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SSFL-EHS: Closure of ETEC Program

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Abstract

This document details how the Integrated Safety Management System Description (ISMS) guiding principles and the core functions are met by utilizing Boeing Policies, Procedures, Guides as well as specific Energy Technology Engineering Center (ETEC) Site Closure Program documents.

The document has been updated to reflect format restructuring changes that have occurred since the last revision and to indicate the integration of environmental management and quality assurance.

* Complete Document

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Supporting Document Summary of Change

ETEC Closure Contract Integrated Safety Management System Description		Document No. **EID-04694**
Rev.	Summary of Change	Approvals and Date
A	Document has been revised to incorporate the comments received from the DOE.	RELEASED 8/11/00 TV
B	Document has been revised to incorporate the comments received from the DOE Audit Issues of August 2000.	RELEASED 11-16-00 CV
C	Document has been revised to incorporate provisions of Mod A031, to update charts and incorporate ETEC PB02-009 by John Boggio	RELEASED 6-16-03 jmc
D	Document has been revised to incorporate changes mainly due to the acquisition of Rocketdyne (Canoga Park) by Pratt & Whitney (by Sharon Gevorgiz).	
E	Document has been revised to update Appendix 2 and to incorporate changes due to the transition of SSFL-ETEC to Shared Services Group (SSG) (by Sharon Gevorgiz and Bob Mako).	RELEASED 4-20-07 skb
F	Document has been revised to reflect changes as follows: 1. DOE G450.4-1A is updated to DOE G450.4-1B. 2. Safety, Health and Environmental Affairs (SHEA) has been changed to Environment, Health and Safety (EHS). 3. The SSFL EHS organization has been relocated from the Support Services Group (SSG) into the Engineering, Operations and Technology (EO&T) organization. 4. The function of the EHS Support Service Manager is reflected. 5. References to ETEC Project Managers have been eliminated as this function no longer exists. 6. References to formal job descriptions have been eliminated. 7. References to hourly or union represented employees and related safety functions have been eliminated as a reduction in force effective 4/3/09 resulted in the loss of all union employees. 8. References to most SSFL SOPs have been revised to reference Boeing Company EHS directive documents. References to Company EHS procedures were updated to reflect current information. 9. References to the Company training management system were updated. 10. Reference to the Company Performance Management (PM) process was added. 11. Reference to the SSFL Health and Safety Plan was replaced by the Injury and Illness Prevention Program (IIPP). 12. References to the STOP Observation Program were replaced by the Behavior-Based Safety (BBS) Observation Program. 13. References to the Corrective Action Board (CAB) were replaced with the Company Incident Reporting System (IRS). 14. The Demolition Process Flow Diagram was updated to reflect Form 653-T-20. 15. Form 653-T-60, SSFL Demolition Checklist was replaced with	RELEASED 8-29-09 rrm

	Form 640-I, Building Demolition Assessment Checklist. 16. Minor editorial improvements were incorporated. (by Robert R Mako)	
G	Document has been revised to reflect changes as follows: 1. Substituted ETEC Closure Program Management office in place of ETEC Closure Program Manager 2. Removed Form 640-I and Demolition Process Flow Diagram 653-T-20 as they are no longer used in the demolition management process 3. Reflected the change in the title of the Support Service Manager to EHS Site Closure Manager 4. Incorporated other minor editorial improvements where appropriate (by Robert R. Mako)	RELEASED 7-28-10 rrm
H	Document has been revised to reflect changes as follows: 1. Significantly reformatted and reworded to more directly reflect the ISM Description format followed by DOE Environmental Management 2. Incorporated detailed information concerning the integration of EMS and QA into ISM 3. Removed Form 653-T-10 as it has now become an online process (by Robert R. Mako)	RELEASED 9-22-2011 rrm
I	Document revised to: 1. Remove reference to R21-LD (system no longer in use) 2. Update the distribution list 3. Add a definition for EPA that refers to an ETEC Closure Document titled "Engineering Product Articles" 4. Update the Executive Summary 5. Make several non-substantive editorial improvements 6. Remove the reference to stack sampling (not applicable since the suspension of D&D operations in May 2007) 7. Incorporate a reference to EID-04450, *ETEC Closure Training Plan* 8. Update Lists A and B consistent with Amendment/Modification 110.	P. Rutherford 9/12/2012

