressed by PRD-310, "INL Site Transportation Safety Document." PRD-310 establishes onsite and offsite packaging and transportation requirements for shipping hazardous material at the INL (site), including hazardous substances, hazardous wastes, and radioactive materials. The PRD (a) applies to the transportation of hazardous material by transport vehicle within access-controlled INL site boundaries when all or any portion of the shipment route is outside of fenced site areas at the INL (site), and (b) provides general guidance for the control of offsite hazardous material shipments leaving the INL.

5.2.19 Procurement

CWI implements the quality assurance requirements for procurement as specified in the QA program to ensure services and materials meet or exceed established standards. MCP-1185, "Material Acquisitions," establishes the primary company process for obtaining material in support of CWI activities from approved suppliers. MCP-1186, "Service Acquisitions," establishes the company process for service acquisitions and applies to the acquisition of services from approved subcontractors and the administration of subcontracts.. The Subcontractors Requirements Manual includes the Subcontractor Requirements Program, as described in PDD-1001, "Subcontractor Requirements Program Description," and consolidates company requirements and expectations from various programs and disciplines to support the overall goal of the safe and efficient performance of subcontracted work. This program was established to ensure a consistent and controlled method of providing requirements for subcontractors as they perform work at ICP facilities controlled by CWI.

5.2.20 Project Management

Engineering Services is responsible for this FSA. The primary objective of the FSA is to provide skilled resources to Area Project Managers in support of construction activities. Manual 7, "Construction Project Management," provides the implementing guidance and procedures for construction projects under $5 million. Manual 5, "Project Management and Controls," is the overarching program for planning and controlling the ICP project and other subprojects in accordance with DOE Order 413.3, "Program and Project Management for the Acquisition of Capital Assets," and DOE M 413.3-1, "Project Management for the Acquisition of Capital Assets." Manual 7 is applicable to construction tasks less than $5 million

established within the scope of the Site Area PEPs, which were developed in accordance with Manual 5.

5.2.21 Project Planning and Integration

The Project Planning and Integration (PP&I) Functional Area is responsible for establishing and maintaining the company level processes for planning and controlling the ICP work scope authorized in the ICP Contract, as defined in Manual 5 processes. The PP&I FSA also provides trained and skilled personnel on a matrix basis to the Area Project Managers to assist in the proper implementation of Manual 5 processes. PP&I is responsible for consolidating Area Project performance data at the ICP Project level and submitting the reports to DOE. The FSA is also responsible for performing independent cost, resource, and schedule trend analysis for the Executive Management Team and facilitates routine internal project meetings to report and discuss performance of the ICP Life Cycle Baseline.

5.2.22 Quality Assurance

The CWI QA program is established by PRDs contained in Company Manual 13A, "Quality Assurance Program." This manual meets the contractor requirements specified in: 10 CFR 830 Subpart A, "Quality Assurance; and DOE Order 414.1C "Quality Assurance"; NQA-1-2000 (NQA 1), "Quality Assurance Program Requirements for Nuclear Facility Applications"; DOE/RW-0333P, Revision 16, "Office of Civilian Radioactive Waste Management, Quality Assurance Requirements and Description"; the contractor QA requirements of 48 CFR 46, "Quality Assurance"; and List B of the CWI contract. The QA requirements apply to all ICP facilities and services operated, managed, or provided under CWI's contract with DOE with the exception of the Nuclear Regulatory Commission licensed facilities, which is controlled by a separate QA plan.

The ICP QA program establishes controls within its implementing documents that are consistent with the risks associated with the activity and that take into account work to be performed and associated hazards (graded approach). The graded approach is not to be used to eliminate requirements. It also provides sufficient work controls to protect the workers, the public, and the environment. Other relevant factors considered in establishing program controls include the complexity, history, regulatory compliance, environmental impact, investment protection, public perception, best management practices, life-cycle stage, programmatic mission, and particular characteristics of each facility. These concepts are consistent with the ISMS concept of tailoring requirements to the work and associated hazards and balancing priorities while focusing on the safety of the workers, the public, and the environment. The integration of QA within the CWI safety management system is further described in the Manual 13A.

5.2.23 Radiological Controls

In accordance with the Radiological Health and Safety Policy, addressed in PRD-183, "Radiological Control Manual," CWI conducts radiological operations in a manner that ensures the health and safety of all general employees, contractors, and the general public. To achieve this objective, CWI ensures that radiation exposures to its workers and the public and releases of radioactivity to the environment are maintained below regulatory limits and deliberate efforts are taken to further reduce exposures and releases as low as reasonably achievable. CWI implements a radiological control program of the highest quality that consistently reflects this policy. CWI policies ensure that:

- Personnel responsible for performing radiological work activities are appropriately trained.
- Technical competence of personnel responsible for implementing and overseeing the radiation protection program.
- Line management involvement and accountability for radiological performance is established and maintained at all levels
- Radiological measurements, analyses, worker monitoring results, and estimates of public exposures are accurate and appropriately made.
- Operations are conducted in a manner that controls the spread of radioactive materials and reduces exposure to the work force and the general public and that uses a process that seeks exposure levels as low as reasonably achievable.
- Dose reduction, contamination reduction, and waste minimization features are incorporated into the design of new facilities and significant modifications to existing facilities in the earliest planning stages.
- Contractor self-assessments are performed to ensure that requirements are being complied with and appropriate radiological work practices are being implemented.

The Radiological Control Program, which implements the requirements of 10 CFR 835, includes all aspects of radiological control applicable to performing work. It is described in PLN-260, "INL Radiation Protection Program." Implementation of the Radiological Control Program is described in Company Manuals 15A, "Radiation Protection INL Radiological Control," through 15D, "Radiation Procedures." These manuals describe the program and the implementing procedures for controlling exposure to ionizing radiation and for handling radioactive

materials, including those mandated by 10 CFR 835, "Occupational Radiation Protection."

5.2.24 Requirements Management

48 CFR 970.5204-2, "Laws, Regulations, and DOE Directives," requires DOE Environmental Safety and Health requirements to be established as requirements of the contract between DOE and contractors. These requirements are identified and reviewed for determination of applicability to work performed by CWI under its contract with DOE-ID. When a change to existing requirements occurs, CWI communicates impact information to DOE related to the change and requests an equitable adjustment if appropriate. Applicable requirements are incorporated into the ICP contract and implemented through company documents containing work instructions to enable end users to complete work in a safe and compliant manner. Any changes to contract requirements may require changes to both the ISMS description and ISMS implementation. The Requirements Management organization provides requirement information, upon request, to the ISMS program lead, FSMs and SMEs, who then consider actions or changes to the ISMS based on any impacts of changes effected throughout the year to laws, regulations, and directives.

MCP-2447, "Requirements Management," describes the infrastructure for identification, implementation, and compliance with laws, regulations and DOE directives. Compliance with these requirements ensures protection of the health and safety of workers, the public, and the environment; and protection of national security from vulnerabilities and hazards, including those that may arise as company activities and/or missions change. Requirements management facilitates requirements reviews, communicates applicable requirements to affected organizations and areas for implementation, maintains requirements traceability (rolldown), and documents requirements implementation information. Requirements Management is also responsible for maintaining LST-1, "Responsible Managers, Functional Support Managers and Subject Matter Experts."

5.2.25 Training

Training is an essential element of a successful ICP ISMS program. PDD-13, Conduct of Training," and Manual 12, "Training and Qualification," define the standards and guidelines to be used at the ICP for compliant, effective, efficient, and safe training. In addition, training is an integral sub-element of other functional support areas and their overall success. In other words, training is both a horizontal and vertical cross-cutting element of an effective and safe ISMS program.

Line management is responsible for maintaining competence commensurate with responsibility (CCR) which includes position-specific training as necessary for ICP employees. Additionally, managers are

responsible for ensuring employee participation in training and maintenance of qualifications necessary for CCR. Line management is supported in meeting their CCR responsibilities by the ICP training organizations and the direct project training programs (e.g., RWMC, INTEC, D&D); and matrixed or centralized ICP-wide training programs (e.g., radiation worker, hoisting and rigging). In addition, the overall training administration support (e.g., Training Records and Information Network [TRAIN] administration, new hire orientation, vendor training administration, Company Manual 12 maintenance) is provided through a centralized organization under direction of the ICP Training Program Manager, the ICP site training authority. In either case, line management retains ownership and responsibility for the training and qualification process and is supported by the Training programs and organization.

The Instructional Design model for ICP is a systematic approach for performing training. It employs a five-phased approach that defines the work scope and hazards; emphasizes strong preplanning and design; ensures technical, precise and detailed work control and technical accuracy; reinforces safe and accurate work performance (implementation); and integrates a robust feedback and improvement phase. The training five-phased process is called the systematic approach to training (SAT) and includes the analysis, design, development, implementation, and evaluation phases. Company Manual 12 outlines the implementation of this process for the ICP. This closed loop process drives dynamic, constant improvement, while establishing discipline, predictability, and repeatability for developing and implementing compliant, effective and safe training.

5.2.26 Waste Management

The ICP Waste Generator Services (WGS) program is responsible for providing safe, effective, and compliant waste management services at the INL. WGS also provides support to TRU programs for newly generated contact-handled TRU and mixed TRU waste streams. WGS provides full-service, turnkey, professional management of hazardous, low-level, conditional industrial, and mixed low-level waste streams. They also ensure waste characterization-related activities are performed in compliance with all applicable laws and regulations by providing a streamlined approach to waste determination, proactively working with generators to minimize the generation of waste, achieving single-point accountability for management of each waste stream, and improving cost-effectiveness. PDD-1003, “Waste Generator Services Program,” provides the program description. WGS procedures are contained in Company Manual 17, “Waste Management.”

5.2.27 Additional CWI Provided FSAs

The remaining FSAs are significant from an overall management perspective but are primarily administrative and support other FSAs and ISMS.

- **Financial Operations** – provides company accounting and payroll services.
- **Human Resources** – the role of this FSA in achieving competence commensurate with responsibility is addressed in Section 7.3, "Guiding Principle 3 – Competence Commensurate with Responsibilities."
- **Information Technology** –provides support to projects in a number of telecommunication and computer areas.
- **Price Anderson Amendment Act (PAAA) Compliance** – implements a program to identify, report and resolve non-compliances to DOE PAAA Regulation requirements. This also addresses the requirements of DOE O 226.1.
- **Property Management** – implements a system for all government property in the custody of CWI and their subcontractors.
- **Records Management** – supports the management of all CWI records throughout their lifecycle.

6. BUSINESS, BUDGETS, AND CONTRACTS PROCESS

The CWI contract for the ICP is a cleanup contract, as opposed to the previous contracts that were M&O contracts. It is a target cost incentive contract that includes cost and schedule performance incentives as well as reduced fee for not performing work safety. CWI is responsible for planning, managing, integrating, and executing the ICP work scope and furnishing all requisite personnel, facilities, equipment, supplies, and services; except those furnished by DOE as government-furnished services and items, as necessary to successfully perform the work scope in a safe, efficient, and environmentally responsible manner.

6.1 ICP Funding

Funding for the ICP is provided by DOE in amounts described in the contract. The entire scope of work is fully authorized for the duration of the contract through the completion date of September 30, 2012. While the entire contract amount has been authorized, the total funding has not been obligated, since only Congress through its annual budget bills can do so.

CWI provides DOE an Annual Operating Plan that describes planned expenditures for the upcoming fiscal year, based on DOE funding guidance. The DOE, subject to the availability of funds, provides CWI funding for all allowable and allocable incurred costs, as stipulated in the contract. Internal and external Project changes are governed though a formal change control process. Changes that affect ICP Contract scope, schedule, or targeted cost requires a contract modification and approval from the DOE Assistant Secretary of EM.

6.2 Work Definition

CWI utilizes a Project Work Breakdown Structure (WBS) to define all project scope, including indirect activities. Indirect activities are planned and managed in accordance with the same procedures used for direct-funded activities. The WBS is a hierarchical structure of work scope required to complete the ICP and is used to categorize work by project area, assign management responsibilities, and trend and report cost and schedule performance.

All ICP work has been planned and documented in the ICP Site-wide Project Management Plan (ICP PMP) and individual PEPs for each of the Area Projects. The ICP PMP and PEPs are under configuration control until the project is complete with changes only being implemented through an official change control process. The ICP Project Life Cycle Baseline (LCB) consisting of the schedule and cost estimates for completing the ICP has been reviewed by DOE and is used to monitor project cost and schedule performance. The Project LCB takes into consideration hazards, mitigations, and programmatic risks as defined in the Area PEPs. The rigor of planning in the LCB is consistent with the risk, hazards, and complexity of the work.

6.3 Area Project Organization

The organization structure for implementing the Area Projects is a "projectized" structure that is closely aligned and integrated with the ICP Project WBS. Functional disciplines required for project execution are matrixed or deployed to the Area Projects—including environment, safety, and health (ES&H) personnel—creating cohesive and effective project teams. Area Project organization charts identify all responsible levels of management for each organization assigned to perform a portion of the work. This ensures that the same organization responsible for performing the work is involved in the planning and execution of the work—including prioritization and change control. Individuals assigned to projects take daily project direction from the WBS control account and work package managers. PDD-1005 further defines line management and functional area management responsibilities and integration.

6.4 Implementing Controls and Executing Work

The CWI processes for planning, executing and controlling the ICP Project is shown in Figure 5. The processes described in Company Manual 5 were designed to incorporate the requirements of ANSI EIA-748-A (1998 Industry Standard for Earned Value Management Systems) in preparation and support of Earned Value Management System certification reviews in accordance with DOE Order 413.3 (as required by the Office of Management and Budget Circular A-11, "Planning, Budgeting, Acquisition, and Capital Assets," and the federal acquisition regulation).

These business processes have incorporated the DOE ISMS requirements to provide a compliant, consistent, and disciplined method for planning and controlling ICP work scope by which CWI safely and cost-effectively meets the mission of the ICP Contract. Earned Value Management System requirements are rolled down to subcontractors per MCP-1186, "Services Acquisition." Processes for execution of work at the activity level are defined in other company manuals (e.g., STD-101) as shown on Figure 5, not directly part of the PP&I FSA. Reporting of activity work progress is summarized at the Area Project level and reported in ICP project-level reports, as defined in Company Manual 5 processes.

Prioritization and allocation of resources at the Area Project Level is the responsibility of the Area Project Manager. Area Project resource prioritization and allocation issues are addressed and discussed during internal project review meetings, facilitated by PP&I. Company-level level resource prioritization and allocation issues identified during these meetings, executive staff meetings, or during ESRB meetings are resolved by the Executive Management Team, led by the CWI President and CEO.