Boeing SSFL

ETEC Closure Program

Contract DE-AC03-99SF21530

Integrated Safety Management System Description

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FIGURES

TABLES

Acronym List

ALARA	As Low As Reasonably Achievable
BBS	Behavior Based Safety
CAP	Cost Account Plan
CF	Core Function of ISMS
CFR	Code of Federal Regulations
D&D	Decontamination and Dismantlement / Decontamination and Decommissioning
DA	Disposal Authorization
DEAR	Department of Energy Acquisition Regulation
DOE	Department of Energy
DOT	Department of Transportation
EHS	Environment, Health and Safety
EID	Engineering Instruction Document
EM	Environmental Management
EPA	Environmental Protection Agency
EPA	Engineering Product Articles (when referring to ETEC Closure documents)
ETEC	Energy Technology Engineering Center
FAC	Facilities Acquisition Contract
FAR	Federal Aquisition Regulations
FSDF	Former Sodium Disposal Facility
GP	Guiding Principle of ISMS
GAP	Current Gaps between the existing ETEC Closure Program process and conditions contemplated to satisfy ISMS implementation conditions
H&S	Health and Safety
HASP	Health and Safety Plan
HWMF	Hazardous Waste Management Facility
ISMS	Integrated Safety Management System
LLW	Low Level Waste
LMDL	Liquid Metal Development Laboratory
MSDS	Material Safety Data Sheet
MYWP	Multi-Year Work Plan
NTS	DOE Nevada Test Site
OAK	DOE NNSA Service Center
OAR	On-Site Activity Representative
OSHA	Occupational, Safety and Health Administration
PHA	Process Hazards Analysis
PIC	Person-in-Charge
PMP	Program/Project Management Plan
POL	Policy
PPE	Personal Protective Equipment
PRO	Boeing Company Procedure
RCRA	Resource Conservation Recovery Act
RMHF	Radioactive Materials Handling Facility
RPA	Release Plan of Action
RWP	Radiation Work Permit
SM	Specialty Manual
S&FP	Security & Fire Protection
S&M	Surveillance & Maintenance
SCTI	Sodium Components Test Installation
SCTL	Small Component Test Loop
SMS	Safety Management System
SOP	Standard Operating Procedure
SPTF	Sodium Pump Test Facility

SSFL	Santa Susana Field Laboratory
TRU	Transuranic Wastes
TRUCON	Transuranic Contents
VCAPCD	Ventura County Air Pollution Control District
WAN	Wide Area Network

Executive Summary

The Integrated Safety Management System Description (ISMSD) that follows provides the approach used by the Santa Susana Field Laboratory (SSFL) to execute the ISMS Principles, Safety Culture elements, and Core Functions as well as the integration of Environmental Management System (EMS) and Quality Assurance (QA) requirements. For each, a description of the approach is followed by relevant Performance Objectives, Measures, and Commitments (POMCs) consisting of:

1. Objectives and Attributes
2. Functional Areas Incorporating Boeing Management Systems to Achieve Objectives and Attributes
3. Boeing Policies and Procedures
4. Performance Measures and Commitments

For EMS and QA integration, each requirement is associated with relevant Boeing programs and/or processes.

ETEC had been designated surplus to DOE's current mission and is currently undergoing closure. Current site activities are limited to site characterization in preparation for closure. A small number of buildings currently remain on the site, including some where chemical and radioactive materials operations were conducted. Deactivation of the site includes divestment of assets, site investigation and characterization, remediation of contaminated areas, demolition, waste management, and site restoration.

The Boeing Company Environment, Health and Safety (EHS) policies and procedures flow down to Boeing SSFL operations and to the DOE Energy Technology Engineering Center (ETEC) Closure Contract directing that management at all levels of the Boeing Company have the responsibility to assure that all employees under their direction have a safe work environment with appropriate equipment and procedures such that missions are accomplished while protecting the public, the worker, and the environment. Boeing is committed to operating in a manner that ensures the safety and health of its employees and stakeholders. Boeing is committed to operating in a manner that promotes environmental stewardship striving to:

1. Conduct operations in compliance with applicable environmental laws, regulations; including 10 CFR 851, Worker Safety and Health Program (EPA-00062), and Boeing policies and procedures.
2. Prevent pollution by conserving energy and resources, recycling, reducing waste and pursuing other source reduction strategies.
3. Continually improve our environmental processes and performance in coordination with the DOE Environmental Management System (EMS).
4. Work together with our stakeholders on activities that promote environmental protection.

Persons having line management responsibility are accountable for the safety of the workers under their direction, providing a safe work environment with appropriate training, equipment, and procedures. Program management is accountable for the safety of operations on the ETEC Closure Contract. The responsibility for safety and environmental protection on the ETEC Closure Program flows from the EHS Director through Site/Program management to the Person-in-Charge (PIC) for a specific project.

The following portions of this document provide details and references to documents that describe the system in place. All individuals involved with the ETEC Closure Program are committed to work together to apply the principles of safety and environmental protection that form this integrated safety management system.

Introduction

The Santa Susana Field Laboratory (SSFL) is a business segment of The Boeing Company. SSFL operates the 2,849-acre Santa Susana Field Laboratory (SSFL) located atop a range of hills between the Simi and San Fernando Valleys, north of Los Angeles. The westernmost 290 acres of the SSFL, known as Area IV, contains both Department of Energy (DOE) and Boeing facilities. The DOE portion is mainly contained in the 90 acres known as the Energy Technology Engineering Center (ETEC).