6.5 Feedback and Improvement

Area Project Managers are responsible for collecting performance status at the ICP WBS work package level and summarizing and analyzing progress at the Area Project Level with the assistance of matrixed PP&I personnel. A PP&I central group of personnel summarize and analyze Area Project monthly performance status at the Project Level (company-level) for analysis, control, and reporting. Project Level reporting includes identification of performance and safety issues and proposed corrective actions.

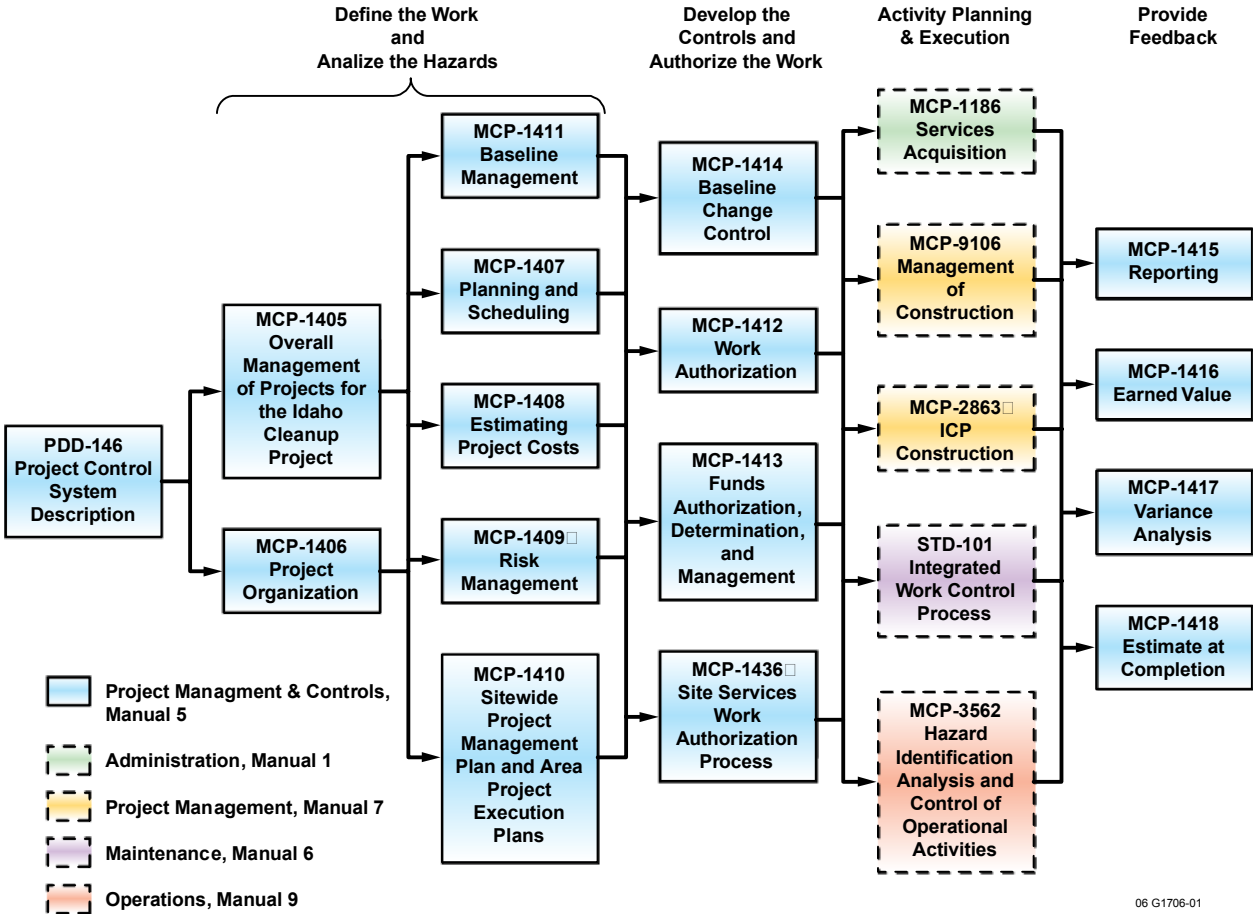


Figure 5. Integration of company and activity level planning and execution processes.

7. INTEGRATION OF SAFETY INTO WORK

Preceding portions of this document have addressed the basic CWI management organization and expectations, functional support areas, and business operations. Requirements for the ICP flow down from the contract are institutionalized at the company level in manuals and procedures, and then implemented by line management using processes prescribed in these documents. This section will address in greater detail the processes for planning and performing work safely at the company, project/subproject/facility, and activity levels. The discussion is organized along the lines of the five core functions and eight guiding principles. Those core functions and guiding principles which are closely aligned are grouped to add clarity regarding integration in the ISMS and also a better understanding for the reader of integrated CWI programs and process; those better described individually, are reflected in that manner (e.g., Line Management Responsibility for Safety, Guiding Principle 1).

Figure 6 depicts how the five core functions are implemented at the company level, the project/subproject/facility level and the activity level.

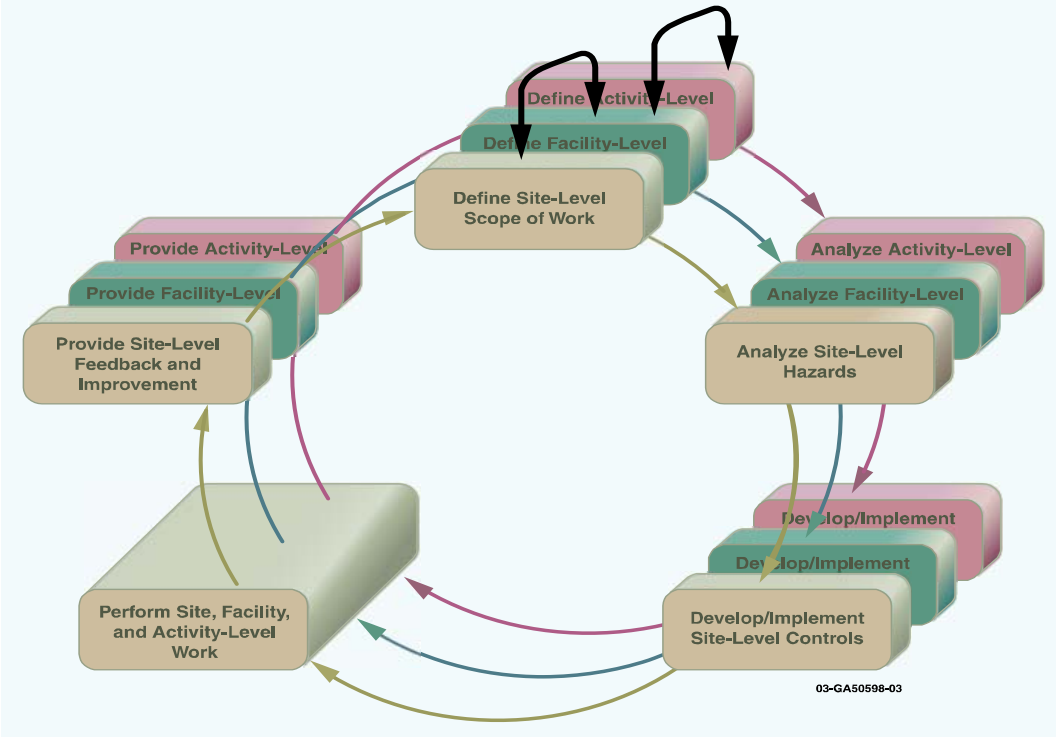


Figure 6. Core Functions at the three work levels.

7.1 Guiding Principle 1 – Line Management Responsibility for Safety

The cornerstone of ISMS success depends on employee involvement and management commitment.

Responsibility for safety clearly rests with line management – line management "owns" safety for CWI and its subcontractors including the responsibility and accountability for safety, safety management, and the integration of safety in business and operations. The line management responsibility for safety runs through the management chain in which work authorization resides.

PDD-1001, "Subcontractor Requirements Program Description," addresses subcontractor line management responsibility for safely performing their work. The company line management structure is identified on the ICP homepage website.

The CWI line management structure consists of the CWI President and CEO, the Executive Vice President and COO, APMs, directors/project managers (D/PMs), and operations management (OM). OM includes department managers, nuclear facility managers (NFMs), facility managers (FMs), and building managers (BMs), and other similar titles. PDD-1005, "ICP Management and Operations Manual," describes the CWI line management structure and, in particular, line management's responsibility for safety. It also describes the relationships and interfaces among line managers. To ensure that line management responsibility for safety is clearly defined throughout the CWI organization, the line management structure is defined to the tenant level. The Tenant Use Agreement process is used to define responsibilities when the management is CWI and the tenant is BEA or vice versa. A summary of CWI's line management responsibility for safety is provided in the following paragraphs.

CWI President and CEO – provides overall leadership and direction. The CWI President and CEO is ultimately responsible for the safe completion of work.

CWI Executive Vice President and COO – provides leadership, direction, and business strategy to implement safe cleanup and closure of designated facilities by managing risks, minimizing costs, and maximizing benefits.

Area Project Managers – are assigned to each of the four ICP projects. APMs are responsible for implementation of company-level safety requirements for their project. Identifying and implementing project-specific safety requirements are also the responsibility of the APMs.

Directors and Project Managers (D/PMs) – support APMs, and provide leadership, direction, and integration for projects and subprojects assigned to the four area projects, including implementing safety requirements. The responsibilities of D/PMs are the same as for APMs, but apply only to the assigned project or subproject.

Operations Managers – implement the CWI goals and expectations for achieving safe, compliant, and efficient operations. OM encompasses titles such as NFM, FM, BM, operations manager, and others. The OM is responsible for ensuring that work is performed safely by implementing and ensuring operations are conducted in accordance with company-level and facility requirements, such as safety basis documents, environmental regulations and permits, and quality assurance program requirements in their respective organization and facility.

Nuclear Facility Managers – are OMs and are assigned the responsibility for the safe operation of the nuclear facilities for which they are assigned in accordance with the safety basis. This includes properly maintaining safety-related structures, systems, and components; overseeing the authorization of work; and assuring that personnel assigned responsibility for command, control and execution are properly trained and qualified.

Facility Managers – have responsibilities similar to those of NFMs for equipment, structures, activities, processes, documents, and personnel for facilities classified as non-nuclear.

Building Managers (BMs) – have responsibilities for equipment and structures in one or more buildings not classified nuclear or non-nuclear.

Deployed Functional Personnel – When functional personnel are deployed to a project, they are part of the line management organization, and report directly to line management. They are accountable to their functional organization for implementing company functional area requirements in project activities. Deployed functional personnel work in areas such as radiological controls, engineering, and maintenance.

Matrixed Functional Personnel – When functional personnel are matrixed to a project they report directly to their functional area management, but take their day-to-day direction from the APM organizations as requested. They are responsible for implementing functional system requirements, in a support role, for their assigned organizations. Matrixed functional personnel work in areas such as quality assurance, environmental management, and project controls. They direct the day-to-day work of matrixed functional employees, as specified in organizational documents, to support project managers.

Due to the unique skills required of functional area personnel and their frequent assignment to line organizations for work accomplishment, interface protocols are established between line and functional area management. This is further described in PDD-1005. Figure 7 shows a conceptual diagram of the reporting relationships of matrixed and deployed functional personnel.

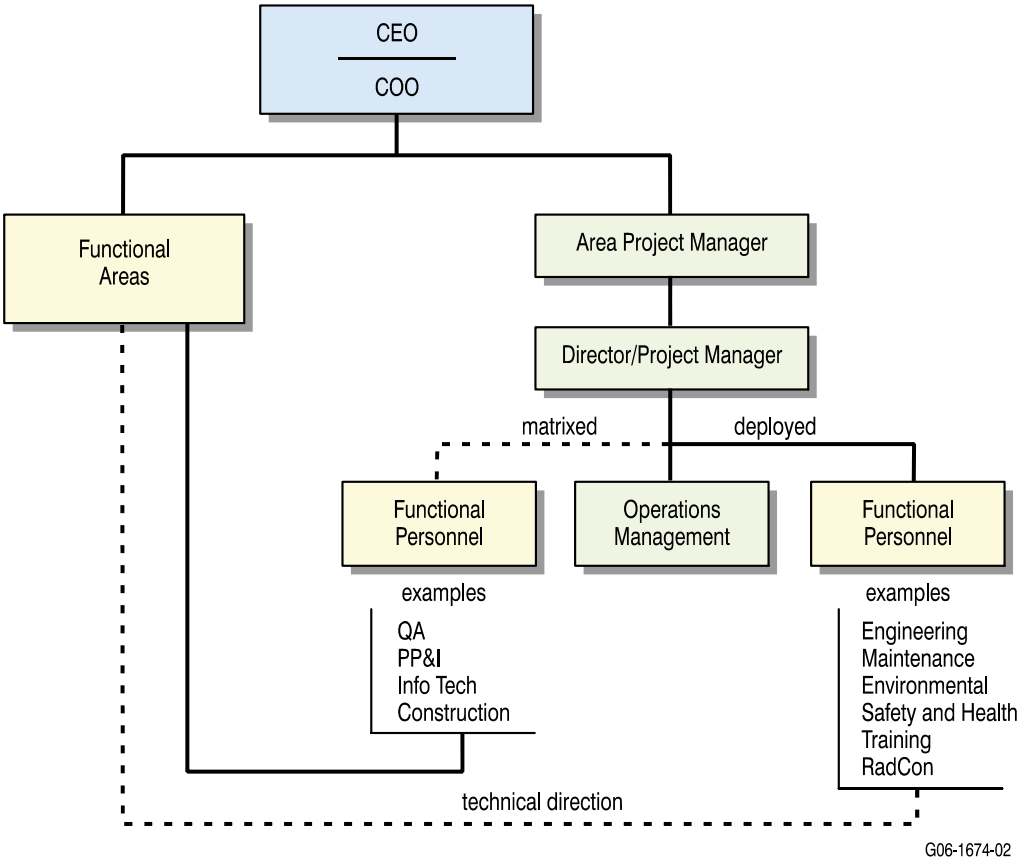


Figure 7. Reporting relationships of matrixed and deployed functional personnel.

7.2 Guiding Principle 2 – Clear Roles and Responsibilities

Work performance expectations for managers and employees are communicated in a variety of ways. General roles and responsibilities for CWI management and employees are described in PDD-1005, "ICP Management and Operations Manual," and in employee position descriptions (PDs).

The CWI functional management structure consists of FSAs and organizations, as described in Section 5, "Functional Support Areas." LST-1 identifies the Responsible Managers, Functional Support Managers, and Subject Matter Experts for each functional support area. These personnel work closely together to ensure implementation of standards and requirements are consistent throughout the company. PDD-1005 further clarifies these roles and responsibilities.