When opened in the late 1950's, ETEC was ideally remote from population centers to enable development of security sensitive projects. These projects supported research for DOE and its predecessor agencies for nuclear research and energy development projects. The Area IV site includes buildings which house test apparatus for large scale heat transfer and fluid mechanics experiments, mechanical and chemical test facilities, office buildings, and auxiliary facilities.

ETEC had been designated surplus to DOE's current mission and is currently undergoing closure. Current site activities are limited to site characterization in preparation for closure. A small number of buildings currently remain on the site, including some where chemical and radioactive materials operations were conducted. Deactivation of the site includes divestment of assets, site investigation and characterization, remediation of contaminated areas, demolition, waste management, and site restoration.

The DOE Office of Environmental Management (EM) directs and oversees the closure activities at the former ETEC site. The EM site operations consist of five major components - Waste Management, Site Investigation, Environmental Restoration, Program Support, and Landlord Functions.

A current contract for site closure, Contract DE-AC03-99SF21530, MOD 109, was originally negotiated and awarded to The Boeing Company, Rocketdyne in late December 1998 and has now been extended to September 30, 2014. Modification Number M005 to the contract proposed in September 1999 adds the following to Section 1.3.1.3 Safety:

> "Verify that the site wide safety program for the contract constitutes an appropriate reasonable program as contemplated by DOE G450.4-1A Vol. 1 (EH 05-27-99) and DOE G450.4-1A Vol. 2 (EH 05-27-99) and provide annual safety reports to DOE and assistance to DOE for tri-annual audits of the site wide safety program." (DOE G450.4-1A was replaced by DOE G450.4-1B Vol. 1, 2 on 3/01/01)

The DOE G450.4-1C "Integrated Safety Management System Guide" offers instructions pertaining to implementation of an integrated safety management system into management and work practices at all levels of the organization, addressing all types of work and all types of hazards to ensure safety for the workers, the public, and the environment. The ISMS is based on seven key guiding principles and five key core functions. The contractor is instructed to tailor the DOE ISMS Guide so that the principles and functions apply to the specific facility and hazards where the work is in progress.

The SSFL ISMSD details how the ISMS Guiding Principles, Safety Culture elements, and Core Functions together with integrated EMS and QA are met by utilizing relevant Boeing directive documents such as Enterprise Policies (POL), Procedures (PRO), Business Process Instructions (BPI), Guides and site procedures contained in specific ETEC Closure Program documents. General ISMS guidelines are tailored specifically for the ETEC Closure work. The tailored ISMS integrates safety, health, and environmental protection into management and work practices at all levels so the ETEC Closure Contract work is accomplished while protecting the worker, the public, and the environment.

ISMS Requirements

DE-AC03-99SF21530, Modification A031 amended the ISMS Clause H.049 with the following ". . .the Contractor shall comply with the requirements set out in Attachment VIII of subject contact, which the Contractor is authorized to do so by utilizing its own approved health and safety policies, procedures, and systems which, in turn, comply with the intent of ISMS. . .".

NOTE: This ISMSD references and quotes many Boeing directive documents and ETEC Closure Program documents. The Boeing directive documents and ETEC Closure documents are reviewed and updated periodically. Although the wording these documents may change, the general concepts in this ISMSD will remain unchanged. The ISMSD will not be modified every time a Company directive document or ETEC Closure document changes but reviewed and updated as needed annually.

1.0 Purpose and Objective

The Boeing Company Environment, Health and Safety (EHS) policies and procedures flow down to the Boeing SSFL operations and the ETEC Closure Contract. Boeing is committed to operating in a manner that ensures the safety and health of its employees and stakeholders and is committed to operating in an environmentally responsible manner. Boeing will strive to:

1. Conduct operations in compliance with applicable environmental laws, regulations; including 10 CFR 851, Worker Safety and Health Program (EPA-00062), and Boeing policies and procedures.
2. Prevent pollution by conserving energy and resources, recycling, reducing waste and pursuing other source reduction strategies.
3. Continually improve our environmental processes and performance in coordination with the DOE Environmental Management System (EMS).
4. Work together with our stakeholders on activities that promote environmental protection.

Boeing will engage employees and stakeholders to improve EHS performance, products and services using transparent and aggressive performance goals. Corporate EHS will provide companywide policy, set strategic direction and standards, define common processes and tools, oversee skill development, and lead implementation through functional excellence. Business Unit EHS operations shall be responsible for deployment of enterprise EHS strategy and for providing performance visibility. Management at all levels is responsible for resources, training, and oversight to implement this policy for their operations. Employees will conduct their daily responsibilities in a safe and environmentally progressive manner (Boeing Policy-4, Environment, Health and Safety).