Initially, the contract requirements are translated into company-level manuals, with roles and responsibilities assigned to organizations, managers and individual employees (Figure 8). Roles and responsibilities are further defined at the project/subproject/facility level. Activity level roles and responsibilities are even more prescriptive and are associated with a specific job or activity. Controlled documents provide roles and responsibilities for safe performance of work at the

company, project/subproject/facility, and activity levels. Figure 8 shows documentation used to depict clear roles and responsibilities at each of the work levels.

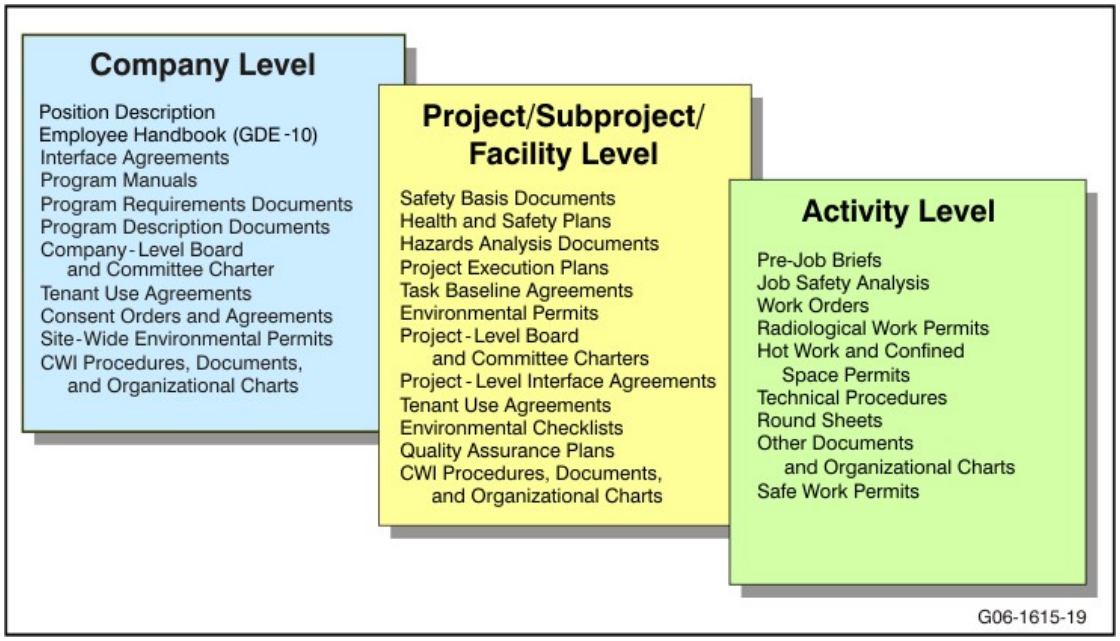


Figure 8. Roles and responsibilities.

7.3 Guiding Principle 3 – Competence Commensurate with Responsibilities

ICP is committed to ensuring that their workforce is fully competent to a level that is commensurate with their responsibilities. Competence commensurate with responsibilities (CCR) is established through the integrated efforts of line management and several FSAs, including Human Resources and Training. ICP workers undergo a process by which they are selected for a specific job with an associated PD and an Individual Training Plan (ITP) that identifies job codes; provides general training, functional training, and area training to meet those job code requirements; and becomes part of a feedback and appraisal process that continuously assesses their performance. As part of this process, the position description identifies the specific entry level requirements (e.g., education, experience, certifications, etc.) for each job, an ITP is developed to address required initial and continuing training and qualification requirements, training in support of new job assignments, including positions of greater responsibility. Line management, as part of their responsibility for employee safety and CCR, determines the training required for each employee and this is reflected in the ITP. Additionally, line management provides oversight of worker performance, which

includes day-to-day work performance assessment up to and including annual performance appraisals for employees that are not part of the represented work force. Development needs (including training) are identified on an ongoing basis and additional training resulting from performance reviews or other feedback input (e.g., lessons learned, occurrence reporting process, Issues Communication and Resolution Environment [ICARE], etc.) are added to the ITP as directed by line management.

Feedback and improvement mechanisms also exist to improve training programs and their implementation. Some examples of this feedback include student course evaluations, self assessment results, PEB assessments, drills and exercises, DOE assessments, etc. This section will provide a description of how ICP ensures worker CCR.

7.3.1 A Need Is Identified

The process begins when an APM or other manager identifies the need for additional human resources to support the ICP mission. Human Resources and line management develop a PD that specifies the job duties and responsibilities and the entry-level requirements for that position. Entry-level requirements include minimum qualification (education and experience), licenses or certifications, or special training or skills for the specific job. It also identifies any other special ES&H requirements. Some of these may become part of their defined training needs if all requirements are not met prior to taking the job. Work is limited to only those tasks where the required training has been completed. For nuclear facilities, DOE Order 5480.20A, "Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities," becomes relevant. The hiring and posting process for the need is implemented in accordance with Human Resources "Management Resource Manual" and other procedures. Job candidates are interviewed by the responsible manager to ensure entry level requirements are met.

Process procedures include the following:

- Management Resources Manual
- MCP-35, "Training Needs Analysis"
- MCP-36, "Job Analysis."

7.3.2 Development of Training

Training is a significant element of CCR and the complete process is described in PDD-13, "Conduct of Training." A systematic approach to training (SAT) is used to ensure that management and employees are integrated in the CCR process. The Instructional Design model for ICP is a systematic approach for performing training. It employs a five-phased approach that defines the work scope and hazards; emphasizes strong

preplanning and design; ensures precise and detailed work control and technical accuracy; reinforces safe and accurate work performance, and integrates a robust feedback and improvement phase. Figure 9 shows the interrelationship of the Training SAT process to the five core ISMS functions and CCR. The training five-phased SAT process includes the analysis, design, development, implementation, and evaluation phases. PDD-13, "Conduct of Training" and Manual 12, "Training and Qualification," outline the implementation of this process for ICP. This closed loop process drives dynamic, constant improvement, while establishing discipline, predictability, and repeatability for developing and implementing compliant, cost-effective and safe training, which supports the competence required to perform work safely.

Job codes include the training and qualification requirements for a specific position that the employee must complete to be considered competent to perform safe and efficient work. Process procedures include the following:

- MCP-42, "Designing Courses"
- MCP-45 "Examination Banks"
- MCP-48, "Instructional Material Development, Revision, and Entry into TRAIN"
- MCP-52, "On-the-Job Training Materials Development."

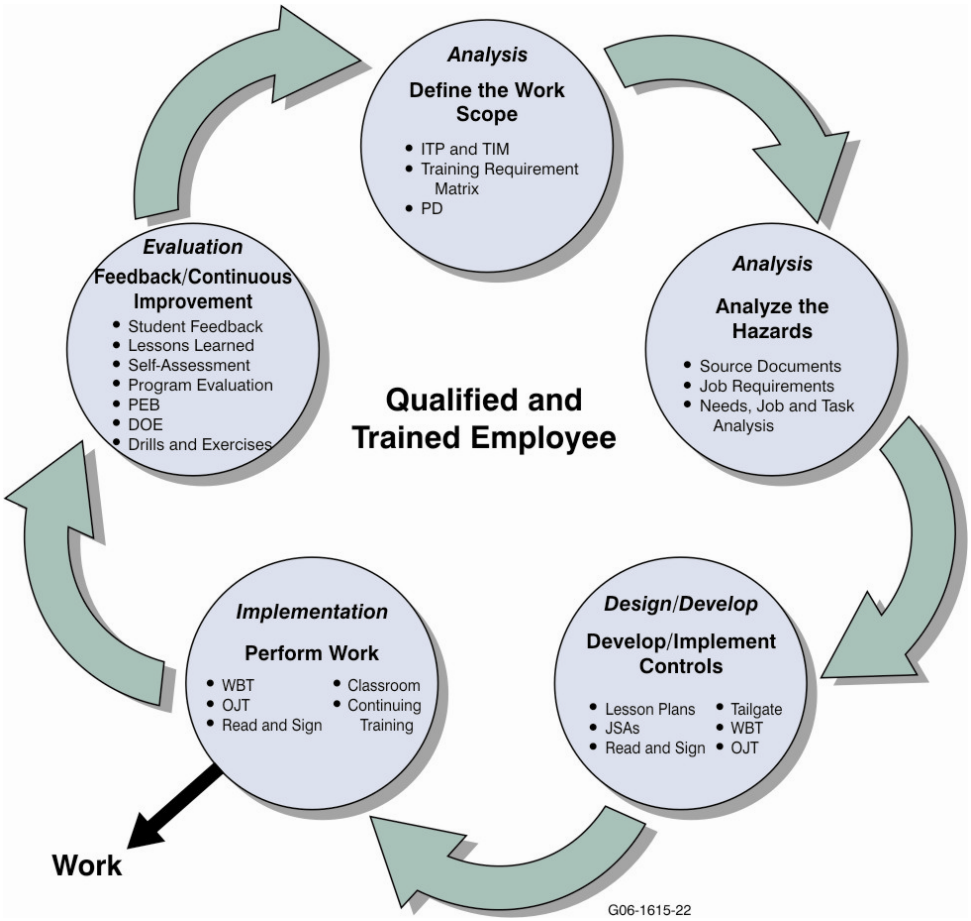


Figure 9. Interrelationship of SAT, ISM, and CCR.

7.3.3 Conduct of Training

Employees are trained based on the needs identified by management, in the PD and/or the ITP. The amount and type of training varies significantly by job type. ICP training is divided into a three-tier hierarchy that includes General Training, Functional Training, and Area Training (Figure 10). This figure also identifies other elements of consideration to ensure CCR. Courses representing these levels are entered on an employee's ITP through the assignment of job codes. The basic training hierarchy is three-tiered:

General Training – Employees complete company training requirements and ESH&Q training such as general employee training, new hire orientation, etc. New employees are indoctrinated on the ISMS process in general employee training. This training includes an overview of the ISMS guiding principles and core functions.

Functional Training – Employees complete company job or task qualifications that are specific to their functional discipline and are qualified on the knowledge and skills required for the specific job. Examples of training in this level include, QA, radiological controls, maintenance, etc.

Area Training – Employees complete project-specific training and/or qualification that is specific to the facilities in a particular area project. Examples include INTEC and RWMC specific training.

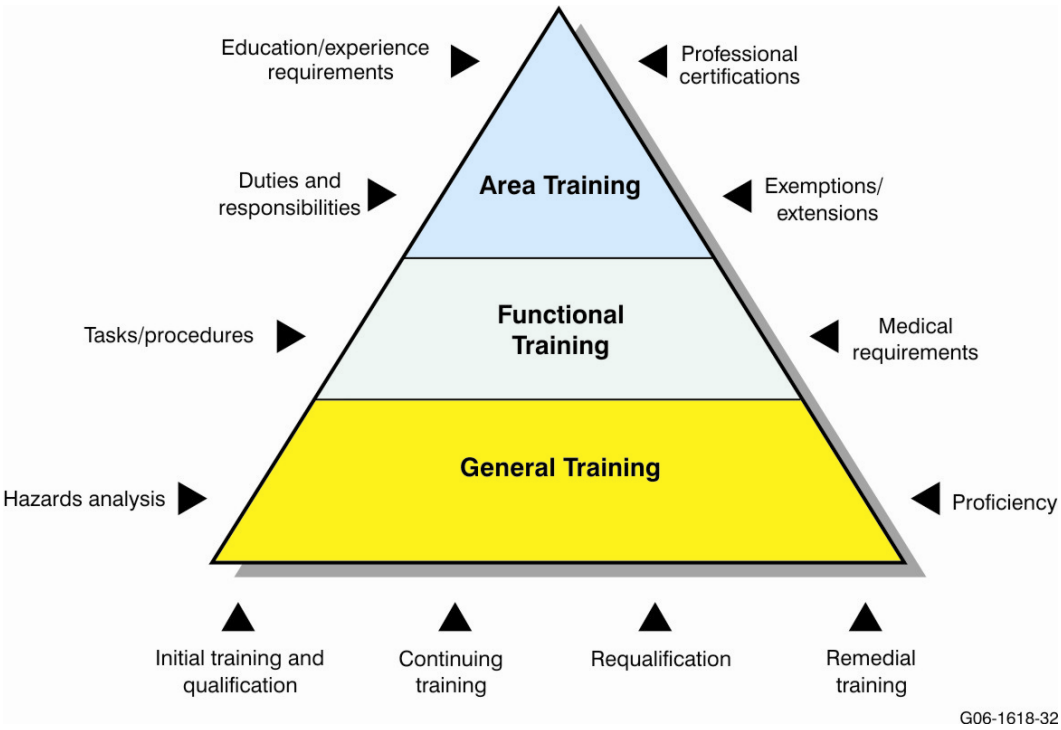


Figure 10. Elements of a training program.

The ICP Training Requirements Matrix lists regulatory-based and other training requirements and drivers. These range from federal laws to management best practices. Additionally, project-specific training implementation matrices exist for work at each nuclear facility in accordance with DOE O 5480.20A, Chg 1, "Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities." These matrices define functional and area training requirements for affected personnel. The completion of training is electronically tracked and documented using the ITP available in TRAIN. Process procedures include the following:

- MCP-29, "Training Staff Qualification"
- MCP-57, "Delivery of Training"
- MCP-61, "Conduct and Evaluation of On-the-Job Training."

It is important to note that subcontractors also meet identified entry requirements and are trained in ICP training courses as necessary to meet the identified training requirements for their specific jobs.

7.3.4 Performing Work

Trained workers perform work as assigned by their supervisors following approved ICP procedures. Workers clearly understand that they not only have the right, but also are obligated to stop work or safety step back at any time if they are aware of the existence of a potentially unsafe condition. This supports the CCR guiding principle by providing workers with the responsibility to stop performing actions for which they are not trained or qualified. Some process procedures include the following:

- STD-1145, "Operations Drill Program Manual"
- MCP-64, "Performance Evaluations"
- MCP-65, "Written Examinations"
- MCP-66, "Oral Examinations."

7.3.5 Feedback and Improvement

Robust feedback and improvement is inherent in the training SAT process. There are several aspects of feedback and improvement that support the CCR process. The information can originate from student feedback, management and independent assessments, event analysis, accident/injury rates, performance indicators and metrics, employee performance appraisals, lessons learned, and line management feedback. As a result, CCR, through this dynamic training process, undergoes continuous improvement by constantly monitoring and adjusting the following elements of CCR:

Worker Performance – The worker's ability to safely complete the duties for which he or she has been trained and assigned to perform is evaluated, including annual performance appraisals. The result of this feedback can result in remedial training, a change in the worker's assigned position description, a change in the individual's ITP and job codes, or increased training to prepare the worker for additional future responsibilities.