2.0 Integrated Safety Management System Overview

DOE established the approach to integrating safety into all aspects of work at its facilities in DOE P 450.4. This Policy describes the safety management system as consisting of six components:

1. The Objective
2. Guiding Principles
3. Core Functions
4. Mechanisms
5. Responsibilities
6. Implementation.

2.1 Safety Management Guiding Principles

DOE Policy DOE P 450.4 "Safety Management System Policy" describes the following components to ISMS:

1. *Line Management Responsibility for Safety*: Line Management is responsible and accountable for protection of the public, workers, and the environment.
2. *Clear Roles and Responsibilities*: Clear and unambiguous lines of authority and responsibility for ensuring safety is documented, communicated, and maintained.
3. Competence Commensurate with Responsibilities: Personnel possess the experience, knowledge, skills, and abilities necessary to discharge their responsibilities.
4. *Balanced Priorities*: Resources are effectively allocated to address safety and programmatic and operational considerations. Protecting the public, workers, and the environment is an overriding priority.
5. *Identification of Safety Standards/Requirements*: Before work is performed, the associated hazards shall be evaluated, and an agreed-upon set of safety S/R are established, which provide adequate assurance that the public, workers, and the environment are protected from adverse consequences.
6. *Hazard Controls Tailored to Work Being Performed*: Administrative and engineering controls to prevent and mitigate hazards are tailored to the work and associated hazards.
7. *Operations Authorization*: The conditions and requirements for operations to be initiated and conducted are agreed upon and clearly established.

DOE has established the following four supplemental safety culture elements to be used in concert with ISM guiding principles to enhance the effective implementation of ISMS.

1. *Individual Attitude and Responsibility for Safety*: Every individual accepts responsibility for safe mission performance. Individuals demonstrate a questioning attitude by challenging assumptions, investigating anomalies, and considering potential adverse consequences of planned actions. All employees are mindful of work conditions that may impact safety, and assist each other in preventing unsafe acts or behaviors.
2. *Operational Excellence*: Organizations achieve sustained, high levels of operational performance, encompassing all DOE and contractor activities to meet mission, safety, productivity, quality, environmental, and other objectives. High-reliability is achieved through a focus on operations, quality decision-making, open-communications, deference to expertise, and systematic approaches to eliminate or mitigate error-likely situations.
3. *Oversight for Performance Assurance*: Competent, robust, periodic and independent oversight is an essential source of feedback that verifies expectations are being met and identifies opportunities for improvement. Performance assurance activities verify whether standards and requirements are being met. Performance assurance through conscious, directed, independent reviews at all levels brings fresh insights and observations to be considered for continuous safety and performance improvements.
4. *Organizational Learning for Performance Improvement*: The organization demonstrates excellence in performance monitoring, problem analysis, solution planning, and solution implementation. The organization encourages openness and trust, and cultivates a continual learning environment.

2.2 Safety Management Core Functions

The five ISM Core Functions established in DOE P 450.4 provide the structure for work activity that poses a hazard to the public, workers, and the environment. The Functions are applied as a continual cycle appropriate to control the work hazards. The five key ISMS Core Functions (CF) are:

1. *Define the Scope of Work*: Missions are translated into work, expectations are set, tasks are identified and prioritized, and resources are allocated.
2. *Analyze the Hazards*: Hazards associated with the work are identified, analyzed, and categorized.
3. *Develop and Implement Hazard Controls*: Applicable S/R are identified and agreed upon, controls to prevent/mitigate hazards are identified, the safety envelope is established, and controls are implemented.
4. *Perform Work within Controls*: Readiness is confirmed and work is performed safely.
5. *Provide Feedback and Continuous Improvement*: Feedback information on the adequacy of controls is gathered, opportunities for improving the definition and planning of work are identified and implemented, line and independent oversight is conducted and, if necessary, regulatory enforcement actions occur.

2.3 Responsibilities for Safety Management

The Boeing Company EHS management responsibilities are defined in its Enterprise Policies, (POL), Procedures (PRO), Business Process Instructions (BPI) and Guides. Particularly, POL-4, *Environment, Health and Safety* and PRO-910, *Protection of the Environment, Health and Safety* form the foundation for Boeing's EHS responsibilities. Additional DOE-specific responsibilities are contained in ETEC Closure Documents, such as Engineering Instruction Documents (EID), Engineering Product Articles (EPA), Quality Assurance (QA), etc.

2.4 Implementation of Safety Management

Section 6.0 specifies safety implementation actions, Performance Objectives, Measures and Commitments (POMCs), systems, and attributes.

3.0 Management Commitments and Expectations

ETEC Closure achieves the ISMS objective by requiring that each employee, user, subcontractor or visitor be responsible for his or her own safety and the safety of those working nearby and for protecting the environment. Table 1 shows what is required of individuals working at or visiting ETEC.

The individual working at ETEC Closure is required to:

- Complete the education and training required to perform assigned work safely and without damage to the surrounding environment.
- Maintain proficiency and awareness of safety and environmental protection requirements by refresher training as needed.
- Take responsibility for performing work safely.
- Protect the environment.
- Immediately notify management of unsafe conditions, near misses, and incidents.