Training Program Effectiveness – The overall effectiveness of training is a challenge to measure. ICP utilizes many different feedback elements

to help determine program effectiveness. Training performance metrics (which look at trend data such as ICARE and ORPS with training as the causal factor and/or where training is the corrective action), assessment results, student feedback and other project performance indicators (e.g., safety statistics) are used to evaluate the overall effectiveness of the ICP training program. Feedback provides meaningful data for improving the content and scope of training programs, such as classroom training, web-based training, read-and-sign training, on-the-job training, etc.

Entry Level and Job Code Requirements – In some situations ICP may determine that a change to the entry level requirements, either less restrictive or more restrictive, is warranted based on the feedback and improvement process information. Similarly, it may be determined that the training requirements associated with a particular job code need to be revised.

Some process procedures include the following:

- MCP-61, "Conduct and Evaluation of On-the-Job Training"
- MCP-68, "Training Program Evaluation"
- MCP-72, "Incorporating Change Actions into Training"
- MCP-73, "Incorporating Lessons Learned into Training."

7.4 Guiding Principle 8 – Worker Involvement

Worker involvement is a key to the success of CWI's ISMS (Figure 11). Workers are actively involved in the planning processes and in executing work, as well as in providing feedback to management initiating improvements as necessary. Workers contribute to the hazard identification and modification processes in a number of ways (e.g., inspections, planning work activities, self assessments, corrective actions, behavioral observations, direct feedback to management, procedure review, Hazard Evaluation Groups (HEGs), and reporting deficiencies).

In further establishing a "safe-work culture" at ICP, workers are encouraged by line management to be actively involved in safety and to participate and contribute to the overall safety program. Work activities are undertaken with full understanding by each employee involved that they are individually responsible for their own safety and the safety of others.

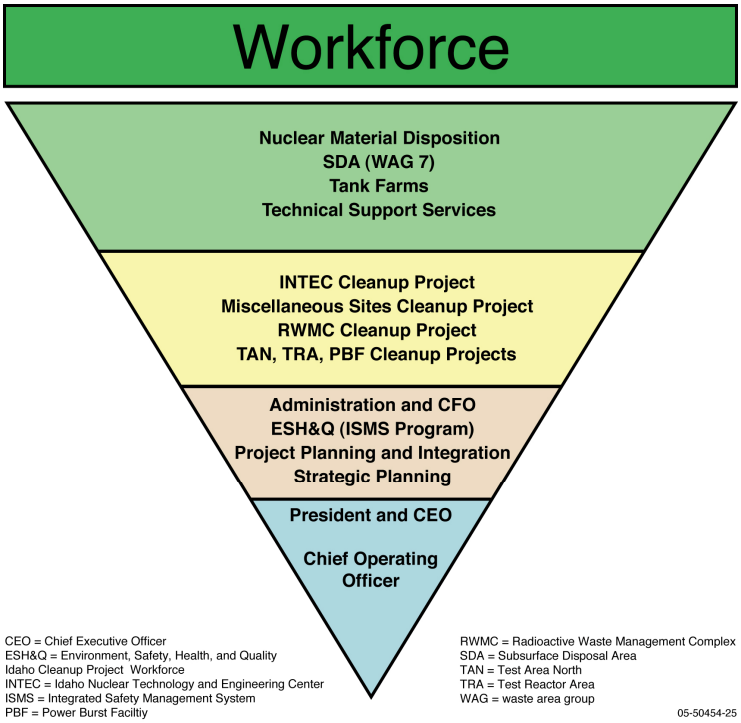


Figure 11. Guiding Principle 8 – Worker Involvement.

The PMP, ICP/EXT-05-01082, addresses CWI's management approach and states, "Our belief is that a workforce actively engaged in planning work, competently guided and motivated by its first-line supervision, and recognized by management will deliver beyond expectations. Our management approach creates an environment where everyone is proud of their accomplishments and of those working around them." ISMS "is woven through the management structure."

7.4.1 Voluntary Protection Program

VPP is a critical component of CWI's ISMS. As a result of a DOE-Headquarters on-site review conducted in April 2001, the INL received VPP Star status in July 2001. The INL was re-evaluated in 2004 and recently in May 2006 and its Star status was maintained. PRD-5119, "The Program Requirements for the Voluntary Protection Star Process at the INL," documents the basic programmatic elements of the VPP program. The VPP program vision is to empower individuals to actively care for their own safety and the safety of their fellow employees, with the goal of creating a healthy work environment free from occupational injury and illness. CWI's VPP policy is that all work activities at the ICP will be conducted in a safe, compliant manner; preserving and protecting our workforce, resources, environment, and our communities. Management and personnel are taught through the VPP that they have a right to:

- Willingly participate in the identification and resolution of safety and health issues
- Report or stop unsafe acts and conditions without fear of reprisal
- View the results of accident/incident investigations, and safety and health inspections
- Become actively involved in creating a workplace that is free of injury and illness.

As part of the VPP program, the Company Employee Safety Team (CEST) provides an avenue for employees, regardless of their level of responsibility, to contribute to and promote continuous improvement in the safety and health program. As described in the CEST charter, this team further promotes worker involvement by:

- Soliciting and encouraging employee involvement in, and provide direction to, safety and health programs and awareness activities
- Developing and submitting solutions for company-level safety concerns/issues to senior management
- Utilizing company level safety and health trending data and establish actions as appropriate
- Establishing, annually, CEST specific safety and health goals and action plans
- Serving as the communication pathway between the project ESTs and senior management.

The ESTs at each project provides a forum for workers to meet and discuss important safety issues, and further integrate information regarding hazard prevention and mitigation, and controls for the members and senior management.

7.4.2 COBRA

Changing Our Behavior Reduces Accidents (COBRA) is the behavior-based safety process that is critical to eliminating at-risk behaviors and driving down injuries. In conjunction with CWI's human performance process, it brings the VPP safety culture to the next level. The heart of the COBRA program is a behavioral observation and feedback process in which employees routinely observe one another while performing daily work activities. COBRA is owned by the workers, with management support, and is a process that proactively helps to change behaviors that cause significant events. A COBRA team that functions as a subcommittee reporting to the CEST directs the program, develops and implements COBRA tools and mechanisms, and actively promotes worker

involvement. The focus on at-risk behaviors and error-likely situations helps build an even stronger foundation of safety excellence.

7.4.3 Other Worker Involvement Programs

Other CWI programs ensure that employees are aware of their roles and their responsibilities in regards to safety:

- Workers actively participate in developing and changing the procedures or work guidance documents they are required to follow.
- Workers clearly understand that they not only have the right, but also their obligations to stop work or safety step back (MCP-553, "Step Back and Stop Work Authority") at any time if they are aware that a potentially unsafe condition exists.
- Workers are taught to understand that they are required to follow established procedures or work guidance documents for the work being undertaken through a number of mechanisms such as training, and documented procedures, as described in the following examples.
  - MCP-2985, "Chapter XVI – Operations Procedures," applies to operations and requires operations personnel to review operations procedures, to use and follow procedures as written and to initiate operations procedure changes as appropriate.
  - MCP-3450, "Developing and Using Job Safety Analysis," requires employees to perform work in accordance with the terms of Job Safety Analysis (JSAs) and all other applicable work-control documents.
  - MCP-3447, "Developing and Using Safe Work Permits," Ensure all employees understand the work scope, identified hazards, and agree to work within the task scope and hazard mitigation outlined on Safe Work Permits (SWP).
  - STD-101, "Integrated Work Control Process," requires workers to follow procedures and work control documentation as provided.
- Workers participate in pre-job planning through several mechanisms.
  - MCP-3562, "Hazard Identification Analysis and Control of Operational Activities," applies to operations and describes the ISMS functions for identifying hazards, analyzing hazards, identifying standards and requirements, identifying controls to prevent/mitigate hazards, and establishing safety controls. Additionally, it provides the method to ensure that quality is maintained for those activities in which quality requirements are

affected. Workers participate in the Hazards Evaluation Groups that this MCP addresses.

  - MCP-3003, "Performing Pre-Job Briefings and Documenting Feedback," applies to all personnel performing or supervising operational, maintenance, or construction work activities, and includes the requirements for performing pre-job briefings. This MCP requires that all workers actively participate in the pre-job briefing to assure all participants understand scope of work, hazards, mitigations, and responsibilities before commencing work, and that they provide feedback on the conduct of work performed.
  - STD-101, identifies the roles and responsibilities, the methods of work control, and the methods for integrating safety management into maintenance and project work order activities. This standard applies to work performed by maintenance crafts, construction personnel, subcontractors performing maintenance work, and persons performing maintenance support activities, and emphasizes worker involvement in the work planning and verification of task basis steps and hazards identification, through team planning and walk downs.

- Workers are encouraged to present Safety Shares at meetings.
- Workers participate in many of the councils, committees, boards, described in earlier in Section 3.5, for example the Hoisting and Rigging and Electrical Safety committees.
- All personnel, employees, and subcontract employees are encouraged to participate in the feedback and improvement processes described in MCP-3003 and STD-101.
- On an annual basis, each employee establishes and documents personal safety goals through use of Form 331.14, "ICP Employee Safety, Health, & Security."
- Workers are encouraged to have ergonomic and industrial evaluations of their workstations.
- Workers are expected to attend Safety Presentations.

7.5 Core Function 1 – Define Scope of Work and Guiding Principle 4 – Balanced Priorities

A well-defined scope of work, at the company, project/subproject/facility and activity levels, is crucial to the success of the ISMS process because it:

- Sets the stage for the scope and depth of hazards identification analysis, and work controls
- Is the primary factor in establishing expectations and accountability

- Is the foundation for the budget formulation allocation process to determine key ES&H resources.

7.5.1 Defining Work/Balancing Priorities at the Company Level

At the company level, CWI's scope of work for the length of its cleanup contract is defined in the contract with the DOE. CWI has developed a life cycle baseline (LCB) describing activities to be accomplished in achieving the contract scope of work. CWI has responsibility for performance under the contract, including determining specific methods for accomplishing work safely.

As described in Section 1, "Introduction," CWI's scope of work is broad in that it includes not only require safe environmental clean up of the INL, but it also includes safe management and operation of a number of facilities, which will continue to operate to fulfill a mission within the DOE Complex after accomplishment of the cleanup work. The ICP PMP, ICP/EXT-05-01082, further documents and defines that work scope. This PMP clarifies that CWI's prioritization process emphasizes ISMS compliance while strategically balancing priorities. An overview of development of the baseline is also included in this plan.

The ICP PMP is a high-level document and represents the technical baseline for the ICP. The ICP PMP, defines key cleanup initiatives, project objectives, requirements and constraints, assumptions, risks, management strategy/approach, and controls. When accompanied by a supporting schedule and cost estimate, the PMP is the primary tools for documenting and communicating the baseline plan for ICP project.

Work Breakdown Structure – The work breakdown structure (WBS) identifies all project work from the total project level (WBS Level 1) to the work package level (WBS Level 5). The WBS is part of the ICP baseline and forms the basis for planning, controlling, measuring performance, and reporting on the project. Planning, scheduling, and cost estimating of work at the lowest levels of the WBS provides the basis for detailed work execution plans, budgets, and work authorizations. The WBS may be expanded below WBS Level 5 by the APM to the lowest level at which the work is done; however, there is only one WBS for the ICP. The WBS is maintained for the management of the ICP throughout the life of the contract. MCP-1406, "Project Organization," defines the process for developing and maintaining this structure. Changes to the WBS Levels 1–5 require formal change control and are subject to MCP-1414, "Baseline Change Control."

Baseline Development – Baseline schedules are integrated into a total ICP baseline schedule, and baseline costs are integrated into the total estimated cost for the ICP. Planning for the ICP involves a rolling-wave concept, where the current and upcoming execution year

work plans are detail-oriented. Conversely, due to a lack of detailed information to support the detailed planning process, out-year plans contain more summary detail. Out-year planning documented in the ICP baseline is used to support the out-year budget request process.

7.5.2 Defining Work/Balancing Priorities at the Facility/Project Level

An overview of the work scope and baseline of the CWI Projects is described in Section 1, "Introduction," and are given in ICP/EXT-05-01082 and in the individual PEPs for each of the area projects:

- PLN-2084, "Project Execution Plan for the INTEC Area Cleanup Project"
- PLN-2085, "Project Execution Plan for the ICP RWMC"
- PLN-2086, "Project Execution Plan for the ICP TAN/RTC/PBF Project"
- PLN-2087, "Project Execution Plan for the Miscellaneous Sites Cleanup"
- PLN-2088, "Project Execution Plan for the ICP Indirect Project."

Project PEPs represents the technical baseline for the projects and subprojects as the company PMP, ICP/EXT-05-01082, does at the company level described above. Projects' PEPs are based upon defined control accounts, which are authorized when the PEPs are signed by the appropriate project manager. These PEPs meet the objectives and requirements for execution plans explained in DOE M 413.3-1 Section 5.6, "Project Management for the Acquisition of Capitol Assets, Project Execution Plan." All area projects' PEPs are developed and written in a manner that is consistent with the ICP PMP while providing greater detail. Key elements of the PEPs are projects' work breakdown structures, schedules, cost estimates, and funding requirements. Budgets are established and controlled, as described in Section 6, "Business, Budgets, and Contracts Process."

At the facility/project level, identification of the work scope begins with the identification of requirements. The applicable requirements depend upon the life cycle of the facility, such as Planning phase, Design phase, Construction, and Operations phase. The PEP is developed in accordance with Manual 5 and continues through the projects' life-cycle activities as appropriate. As a facility or project transitions through these life cycle phases, the applicable requirements from company-level manuals will change. For example, a project in the Operations life cycle phase will have a different set of applicable requirements than a project in the Design life cycle phase due to the substantial differences in the types of work being performed.

Estimated labor and non-labor resources required to perform the work scope are identified during the planning process. Labor requirements include skilled labor and supervisory requirements, as well as technical personnel (such as procedure writers, training support, and engineers) and ESH&Q personnel (such as nuclear safety engineers, radiological engineers and technicians, and industrial hygienists) are part of the LCB.

Based on the work scope and complexity of subprojects, these projects may also develop PEPs. For example, PLN-1963 is the PEP for the Sodium-Bearing Waste Treatment Project, a subproject of the INTEC project. The PMP defines key cleanup initiatives, project objectives, requirements and constraints, assumptions, risks, management strategy/approach, and controls.

Scoping activities for Federal Facilities Agreement and Consent Order (FFA/CO) pre-ROD work associated with CERCLA activities include:

- New site identification processes, as addressed in MCP-3448, "Inclusion of New Sites Under the Federal Facility Agreement and Consent Order"
- FFA/CO remedial investigations, as addressed in PRD-302, "Performing CERCLA Administrative Activities," and by sampling and analysis plans prepared using MCP-9439, "Environmental Sampling Activities at the INL"
- CERCLA non-time-critical removal actions (NTCRAs)
- CERCLA time-critical removal actions (TCRAs).

Scoping activities for FFA/CO Post-ROD work associated with CERCLA activities are addressed in PRD-302 and GDE-72, Remedial Design and Remedial Action. GDE-72 provides guidance for completing the Remedial Design/Remedial Action scoping process, which begins during the Remedial Investigation/ Feasibility Study or the planning stage of an interim action. The strategy for managing the RD/RA is established in the RD/RA Scope of Work.

Scoping activities for RCRA Closures for hazardous waste treatment, storage, and disposal facilities at the INL are addressed in implementing instructions in MCP-3480. HWMA/RCRA closure plan scoping for treatment, storage, and disposal facilities (TSDFs) is performed per instructions in MCP-409, "Closure Plans for Hazardous Waste Management Act Facilities." Additionally, RCRA closure plans for Voluntary Consent Order (VCO) activities at the INL are also addressed in GDE-286, "VCO Project Managers' Handbook."

Scoping activities for work associated with meeting the VCO are addressed in the VCO Action Plan (included in the "Consent Order") which documents each covered potential RCRA noncompliance, the

actions required to demonstrate the status, and the agreed-upon milestones to ensure that the noncompliance is addressed in an adequate timeframe.

Scoping activities for decommissioning and demolition of structures at the INL Site may be conducted under one of two alternative paths. In accordance with a 1995 Memorandum of Agreement between DOE and Environmental Protection Agency (EPA) and as addressed in PRD-4001, PRD-5030, PRD-302, and MCP-3480, DOE may conduct D&D of a structure under authority of a CERCLA NTCRA, including preparation of an Engineering Evaluation and Cost Analysis (EE/CA), public comment on the EE/CA, and then issuance of an Action Memorandum decision document. As soon as DOE determines to follow the CERCLA path, it may direct the ICP Contractor to perform preparatory actions, although such actions will be subject to direct regulation of all appropriate environmental laws (such as those regulating asbestos abatement). Once the Action Memorandum is issued, all activities in fulfillment of the Action Memo come within the prerogatives of CERCLA response actions, including exemption from direct regulation of permitting and procedural and enforcement requirements of other environmental laws for activities carried out "onsite" at the INL, such as allowing disposal of wastes generated during the removal action into the Idaho CERCLA Disposal Facility at INTEC.

The second alternative pathway is to, first, fulfill the environmental planning and assessment requirements of National Environmental Policy Act (NEPA), and, second, proceed with the D&D work, in full compliance with all applicable environmental regulations (e.g., asbestos abatement, RCRA hazardous waste management, air pollution, water pollution, and protection of natural and archeological resources), including obtaining permits as addressed in PRD-5030 and MCP-3480. Subcontractor requirements are contained in PRD-4001, which flows down from PRD-5030. NEPA prohibits any action committing resources to a proposed action prior to the formal NEPA decision (either a Finding of No Significant Impact or Record of Decision) being issued. The relative efficiency of the two pathways depends on the particular circumstances of the structure undergoing D&D.

7.5.3 Defining Work/Balancing Priorities at the Activity Level

As it is at the company and facility/project levels, identification of the work scope at the activity level (e.g., retrieval of waste, treatment of waste, testing of components, operations, construction, maintenance, etc.) begins with the identification of requirements. These requirements are specific to the activity and are defined and managed through the hierarchy of systematic work planning processes. Project work scope is translated and divided into specific activities and tasks as needed to safely accomplish the overall project scope. Line management prioritizes and

schedules work activities so as to ensure the work can be performed safely by trained and qualified workers following accurate work control documents. Requirements associated with each activity and related tasks are identified by using work control processes through the integration of FSAs, with the support of technical experts (e.g., Subject Matter Experts) and with input from workers. This process includes the hazards identification and mitigation processes described below in Section 7.6.

Activity specific requirements are incorporated into work control documents (e.g., Technical Procedures, Job Safety Analyses, Work Orders), which workers use to accomplish the work scope of the activity. A graded approach may be taken in the level of effort required to plan and develop activity specific documentation depending on the level of risk and complexity of the activity. For example, an activity with a higher level or risk may be tested through the use of cold tests where activities are mocked up and work scope documents for specific activities are tried in a dry run prior to actual work being authorized.

The scope of hands-on work falls into one of five categories: operations, maintenance, construction, environmental remediation, and D&D. Work documentation is prepared in accordance with the appropriate controlling documentation and approved by the responsible line manager (e.g., MCP-3447, MCP-3450, MCP-3562, and STD-101 each have instructions for preparation of documents used to control work). Each new task is evaluated against the facility's approved Authorization Basis in accordance with procedure MCP-123, "Unreviewed Safety Questions."

7.6 Guiding Principle 5 – Identification of Safety Standards, and Requirements

Requirements flow down from the source requirement documents to the company-level documents and then on down to the project-specific documents. The company-level requirements are contained in manuals as discussed in section 5 for the ICP FSAs. These requirements are incorporated into appropriate implementing documents, and tailored to the lifecycle phase of the facility. Figure 13 shows how requirements are managed at all levels of the Company.

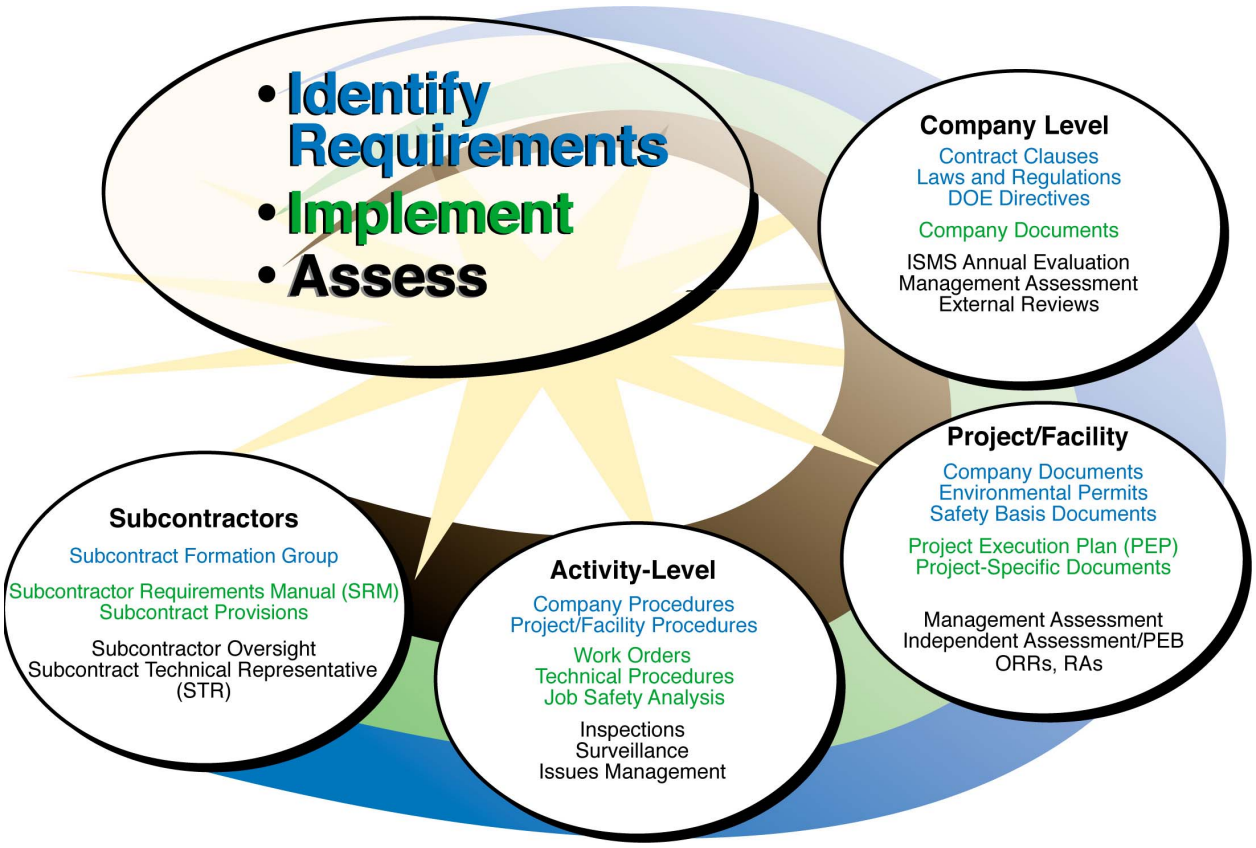


Figure 12. ICP requirements management.

Identification of safety standards and requirements begins with the development of a set of requirements primarily identified in laws and regulations (formerly known as "List A") and DOE directives, List B contained in the DOE and CWI contract (DE-AC07-05ID14516), but includes other requirements identified in such overarching documents as the scope of work and contract clauses. These requirements form the basis for the development of work processes, guided by the ISMS guiding principles and core functions that permeate the CWI organization from senior management, through the projects/facilities, and activities to the worker, with a primary focus on the worker. List B can be found on the CWI intranet, and includes the DOE directives that contain requirements relevant to the scope of work under the contract. In most cases, the requirements applicable to the contract are contained in a Contractor Requirements Document attached to the DOE directive.

MCP-2447 establishes and sets forth the processes whereby CWI ensures requirements such as laws, regulations, and DOE directives are evaluated and, if applicable, integrated into implementing documents and affected work processes. Programmatic requirements flow down from contractual requirements and from applicable laws, regulations, consent orders, environmental permits, and industry standards. Company-level programs that implement these requirements are

institutionalized by the FSAs through company-level documents (incorporated in company-level manuals), which define the roles and responsibilities for implementing the associated requirements. The institutionalized requirements documents include a strong focus on the responsibilities of line management for functional area performance.

MCPs, technical procedures, analytical chemistry laboratory procedures, analytical chemistry methods procedures, and emergency, abnormal operating, and alarm response procedures include procedure basis consisting of requirements, significant operating practices, and relevant research information that serve as the foundation, or basis, for developing a procedure. As a tool for authors, managers, reviewers, trainers, and procedure users, the procedure basis ensures that a procedure meets the letter and spirit of the requirements implemented in the procedure. Because procedures are living documents, subject to change, the procedure basis also serves as the primary tool to protect the technical accuracy and integrity of the procedure during the revision process. STD-7, "Procedure Basis Development," explains how the procedure basis are developed and used.

7.7 Core Function 2 – Identify and Analyze Hazards; Core Function 3, Develop and Implement Hazard Controls; and Guiding Principle 6 – Tailoring Hazard Controls to the Work

Controlling identified hazards begins with identification of applicable standards and requirements derived from a number of sources. These standards are used to determine the minimum level of controls to be in place before work is authorized to be performed. As described in Section 5, "Functional Support Areas," and further reiterated throughout this document, CWI uses a management structure that includes FSAs with technical experts who work together to ensure identification and integrated implementation of requirements throughout the company—including those from safety standards.

Hazards are identified throughout the life-cycle of a project/subproject/facility beginning with design phase of the lifecycle and continue through the other applicable phases (e.g., design, procurement, construction, testing, maintenance, operations, and D&D). Appropriate controls for the hazards, associated with the various phases of the project's/facility's life cycle, are identified and implemented as appropriate. These hazards may go up and down in level of risk during each of the phases, which may cause the level of necessary hazard controls to also go up or down as appropriate. Thus coordination and integration throughout the project's/facility's life cycle with the applicable FSAs is a critical component in managing the risks and protecting the workers, the environment and the facilities.

The objective of hazards analysis is to develop an understanding of the potential for a hazard that may affect the worker, the facility, the public, or the environment and to develop a seamless hazard analysis covering company/site-level functions, project/subproject/facility level functions and activity-level functions. Hazards are

analyzed at project/subproject/facility and activity levels for work activities (such as maintenance, construction, operations, and D&D).

After the associated hazards are identified and before work is performed, various forms of hazard analysis are used to develop appropriate controls. Developing and implementing hazard controls include:

- Identifying applicable standards and agreed-upon sets of requirements
- Identifying appropriate controls to prevent or mitigate the hazards
- Establishing boundaries for safe operations through a defined safety envelope
- Implementing and maintaining configuration of controls.

Barriers and/or controls against hazards take a variety of forms. The hierarchy of controls (engineering, administrative, and personnel protective equipment controls) outlined in DOE Order 440.1A, "Worker Protection Management for DOE Federal and Contractor Employees," is used to establish the controls to be used and is applied in a risk-based manner.

Controls, developed, implemented, and maintained for projects and activities, are tailored to the associated work being performed. These controls are also integrated with controls and commitments established by the FSAs at the company level. For instance, radiological protection controls established and implemented at the project/subproject/facility and the activity levels are integrated with the company Radiological Controls Program. The same is true for hazards and controls associated with industrial safety, nuclear safety, environmental, and other types of FSAs.

A rigorous, effective and streamlined work control program is a critical success factor for ICP execution. Work control is an integral part of daily operations within the projects and is an effective tool for preventing accidents by ensuring that no unanalyzed or unauthorized work is performed. Work control provides a disciplined approach to defining and evaluating the hazards prior to the performance of new activities.

The IWCP ensures that work activities receive the appropriate level of safety planning, based on each activity's complexity and hazards. This graded approach means that repairing stairs at an uncontaminated office building requires a lesser degree of safety planning than removing a primary component from a reactor system.

The development and implementation of operational controls are typically derived from the hazards analysis and transferred into work control documents. The work package process establishes the development of specific controls, such as radiological controls defined in a radiological work permit. Each emergent activity is defined and a graded hazard assessment is performed. Hazards assessments are used to verify the adequacy of facility-level control set established by the Authorization Basis, and to ensure safe performance of work. If

the activity and its hazards are not within the scope of the Authorization Basis, the Unresolved Safety Question Determination process is invoked.

Hazards associated with the work performed for ICP Projects are identified, analyzed and controlled through a variety of mechanisms, as described below, depending upon the type of project, the associated facility(s) and/or the activities involved. Those mechanisms are described below and arranged according to company level, project/subproject/facility level and activity level.