The Boeing EHS organization and the DOE ETEC Project Office (EPO) provide oversight to ensure that the workers on the ETEC Closure Program are implementing the ISMS objective:

TABLE 1 - What Is Required Of Individuals at ETEC

Individuals	Expectations
Employees, Subcontractors, Users, and Visitors	• Obtain the appropriate safety and environmental orientation training for work assignments. • Be aware of the hazards and potential environmental implications associated with work assignments. • Wear appropriate personal protective equipment (PPE) and monitoring devices for work assignments. • Perform work in a safe and environmentally responsible manner within the constraints of the Work Order instructions. • Inform management of any activity that presents an immediate safety hazard or threat to the environment, or is in violation of any standard contained in the Work Orders. • Stop operations if conditions warrant (N/A to Visitors) • Comply with all applicable laws, regulations, and ETEC Closure Program-specific rules.
Subcontractors (who perform work under a purchase order or who perform specific jobs)	• Comply with applicable laws, regulations, and ETEC-specific rules. Provide safety training and PPE for themselves and their employees. *Note: Site-specific training, that is, training not available off-site, is provided to subcontractors. Required Radiation safety training is an example of the type of specialized training that may be provided.* • Provide required medical clearance or surveillance for themselves and their employees.
Construction Subcontractors	• Submit a project-specific Health and Safety Plan (HASP) as prescribed in the Program Management Plan for ETEC Closure (PMP-00001, *Program Management Plan for ETEC Closure).* • Perform Process Hazards Analysis. • Institute a worker safety awareness program.

Guests or Members of Public Tours	• Act in a safe and environmentally responsible manner. • Comply with escort.

4.0 Safety Performance Objectives, Measures and Commitments

ETEC assesses its EHS performance against annual goals tailored to the work being performed. Example measures to help assure that these goals are achieved include:

- Monthly field audits
- Timely distribution of relevant DOE ES&H communications
- Maintaining current training, particularly in areas relevant to ETEC operations
- Updating ETEC directive documents as appropriate to ensure compliance with changes in DOE contract requirements
- Incorporating EHS in annual Performance Evaluations

5.0 Roles and Responsibilities

The ETEC Closure Program organization is shown in Figure 1, *SSFL EHS Organization*, and Figure 2, *ETEC Site Closure Organization*, which depicts line management flow for the ETEC Closure Project. The ETEC Site Closure Program activities are described relative to the Work Breakdown Structure (WBS) in Table 2.

The Boeing SSFL Site EHS Director - The Santa Susana EHS Director has the ultimate responsibility for accomplishing the program contractual milestones in a safe and environmentally responsible manner within the cost and schedule targets set by the Project Office and is responsible for administrating the Boeing SSFL Injury and Illness Prevention Program.

The mission of the SSFL Site EHS Director is to serve as the primary focal point for safety, health and environmental affairs, across a broad spectrum of interrelated process organizations. This position is responsible for representing the business before government regulatory authorities and developing and communicating guidance concerning Boeing SSFL location. The mission is to proactively implement company policies and ensure compliance with applicable regulatory requirements on matters of environment, health and safety management. This position is also responsible for ensuring coordination with the Boeing Law Department.

ETEC Closure Program Office - The ETEC Closure Program Office is responsible for directing all program activity and is accountable for the successful accomplishment of technical objectives, schedule requirements, cost management, and implementation of the DOE Environmental Management System (EMS).

Manager, Health, Safety and Radiation Services – Health, Safety and Radiation Services has direct accountability and overall responsibility for the health and safety program for all workers and visitors at ETEC areas within Area IV.

Health & Safety - Health & Safety (H&S) is responsible for maintaining an effective program and for ensuring that the EHS policy objectives related to employee health and safety are achieved; for coordinating work-related medical services. Support for implementing the Medical Program is provided through a designated Boeing host medical office and an authorized contract medical provider.

Radiation Services - Radiation Services is responsible for providing radiological support for the decontamination & decommissioning (D&D) of radiological facilities, for the controlling of operations which utilize radioactive materials or devices which produce ionizing radiation, for preventing radiation injuries and illnesses, for minimizing radiation exposures and releases of radioactivity, and for demonstration of compliance with regulatory requirements.

Manager, Environmental Protection - Environmental Protection ensures the effective implementation of Boeing environmental quality objectives and encompasses the management of hazardous waste, hazardous materials inventory, air quality, surface/storm water quality, and preservation of natural resources.

Manager, EHS Site Closure - The Manager, EHS Site Closure has direct line responsibility for the Person-In-Charge (PIC) personnel and through the PICs oversees the health and safety of field personnel and visitors to project worksites.