7.7.1 Hazard Analysis and Control at the Company Level

At the company level, the hazard analysis and control processes to be utilized at all work levels are established and described in company manuals, which includes PRDs and MCPs. The primary companywide manuals that address management of hazards associated with the ICP include:

- Manual 2, "Hoisting and Rigging"
- Manual 5, "Project Management and Controls"
- Manual 6, "Maintenance"
- Manual 7, "Construction Project Management"
- Manual 8, "Environmental Protection and Compliance"
- Manual 9, "Operations"
- Manuals 10A "Engineering and Research Configuration Management, Engineering Design, Research and Development"
- Manual 10B, "Engineering and Research – Safety Analysis, Criticality Safety"
- Manual 12, "Training"
- Manuals 13A, "Quality Assurance Program"
- Manuals 14A and B, "Safety and Health"
- Manuals 15A-D, "Radiological Protection"
- Manual 16A, "Emergency Preparedness Base Plan"
- Manual 17, "Waste Management"
- "Subcontractor Requirements Manual."

There are a number of hazard analysis and control processes that are performed at the company level. Generally these processes establish requirements and methods for safely performing work at the facility/project level and the activity level. Functional support managers, subject matter experts, and functional support personnel ensure these hazard analysis and control processes are implemented for ICP. A later

discussion on feedback and improvement will explain how these processes undergo continuous improvement. The company level hazard analysis and control programs including the following:

- Development of ICP company level project management plans for the cleanup of the site (PMP, ICP/EXT-05-01082)
- Categorization of facilities based on hazards (e.g., nuclear, non-nuclear) (MCP-2446, "Controlling Lists of ICP Nuclear Facilities and Nuclear Facility Managers")
- Development of site-wide safety basis documents (e.g., SAR-100)
- Defining the processes for performing safety analysis work at the facility/project level (i.e., developing documented safety analysis, Unreviewed safety question determinations) (MCP-2449, MCP-123)
- Establishing environmental programs and systems for project/facility level work and activity level work to ensure regulatory and permit requirements are met (e.g., PRD-5030, "Environmental Requirements for Facilities, Processes, Materials, and Equipment," PRD-302, "Performing CERCLA Administrative Activities," and MCP-3480, "Environmental Instructions for Facilities, Processes, Materials, and Equipment").
- Defining the process for the startup/restart of nuclear facilities to meet DOE O 425.1C requirements (MCP-2783, "Startup and Restart of Nuclear Facilities")
- Defining the process for performing work and associated hazard analysis at the activity level (e.g., STD-101 and MCP-3562)
- Establishing the criticality safety controls, which is used for hazard analysis at both the facility/project level and the activity level (e.g., criticality safety evaluations, identification of controls in operating procedures) (PRD-112, "Criticality Safety Program)
- Operations requirements for safely performing lockout/tagouts and maintaining safety equipment (Conduct of Operations manual)
- Defining the hazard analysis and control requirements implemented by Engineering to support facility/project level work (e.g., design activities) and activity level work (e.g., work packages)
- Developing emergency response requirements for facility/project implementation.

Similar examples exist for Quality Assurance, Radiological Controls, Fire Protection, Waste Management, and others. Reference should be made to

company manuals for a complete understanding of all the company level processes and programs associated with hazard analysis and control.

7.7.2 Hazard Analysis and Control at the Facility/Project Level

Hazard analysis and control processes at the facility/project (and sometimes subproject) level establish the safe bounds by which work can be performed safely at that specific facility or project. These processes follow the requirements established by the company manuals with a focused emphasis on the hazards unique and specific to the facility/project. Some example hazard analysis and control documents developed at the facility/project level include the following:

- Safety Analysis Reports and Technical Safety Requirements (MCP-1176, "Safety Analysis Process," and MCP-2449, "Nuclear Safety Analysis")
- Engineering technical and functional requirements that serve as the project baseline
- Facility emergency preparedness hazards assessment
- Project environmental hazards and controls (e.g., LST-96, "Environmental Aspects of ICP Work Activities," and Environmental Checklists)
- Facility fire hazards analysis document (MCP-579, "Performing Fire Hazards Analysis," and MCP-583, "Performing Fire Safety Assessments Abbreviated Fire Assessments")
- Facility/project industrial hygiene exposure assessments (MCP-153, "Industrial Hygiene Exposure Assessment")
- Facility Hazards List for work planning (MCP-6202, "Maintenance and Use of the Facility Hazards List")

These facility/project level documents can be thought of as establishing the hazard analysis and control baseline for a facility or project. As such, each is maintained to accurately reflect the hazards and controls within the facility/project. Company manuals address the change control processes for these documents. Activity level work is performed within the bounds of these documents to ensure safety of the workers and protection of the environment.

7.7.3 Hazard Analysis and Control at the Activity Level

Ensuring hazards are analyzed and proper controls established to support work at the activity level is one of the fundamental objectives of ISMS. Injuries to workers and environmental insults occur at the activity level. Much of the company level and facility/project level work activities are intended to support the safe performance of work at the activity level.

Failure of the established programs/processes to protect the worker or the environment is not necessarily due to simply a problem at the activity level, but often represents a failure to fully establish the ISMS guiding principles in the company.

Work at the activity level is performed either by following a written procedure (e.g., technical procedure) or by utilizing a work control document developed as part of STD-101, "Integrated Work Control Process." These work control documents include minor work, expedited work, planned work orders, and project work orders (primarily utilized by Construction).

STD-101 Integrated Work Control Process

STD-101 uses the Hazard Identification and Mitigation (HIM) process to guide the work planner through the analysis and control of hazards for construction, maintenance, D&D, and environmental remediation activities. The HIM process includes the following elements directly associated with hazard analysis and mitigation control:

- Development of a complete and accurate scope of work statement
- A review to verify skill-of-the-craft
- A review of hazards found in the Facility Hazard List
- Development/use of JSA (where applicable per STD-101)
- Review of lessons learned pertinent to the work scope
- Expedited Work Hazards Analysis Matrix
- Hazards Profile Screening Checklist (HPSC) for Planned and Project Work Orders (GDE-6212, "Hazard Mitigation Guide for Integrated Work Control Process," provides a manual backup to the HPSC)
- Final interactive WO review meeting (when applicable)
- Planning and workability walk downs
- Pre-job briefings
- Operations Approval, Authorization and Release.

For Planned and Project Work Orders (refer to STD-101), a higher degree of control is implemented during the hazard analysis process. An HPSC, an electronic guide for the identification of hazards and approved mitigation controls, is used for these work control documents. The hazard mitigation guide (GDE-6212, "Hazard Mitigation Guide for Integrated Work Control Process") is used to analyze the hazards and identify the controls to mitigate these hazards when the HPSC is not available.

The HIM process is the method used to establish barriers for potential radiological hazards and standard industrial hazards such as confined space, elevated work, work requiring the use of respirators, and asbestos, or hazardous chemicals or materials. A graded approach is used for each of the work control documents.

Additional permits, such as a Radiological Work Permit (MCP-7, "Radiological Work Permit"), Safe Work Permit (MCP-3447, "Developing and Using Safe Work Permits"), and Confined Space Permit (MCP-2749, "Confined Spaces") may supplement the work control document.

Procedure-Based Activities

MCP-3562, "Hazard Identification Analysis and Control of Operational Activities," addresses the identification and mitigation of hazards involving operational activities. Similar to the STD-101 process, the Facility Hazards List, safety basis documents, and lessons learned are considered in the evaluation. A Hazards Screening Checklist (HSC) that asks questions regarding the hazards expected or present is completed. Highly hazardous activities, as defined in MCP-3562 also require the use of High Hazards Mitigation Guidance. A JSA is either developed or verified to be current for the scope of the activity.

A HEG is assembled to develop the JSA. The HEG is comprised of any number of selected disciplines based upon the results of the HPSC. The HEG reviews the HSC, performs walk downs, evaluates safety information (e.g., Material Safety Data Sheet), as necessary to develop the appropriate set of controls for the specific job hazards. The resulting JSA is reviewed and approved. For facility/project-specific procedures the JSA information is incorporated into the procedures (MCP-3450, "Developing and Using Job Safety Analyses").

7.8 Core Function 4 – Perform Work and Guiding Principle 7 – Operations Authorization

Work is authorized and performed at the ICP through formal processes as described below.

7.8.1 Authorizing and Performing Work at the Company Level

The contract, DE-AC07-05ID14516, provides CWI legal authority to plan and conduct the ICP work scope. Such work includes design, procurement, construction, operations, maintenance, environmental remediation, and D&D of projects/facilities. It also includes a broad scope of supporting activities such as training, radiological control, quality assurance, and environmental protection. The ICP company level project management plan (PMP, ICP/EXT-05-01082), approved by senior line

management, authorizes the development of lower-tier execution plans for performing work.

Company manuals and procedures, including PDD-1005, "ICP Management and Operations Manual," describes work at the company level. This work includes business and budget activities, safety analysis, establishing company programs and processes, site-wide environmental monitoring and evaluation activities, etc. The CWI president and CEO provides the overall leadership and direction by setting the mission, vision, direction, and strategy for accomplishing the scope of work. The CWI executive vice president and COO leads the CWI senior management team in the authorization of work that supports the established mission, vision, direction, and strategy.

7.8.2 Authorizing and Performing Work at the Facility/Project Level

Each of the area projects has PEPs as described in Section 3.1. Approval of the PEPs constitutes work authorization to the area projects. As addressed in PDD-1005, the flow down of work authorization continues to the APMs and the Director/Project Managers that support the APMs. Operations Management authorizes work for their specific facility, project, or subproject.

As discussed in Section 7.7, the work performed at the facility/project level generally establishes the operating bounds of the facility/project, such as the safety basis document, fire hazard analysis, and project environmental hazards and controls. The authorization to perform this work flows down from company manuals through the various functional support areas.

Authorization Agreements

ICP Hazard Category 2 nuclear facilities receive DOE authorization to operate by an Authorization Agreement (AA). An AA is a formal, documented agreement between the DOE and CWI and serves as the basis upon which DOE authorizes continued operation of a hazardous facility. LST-268, "ICP Nuclear Facility/Nuclear Facility Manager List," identifies the applicable nuclear facilities required to have an AA. MCP-3567, "Authorization Agreement with Safety Basis List," defines the requirements for preparation, review, approval, and maintenance of AAs with a Safety Basis List. The AA contains key terms and conditions (controls and commitments) under which CWI is authorized to perform work. Any changes to these terms and conditions require DOE-ID approval. A significant element of an AA is the safety basis documentation, included in the Safety Basis List consisting of documents such as DSA and other safety analyses; SARs; TSRs, or Technical Specifications/Standards (TS/Ss); Plant Safety Documents (PSDs); DOE issued Safety Evaluation Reports (SERs); and facility-specific

commitments made in order to comply with the DOE orders or policies. These documents may also include other documents that place bounds on a facility mission/operation such as unreviewd safety questions, ORRs, or DOE SERs. These documents—along with applicable environmental permits, Environmental Impact Statement or Environmental Assessment and other safety documents—form the safety envelope of the facility.

Nuclear Facility Startups or Restarts

For nuclear facilities, the authorization for initial startup or restart following a shutdown may be different than that of a routine startup or restart. Specifically, the performance of an ORR or RA prior to startup may be required. MCP-2783, "Startup and Restart of Nuclear Facilities," provides criteria to be used to determine whether an ORR or an RA is required. The appropriate readiness review is performed against a set of minimum core requirements that are identified in DOE Order 425.1C, and a Startup Notification Report is submitted and approved by DOE, which gives CWI management authority to start/restart the facility. As specified by MCP-2783, a management self-assessment (MSA) may be required to formally document readiness in all functional areas prior to the ORR or RA. The MSA process is described in MCP-1126, "Performing Management Self-Assessments for Readiness."

7.8.3 Authorizing and Performing Work at the Activity Level

Accomplishing work safely at the activity level is the end result of the planning, budgeting, scheduling, analysis, evaluation, and management activities described in this document up to this point. Goals for cleaning up the INL and reduce future environmental risks will be met by safe performance of activity level work. This work is authorized and monitored for safe performance by Operations Management, as stated in PDD-1005. This authorization is executed through a Plan-of-the-Week, Plan-of-the-Day, or similar process for controlling work and equipment status. Operations Management ensures the proposed activity will be conducted in compliance with facility/project requirements, such as safety basis documents, and environmental regulations and permits, by appropriately trained and qualified personnel following approved work control documents or procedures. Operations are conducted in accordance with the company Conduct of Operations program (Manual 9), which provides the operational framework for safe and efficient operations. This framework, based upon DOE O 5480.19, implements a proven philosophy for the safe operation of nuclear and non-nuclear facilities.

Nuclear facilities undergo the unreviewed safety question process (MCP-123, "Unreviewed Safety Questions") prior to starting a proposed activity to determine if it poses the type of change that requires a detailed review in accordance with 10 CFR 830.203. If it does, a further evaluation is

performed to determine if the proposed activity can be accomplished within the established safety basis. If not, DOE approval is required.

All construction, maintenance, and operations activities require pre-job briefings be conducted prior to commencing work to assure all participants understand the scope of work, hazards, mitigations, and responsibilities. MCP-3003, "Performing Pre-Job Briefings and Documenting Feedback," provides the process for conducting, documenting, and incorporating pre-job briefings and the documentation, evaluation, and tracking of feedback identified during the performance of work. Human performance tools for enhancing the pre-job briefing are provided. A pre-job briefing is the final confirmation of readiness before performing a task.

Regardless of complexity, all work activities are undertaken with full understanding by each employee involved that they are individually responsible for their own safety and the safety of others involved in or affected by the activity. Workers are qualified through training and experience to perform the tasks assigned. They understand that they are required to follow established procedures or work control documents for the work being undertaken. They also actively participate in developing and changing the procedures or work control documents they are required to follow. Workers clearly understand that they not only have the right, but are obligated to stop work or safety step back (MCP-553, "Step Back and Stop Work Authority") at any time if they are aware that a potentially unsafe condition exists.

7.9 Core Function 5 – Feedback and Improvement

Feedback facilitates continuous improvement in the company's safety programs. Feedback and improvement occur on a continuing basis at all stages of work performance and through assessment programs. Figure 13 depicts the CWI feedback and improvement systems indicating that feedback and improvement happens at the company/site level, the project/subproject/facility level and the activity level. Additional feedback is gathered for analysis through various reporting systems and communication mechanisms. Feedback ensures safe performance of work by taking advantage of experience. All involved personnel, employees and subcontract employees, are encouraged to participate.