Person-In-Charge (PIC) – The PIC implements the policy of the Santa Susana EHS Director and has the responsibility to ensure that subcontract personnel comply with Boeing, DOE and other regulatory requirements, and the subcontractor's health and safety plans. The PIC is responsible to oversee the safety of the workers at the facility or work site, and for the safe operation of the facility.

Subcontractors – Subcontractors are responsible for the safety of their employees and ensuring compliance with Boeing and applicable regulatory requirements. Subcontractors are required to meet Boeing SSFL safety, health, and environmental protection requirements by compliance with contract commitments, the Boeing SSFL Service Provider Manual made part of the supplier's contract.

Employees – Employees are responsible for performing their duties in accordance with Boeing requirements. This includes performing duties in accordance with any training received and complying with any specific requirements imposed relating to environmental protection or worker safety. Employees must also report hazardous substance releases, injuries and other incidents, near misses, and unsafe work conditions to management, as required in Boeing Procedure-910, *Protection of the Environment, Health and Safety*.

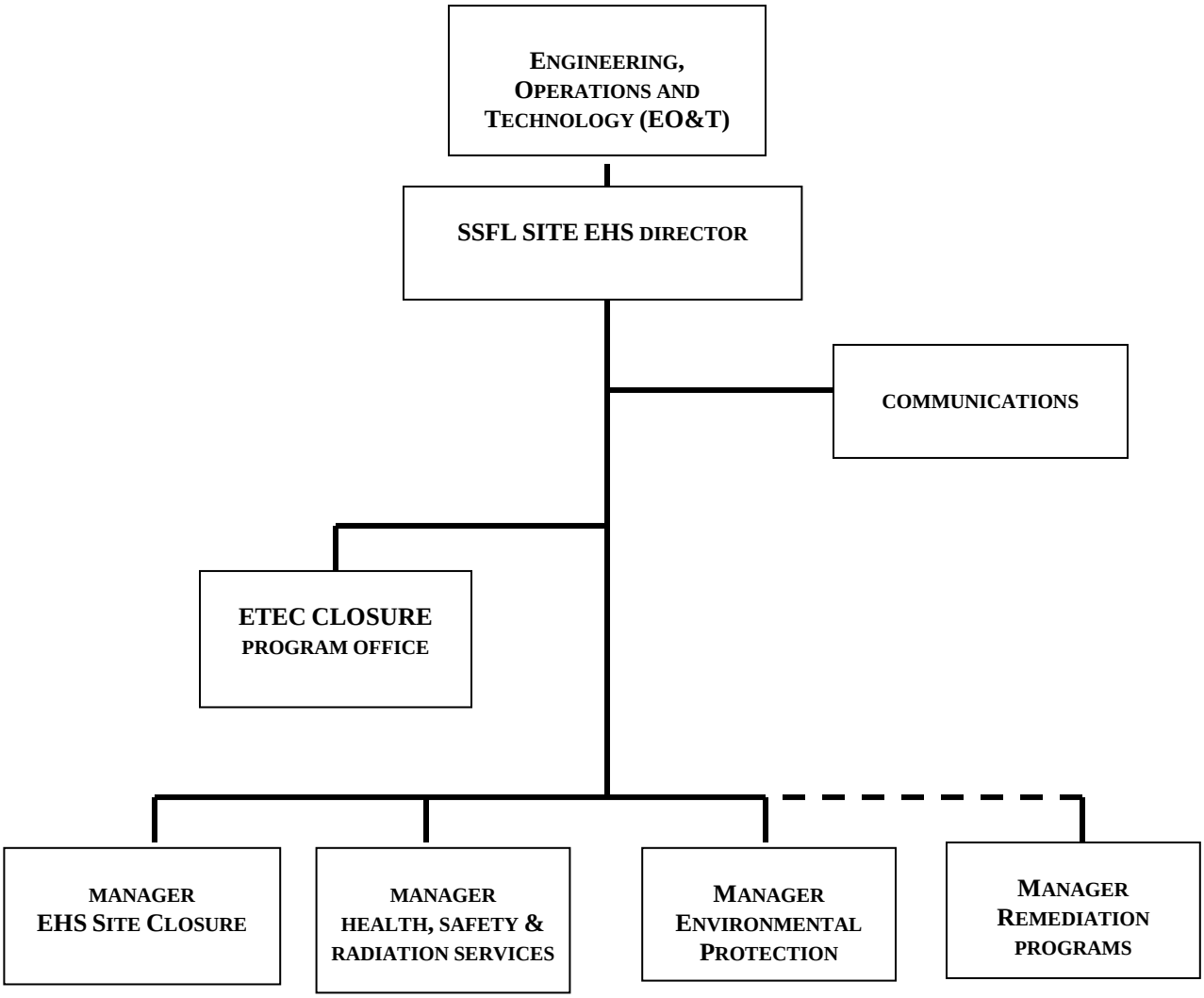

FIGURE 1 – SSFL Environment, Health and Safety (EHS) Organization

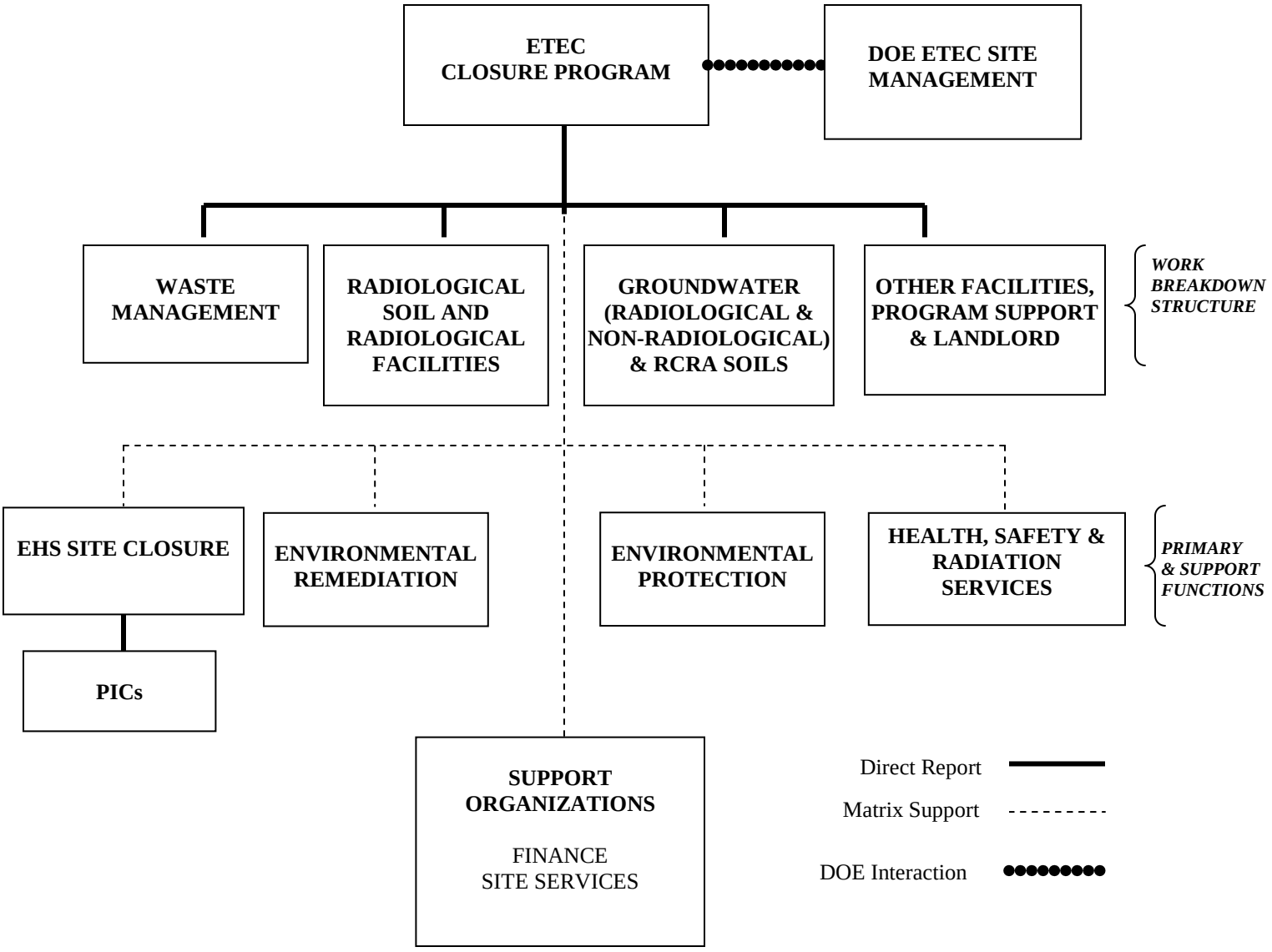

FIGURE 2 - ETEC Site Closure Program Organization

TABLE 2 - ETEC Site Closure Program

ETEC SITE CLOSURE	
WBS 1.1 Waste Management	Hazardous Waste
	Radioactive Low Level Waste
	Mixed Low Level Waste
WBC 1.2.2 D&D of Facilities	RMHF SPTF SETF
WBS 1.2.1 Soil and Groundwater Remediation	Radiological Groundwater
	Radiologic Soil
	RCRA Groundwater
	RCRA Soil
WBS 1.3 Program Support	Program Management
	EIS Support
WBS 1.4 Landlord	Permits
	Site-wide Safety
	EEOICPA

6.0 Implementation of ISM at ETEC

6.1 Approach for Executing ISM Principles

6.1.1 Principle 1: Line Management Responsibility for Safety

Boeing specifically recognizes the line management responsibility for EHS at the Enterprise level as in POL-4, *Environment, Health and Safety* and PRO-910, *Protection of the Environment, Health and Safety*.