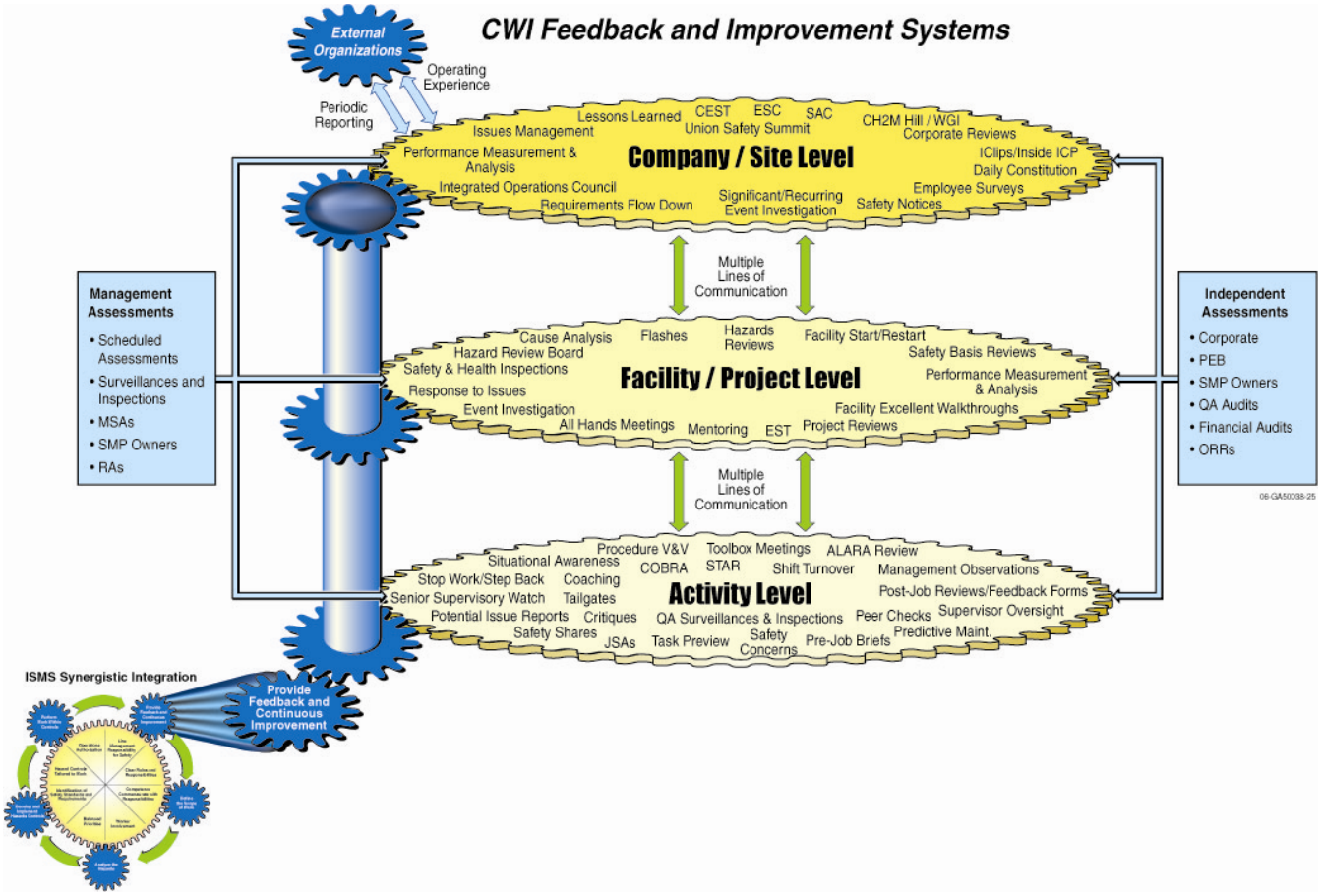


Figure 13. CWI feedback and improvement systems.

As depicted in the following paragraphs, four principal mechanisms work together to provide effective feedback and improvement: employee feedback; integrated assessments; issues management, and performance measurement, analysis and reporting. Additionally, the SAC, more fully described in Section 3.5, meets daily to identify, review, and analyze safety events and conditions. Management uses the SAC to quickly see trends that allow corrections during the year.

Line management is responsible for establishing and implementing feedback and improvement programs and processes as described in Section 7.8.1. PDD-1005 requires Area Project Managers to obtain and integrate feedback from employees concerning quality, health, safety, and environmental issues into facility and company lessons learned. PDD-1005 also requires Operations Managers to ensure that critiques or investigations are held for unusual events and near misses so that feedback is given to workers and lessons learned are captured.

7.9.1 Employee Feedback

The mechanisms described in this section provide feedback both to and from employees and involve employees in the feedback process (see DOE O 226.1).

Union Safety Summit – The bargaining units at the INL sponsor union safety summits to communicate and resolve safety issues. Summits are held every four months. Invitees are union leadership, subcontractor leadership, prime contractors to DOE-ID, and DOE-ID. Staggered with the union sponsored safety summits are supplemented by DOE-ID sponsored INL Occupational Safety and Health meetings, which take place every four months. Through this teaming, issues are brought to resolution effectively and timely.

Pre-Job Briefs – Pre-job briefs are described in MCP-3003, "Performing Pre-Job Briefings and Documenting Feedback,"and provide a means for feedback to ensure lessons learned (adverse events) and process improvements (good work practices) are incorporated into the work planning process.

Task Evolution Feedback – Lessons learned and feedback can be submitted at any time by workers performing maintenance or operations using Form 433.24, Task Evolution Feedback Form.

Behavioral Observation and Feedback – As described in Section 7.4, the COBRA program provides workers a process for performing routine behavioral observations and identifying both safe and potentially at-risk behaviors.

Employee Safety Concerns – Employees are encouraged to submit safety concerns, including near misses, into the ICARE database in accordance with MCP-598, "Corrective Action System."

Employee Concerns – All employees (including supervisory personnel) are encouraged to report employee concern/issues first through their management chain. If that channel fails to resolve the issues, or if the employee is not comfortable, he/she can report the issue to the employee concerns hotline, (208) 526-0333. Specific concerns may be related to, but are not limited to environmental, safety and health; suspected violations of law, regulation, company policy; or standards of business conduct as well as issues of fair treatment. Depending upon their nature, some issues may be delegated to the appropriate SME for resolution. The employee concerns program is described in GDE-10, "Employee Handbook." Worker feedback is also accomplished during safety meetings, shift briefs, and job walkdowns.

7.9.2 Integrated Assessment Program

PDD-155, "Feedback and Improvement Program," describes a comprehensive, integrated, risk-based approach for managing assessments. The Integrated Assessment Program (IAP) implements contractual requirements for ISMS and DOE rule and order requirements for Quality Assurance. These requirements are general and broad-based. It also implements specific assessment requirements in other regulations and DOE orders. The details of the program are based on applicable guides and standards.

Senior management sponsors the IAP. Clear roles and responsibilities for execution of the program are identified in implementing documents. Performance Assurance is responsible for the IAP development and oversight. Directors and managers are responsible for ensuring that assessments are effectively planned, scheduled, and performed. The ESRB reviews the status of selected assessments on an approximately quarterly basis.

During the performance of assessments, issues are identified, documented, and dispositioned in accordance with MCP-598, "Corrective Action System." The effectiveness of the integrated assessment process is measured by analyzing the performance of assessments, assessment results, and the execution of the overall process. Inspections, Surveillances, and Management Reviews are usually performed to support specific assessment requirements and commitments. In most cases, the assessments are performed by the organizations that have the primary responsibility for the activities being assessed. On some occasions, the assessments may be performed by independent organizations. They may also support the ICP initiatives for worker involvement as workers knowledgeable of the areas they are assessing are assigned to perform them.

As described in PDD-155, the ICP assessment program consists of self-assessments and independent assessments.

- Self-assessments are performed by the affected organization or project and include management assessments, surveillances and inspections, management reviews, and operational awareness activities (e.g., walkdowns, tours, and management workplace visit program).
- Independent assessments are performed by personnel external to the affected organization or project and can be internal (performed by CWI) or external (performed by external organizations, such as DOE).

Independent assessments are formal and documented evaluations to measure item and service quality, to measure the adequacy of work performance, and to promote improvement.

The following documents implement the IAP:

- MCP-8, "Performing Management Assessments and Management Reviews," defines the process for performing management assessments and management reviews of activities, operations, and facilities. Management assessments and reviews are performed to support the company goals of Operational Excellence and ISM and to promote continuous improvement within each manager's organization. This procedure implements the requirements of PRD-5091, "Management Assessments."
- MCP-9172, "Developing, Integrating, and Implementing Assessment Plans and Schedules," describes the process for developing, integrating and maintaining the integrated assessment plan and schedule.
- LST-202, "Company Level Required Assessments," is a compilation of assessment requirements contained in List B documents and company procedures. It also describes how the required assessments are expected to be implemented.
- MCP-552, "Performing Independent Assessments," provides instructions for performing independent assessments to verify that performance criteria have been met and to determine the adequacy and effectiveness of programs and management systems. The PEB annually establishes an integrated schedule of assessments, using defined criteria to implement this company level independent assessment process. Reports from the PEB are provided directly to the Office of the President.

7.9.3 Quality Assurance Assessment Program

The QA assessment program provides for comprehensive schedule of QA audits and surveillances to verify compliance to requirements, determine the effectiveness and adequacy of processes, and identify opportunities for improvement. The QA assessment program provides feedback into the integrated assessment program and issues management program (see below).

- PRD-5091, "18.3 Management Assessments," identifies requirements and responsibilities for establishing and performing management assessments of the Integrated Quality Assurance Program.
- MCP-196, "Qualification of Audit Personnel," defines the process for the selection, qualification, and certification of audit personnel.

- MCP-589, "Quality Assurance Surveillance," defines the process for conducting and documenting QA surveillances.
- MCP-9278, "Quality Assurance Audits," defines the process for conducting and documenting internal and external QA audits.

7.9.4 Issues Management Program

PDD-155, "Feedback and Improvement Program," describes the Issues Management Program, which ensures that problems (issues) that have a reasonable potential to cause adverse operational, environmental, safety and health, or quality assurance consequences are documented and resolved in an effective and timely manner. Items, services, and processes that do not meet established requirements are controlled and corrected using a graded-approach based upon the significance of the issue and the importance of the work affected.

This program, which meets the requirements of DOE O 226.1, is designed to be an integrated company process that enables management to understand and prioritize, based on risk significance, the correction of issues. These issues may be facility specific, site-wide or programmatic in nature and may be identified by external agencies, independent assessments, management assessments, inspections, surveillances, and employees during the conduct of work assignments. Issues may be identified during any of phases of a project/subproject/facility lifecycle. The program also provides for ensuring that adequate corrective actions are implemented to prevent recurrence of undesirable events or conditions through appropriate causal analysis, corrective action, verification and follow-up. The cornerstone of the issues management program is the ICARE system, described in MCP-598, where tracking and status of issues are supported through the use of the system.

- MCP-190, "Event Investigation and Occurrence Reporting," provides a system for identifying, categorizing, notifying, investigating, and disseminating written reports abnormal events to the appropriate management levels and to DOE. It also provides a consistent process of investigating those events, determining causal factors, identifying appropriate actions, analyzing to identify adverse trends, and communicating this information to the appropriate management levels.
- MCP-538, "Control of Nonconforming Items," establishes the process for the identification, documentation, evaluation, control, and disposition of items, e.g., hardware, material, or data] that do not conform to specified requirements in order to prevent their inadvertent installation or use.

- MCP-2547, "Identification, Report, and Resolution of Price-Anderson Noncompliances," — establishes the process for identifying, evaluating, reporting, and correcting potential noncompliances with DOE PAAA regulations and associated corrective actions. It is consistent with the DOE Operational Procedure, Identifying, Reporting, and Tracking Nuclear Safety Noncompliances under the Price-Anderson Amendments Act of 1988.
- MCP-192, "Processing Lessons Learned and External Operating Experience Information,"—provides the instructions and responsibilities for implementing specific elements of the lessons learned system described in PDD-155, "Feedback and Improvement Program." The lessons learned (LL) system is an integral part of the feedback and improvement processes. Operational excellence requires the use of internal and external operating experience information to prevent recurrence of undesirable conditions and to promote best practices. LL, both positive and negative, are systematically evaluated and implemented to continuously improve performance.

7.9.5 ESH&Q Performance Measurement, Analysis, and Reporting Program

The following company documents are those primarily used to describe and implement the ESH&Q Performance Measurement, Analysis and Reporting Program:

- PDD-155, "Feedback and Improvement Program," implements requirements for ISMS in 48 CFR 970.5223-1, "Integration of Environment, Safety, and Health into Work Planning and Execution;" requirements in DOE Order 210.1, "Performance Indicators and Analysis of Operations Information"; requirements for assessments and quality improvement in PRD-5071, "2.1 Quality Assurance Program"; PRD-5087, "16.1 Corrective Action"; and PRD-5091, "18.3 Management Assessments"; and expectations for contractor self-assessment programs in DOE Policy 450.5, "Line Environment, Safety, and Health Oversight." It describes the process for establishing long term ESH&Q performance objectives and annual performance goals; selecting performance indicators, measures, and criteria for those objectives and goals; collecting and analyzing performance data; reporting performance; and responding to performance issues. It also addresses providing oversight and administration of the performance measurement program.

- MCP-1269, "Establishing, Monitoring, and Reporting ESH&Q Performance Objectives, Goals, and Measures," applies to all organizations and personnel who establish, monitor, and report ESH&Q performance objectives, goals, and measures. This document describes the process for establishing long term ESH&Q performance objectives and annual performance goals; selecting performance indicators, performance measures and criteria for those objectives and goals; collecting and analyzing performance data; reporting performance; and responding to performance issues. It also addresses providing oversight and administration of the performance measurement program.
- MCP-1270, "Performing Annual Evaluations of the Integrated Safety Management System," describes the processes for planning and scheduling annual ISMS evaluations; evaluating key processes and documents, functional support programs, ESH&Q performance, and potential system impacts; determining conclusions; developing safety performance objectives, measures, and commitments; reporting evaluation results; and responding to the results. This MCP implements requirements for assessment and quality improvement in PRD-5071, "Quality Assurance Program"; PRD-5087, "Corrective Action"; and PRD-5091, "Management Assessments"; commitments in Program Description Document (PDD)-1004, "Integrated Safety Management System," Chapter 6, "Maintaining an Approved ISMS"; and requirements in 48 CFR 970.5223-1 for ISMS implementation, periodic revisions to PDD-1004, and annual updates to Safety Performance Objectives, Measures, and Commitments (SPOMC).

7.9.6 Management Workplace Visit

ICP implemented a Management Workplace Visit program to promote management presence in the workplace as a fundamental demonstration of the company's values of safety, integrity, teamwork, productivity, and results. The program increases management's understanding of workplace issues, increases management visibility and access to the workforce, provides on-the-spot coaching and mentoring, and promotes the implementation of ISMS. GDE-411, "ICP Management Workplace Visit Program," discusses in detail how the program works.

Management workplace visits are conducted in one of the following two ways: (1) individual manager workplace visits and observation of evolutions, or (2) management led workplace visits of work observation teams. Work observation teams are generally comprised of a manager, an SME, and a worker.

7.9.7 Critiques

MCP-165, "Critiques," — Critiques are an effective management tool to prevent recurrence of an event or to promote operational excellence. The critique process may be used for abnormal events, near misses, at the satisfactory conclusion of a new or unusual operation, or when otherwise determined necessary. This MCP a consistent method of performing critiques, event reconstruction, and event evaluation. The critique process may be used to identify causal factors and corrective actions.

7.9.8 Engineering

Engineering processes also include feedback and improvement. Various processes are used to provide feedback that can be used to improve Engineering. MCP-9217, "Design Verification"; is used for all designs of new SSCs and modifications to SSCs. GDE-77, "Engineering Self-Assessment Program," provides the methodology to be used to perform engineering self-assessments. CTR-49, "Engineering Council," provides a vehicle for company engineering managers to discuss and resolve or verify resolution of significant company engineering issues.

7.9.9 Environmental Activities under CERCLA

Results (feedback) from completing CERCLA activities and lessons learned are documented in CERCLA Remedial Action Reports. This report documents the activities performed during the remedial action, and is submitted to the INL FFA/CO agencies. A required section within the report documents any changes to conditions, assumptions and/or the remediation approach that was submitted with the NTCRA or TCRA Action Memorandum, or RD/RA Work Plan. It also includes an inspection checklist used to inspect the remediation after the work is completed.

7.9.10 Contractor Assurance System (CAS)

In accordance with DOE O 226.1, CWI has established a comprehensive and integrated CAS for identifying and addressing deficiencies, providing the means and requirement for reporting them, implementing corrective and preventive actions, and sharing lessons learned across ICP. CWI's CAS includes programs and processes addressed by CWI FSAs, Independent Assessments, Feedback and Improvement, and Quality Assurance. PDD-159, "Contractor Assurance System," describes the processes and programs for achieving continuous improvement in operations. Figure 14 illustrates the relationship of CAS to ISMS.

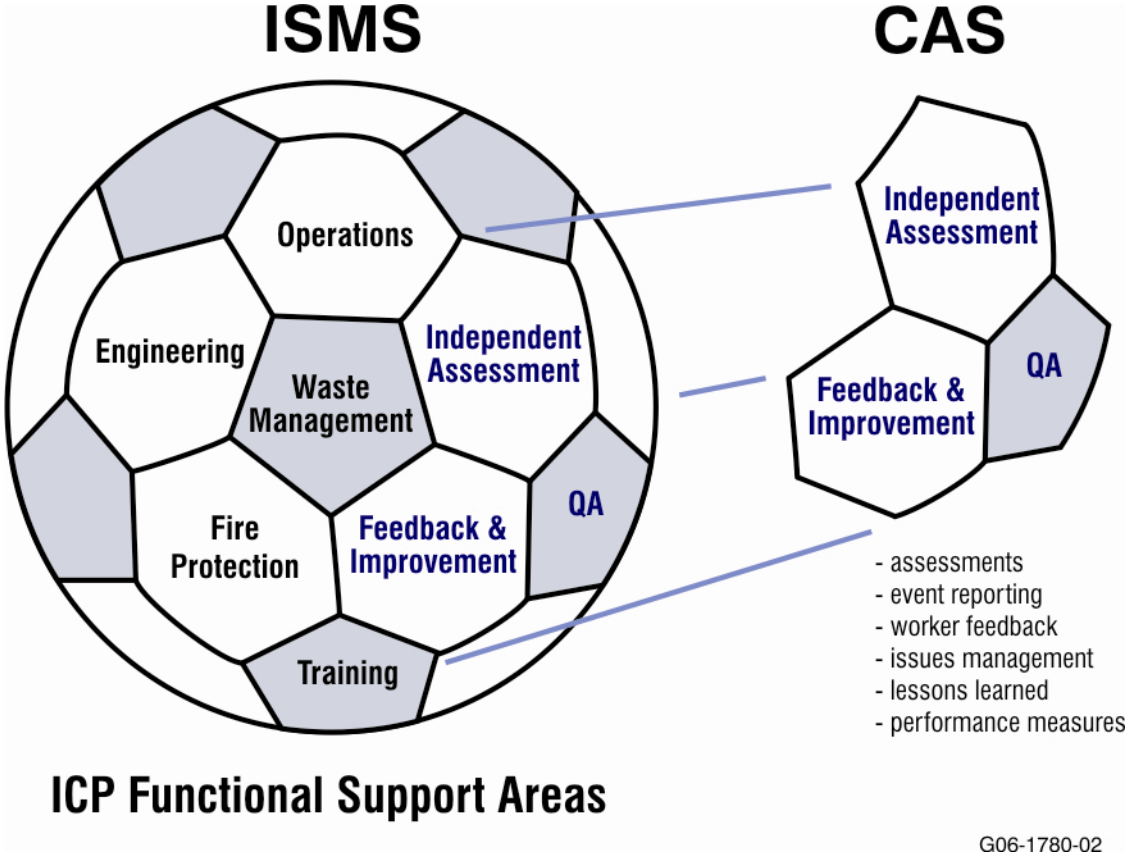


Figure 14. Relationship between ISMS and Contractor Assurance System.

8. ISMS COMMUNICATIONS

At the company level, as well as at the project and activity levels, line-management is aware that aggressive mission and production goals can send mixed signals to workers regarding CWI's commitment to safety and the balance of priorities and work scope. Therefore, communications regarding this safety commitment are consistently communicated through a variety of means. Examples of tools that are used to communicate safety topics and issues are described below, and are periodically refreshed and changed to maintain a vibrant ISMS communications process:

8.1 Electronic Bulletins and E-mails

Manager memos, ICliPs, and Others – ICP employs various types of electronic communications for a wide range of project-specific and community-related information of interest to employees. ICliPs is a daily bulletin for general and safety information currently published each afternoon. ICP Bulletins are used as-needed when more timely notification of a safety or other issue is required. ICP Manager Memos are targeted for supervisors and above, most often to alert management of an issue that does not directly affect all employees or to provide advance notice to managers of pending all-employee communications.

8.2 Executive Management Directives

Similar in function to the Interim Compensatory Measure system employed by NRC-regulated facilities, Executive Management Directives (EMDs) augment the ICP's FLASH message system. The key difference between an EMD and a FLASH message is that EMDs are issued to direct changes in operations that may affect existing procedures and they are cancelled when the affected procedures have been updated or when the need for the additional requirements has ended. FLASH messages are primarily informational.

8.3 FLASH

E-mail FLASH messages provide the best vehicle for rapid notification of safety issues, incidents or lessons learned. Immediate attention (inspection, identification of equipment, etc.) may be required to mitigate issues. FLASH messages go to key managers, supervisors and other designees for rapid dissemination to all who need the information including workers, whether by e-mail, printed copies or verbal communication. FLASH messages are most often used to get potentially dangerous or defective equipment out of service as soon as possible, and to inform managers of safety incidents or lessons that may affect ongoing operations at other areas on-Site.

8.4 Lessons Learned

The development, communication, and use of lessons learned information is encouraged to be a part of each employee's job. Lessons learned information is

received, reviewed, and if applicable, placed on the intranet (lessons learned) database. Searches of existing lessons learned information or submittal of new information can be performed via the lessons learned database. MCP-192 describes the system. Lessons learned are communicated to employees and management through various methods. E-mails targeted to specific types of jobs are sent with links to the original reports. Additionally, a publication is in development that will provide similar links to lessons learned information compiled from around the DOE complex and industries.

8.5 Newsletters, Inside the ICP, Others

Inside the ICP is a weekly on-line publication for ICP employees that highlight current safety initiatives project highlights and other information for general employee use. It contains a regular message from the president, on safety, environmental, or other issues. It also features a safety page in each issue and an update page on VPP EST activities. Hard copies are provided in areas where employees do not have ready access to computers. Each issue is archived on ICP's communications webpage, as are ICliPs. Other regular publications emphasizing safety and lessons learned information are employed as needed.

8.6 Pause for Safety

A flier featuring several short safety items, Pause for Safety is published jointly by CWI and BEA and distributed in employee common areas such as restrooms.

8.7 Safety Assessment Center

The SAC provides daily communications to management and others on safety concerns and occurrences at ICP facilities. The SAC is more fully discussed at Section 3.5.

9. MAINTAINING AN APPROVED ISMS

48 CFR 970.5223-1 requires DOE and contractor actions to continuously maintain the integrity of ISMS and to generate revisions as scheduled by the contracting officer. Chapter IV of DOE G 450.4-1B provides guidance for maintaining the integrity of an approved ISMS. CWI and DOE-ID are responsible for ensuring that the approved ISMS description, PDD-1004, is controlled by an effective feedback and improvement process so that it remains current.

The intent of maintaining ISMS current is to ensure work continues to be conducted efficiently and in a manner that protects the health and safety of the worker, the public and the environment. To meet this intent, compliance with current requirements (directives, laws, regulations, etc.), and maintenance of the safety authorization basis and worker protection programs must remain current and effective. The mechanisms described in this section are used to ensure these aspects of the system receive appropriate review and analysis through effective feedback and assessment processes to ensure system maintenance, thus providing the opportunity for continuous improvement.

The clause, Department of Energy Acquisition Regulations 970.5223-1, "Integration of Environment, Safety and Health into Work Planning and Execution," requires the contractor to measure ISMS effectiveness and annually identify and allocate resources to maintain the integrity of the system. Overall responsibility for maintaining the ISMS resides with the VP for ESH&Q. CWI applies key processes inherent to the ISMS Infrastructure to maintain and improve the effectiveness of ISMS throughout the year. This approach is depicted in Figure 15, Maintenance of the ISMS Infrastructure. Requirements management, CCR, and authorization bases upgrades are ongoing processes that maintain the ISMS and are carried out continuously throughout the year. The lessons learned process offers a mechanism to provide feedback for improving the system. Trending and reporting safety performance objectives, performance measures and commitments are the tools for measuring system effectiveness.

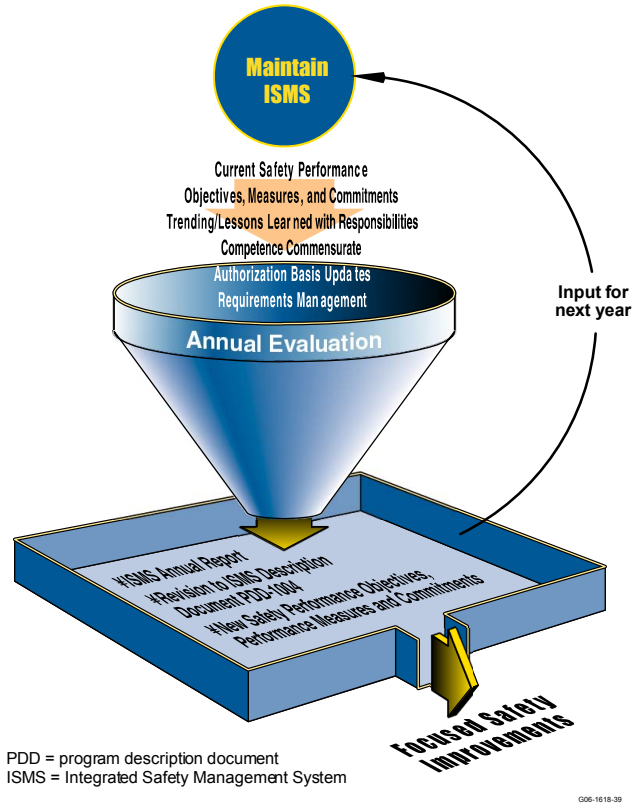


Figure 15. Maintenance of the ISMS infrastructure.

Using assessment results and other data from the processes identified above, an annual evaluation is conducted to determine the status of implementation, integration and effectiveness of the ISMS. This process is described in MCP-1270, "Performing Annual Evaluations of the Integrated Safety Management System." Included in the annual evaluation activities are evaluations of: the company's functional support programs, described in Sections 5 and 7 of this PDD; key ISMS processes and associated implementing documents; ESH&Q performance; and potential system impacts.

The results of the evaluation process are documented and used to improve the overall ISMS. As the final products of the annual maintenance process, the Evaluation Report summarizes the results of the evaluation including:

- Actions taken to evaluate the system effectiveness
- Status of functional support programs
- Status of key isms process and associated implementing documents (e.g., infrastructure maintenance, assignment of roles and responsibilities; and personnel selection, training and qualification, facilities' safety basis maintenance)
- ESH&Q performance since the last evaluation

- Progress in achieving safety performance objectives
- Success in completing safety performance commitments
- Resolution of issues from the previous isms evaluations
- Assessment findings
- Any events that may have occurred
- Status of regulatory compliance
- Any employee safety concerns
- Impacts from any significant changes in organization, budget, processes, activities, etc., that have occurred since the last annual evaluation.

The ESRB reviews the results of the annual evaluation and assigns responsibilities for taking actions to address all of the identified issues, areas needing improvement, focus training needs and performance commitments. The assigned actions are tracked to resolution, with Performance Assurance monitoring and providing status reports. CWI will continually maintain the integrity of ISMS by compiling and assessing sufficient measures of program activities in order to make informed decisions on safety resources for these activities. Information and performance data on ISMS (performance measures, PEB reports, assessment results, worker suggestions and other relevant feedback) are essential factors in the ISMS feedback, improvement and change control processes. The following mechanisms, which have already been described, are the processes by which CWI will sustain, measure, and update the ISM system.

- Requirements Management Process – MCP-2447 provides both the mechanism by which changes to laws, regulations and directives are reviewed and the process to sustain and update the set of standards, practices and controls that make up the ISMS.
- Authorization Basis Update Process – The implementation of updated safety basis documents can lead to program and procedure revisions. Implementation and validation processes ensure the flowdown of any revised requirements.
- Competence Commensurate with Responsibility – As previously discussed, personnel CCR is maintained by their involvement in site training programs. Training can originate from a variety of processes, such as a response to corrective actions or maintaining a specific qualification.
- Assessment and Performance Measurement Programs – An overall analysis of the results of the assessment program is summarized in the ISMS Annual Evaluation Report and provides feedback for areas targeted for focused improvement and assessment for the following year.
- SPOMC – CWI develops SPOMC (MCP-1269) that are submitted for DOE approval. The ISMS Annual Evaluation Report provides input for the next year's SPOMC. The annual submittal affirms commitments made for the

previous year and provides commitments for the following year. Progress on achievement of the SPOMC is reported quarterly in the ESH&Q Performance Report and Analysis and status of achievement is included in the ISMS Annual Evaluation Report.