Line management responsibility flows from the Boeing Enterprise level to the ETEC Closure Program, including the responsibilities of individual employees. ETEC Closure Document, EPA-00060, *Health & Safety Plan for Contract DE-A03-99SF21530,* clearly articulates line management's responsibility for safety. Every manager is required to implement the EHS policies and procedures of the company as well as assure that all members of their team receive required EHS training. Each year performance evaluations rate employees on the effectiveness of their efforts to take responsibility to ensure a healthy and safe work environment. Employees are informed of their safety and health rights and responsibilities, including posting the DOE-designated Worker Protection Poster which is accessible to all employees involved in the ETEC Closure Program.

Performance Objectives, Measures and Commitments

Objectives and Attributes

- Safety and Health
  Boeing and its employees are committed to:
  - Conduct operations in compliance with applicable laws, regulations and Boeing policies and procedures.
  - Continually reduce occupational injuries/illnesses by assessing, evaluating, communicating, and controlling or eliminating occupational health and safety risks.
  - Continually improve our occupational health and safety management system.
  - Work together with our stakeholders on activities that promote occupational health and safety.

- Environment
  Boeing is committed to:
  - Conduct operations in compliance with applicable environmental laws, regulations, and Boeing policies and procedures.
  - Prevent pollution by conserving energy and resources, recycling, reducing waste and pursuing other source reduction strategies.
  - Continually improve our environmental management system.
  - Work together with our stakeholders on activities that promote environmental protection and stewardship.

Functional Areas Incorporating Boeing Management Systems to Achieve Objectives and Attributes

- Boeing SSFL EHS
- ETEC Closure Program Office

Boeing Policies and Procedures

- POL-4, *Environment, Health and Safety*
- PRO-910, *Protection of the Environment, Health and Safety*
- EPA-00060, *Health & Safety Plan for Contract DE-A03-99SF21530*

Performance Measures and Commitments

- Safety performance is incorporated into employee Performance Evaluations
- The ISMSD is reviewed annually for updating as needed

6.1.2 Principle 2: Clear Roles and Responsibilities

Clear roles and responsibilities are important to an effective EHS management system. The line responsibility and authority for complying with safety, health and environmental laws, standards and regulations flows from the EHS Director to ETEC Site Closure Program Management, to the PICs, and to field personnel. The responsibilities assigned to each of the individuals associated with the ETEC Site Closure contract are included in Boeing EHS directive documents and in the ETEC Closure Program Documents which are available on the SSFL EHS web site or from the Program Management Office.

Performance Objectives, Measures and Commitments

Objectives and Attributes
- Lines of authority and responsibility are documented in Enterprise EHS directive documents and ETEC Closure Program Documents.
- Personnel understand the importance of ensuring safe and environmentally responsible operations.
- Employee involvement is incorporated into the implementation of an effective management process.
- Responsibility and authority for EHS is well defined, understood and integral to work scope performance.
- Employees are held accountable for meeting EHS requirements and expectations.

Functional Areas Incorporating Boeing Management Systems to Achieve Objectives and Attributes
- Boeing SSFL EHS
- ETEC Closure Program Office

Boeing Policies and Procedures
- POL-4, *Environment, Health and Safety*
- PRO-910, *Protection of the Environment, Health and Safety*
- EPA-00060, *Health & Safety Plan for Contract DE-A03-99SF21530*
- SSFL Injury & Illness Prevention Program
- PRO01909, *Administration of Employee Corrective Action*

Performance Measures and Commitments
- Training completion is tracked through the Enterprise My Learning tracking system
- Safety performance is incorporated into employee Performance Evaluations
- The ISMSD is reviewed annually for updating as needed and distributed to affected personnel for review

6.1.3 Principle 3: Competence Commensurate with Responsibilities

An effective EHS management system ensures that personnel possess the knowledge, skills, and abilities necessary to effectively perform their responsibilities.

The ETEC Closure Program retains the support of qualified EHS personnel to participate in the implementation of ETEC Closure tasks, including:

- Health physicists
- Certified Health Physicists (CHP)
- Professional Engineers (PE)
- Environmental professionals
- Geologists
    - Registered Geologists(RG)
    - Professional Geologists (PG)
- Health and safety specialists
    - Certified Safety Professionals (CSP)

- Certified Industrial Hygienists (CIH)
- Certified Asbestos Consultants and Site Surveillance Technicians

Managers are responsible for evaluating the skill level and training necessary to perform activities and for ensuring that people are trained and prepared to perform their work assignments. Managers accomplish this by completing employment requisitions, job descriptions, annual performance evaluations, and employee training assessments. The Program Management Plan for ETEC Closure, PMP-00001, requires that senior line managers are qualified to define, prioritize, and approve work, and qualified in the allocation of resources. In addition, employees may continuously assess their own knowledge and skills required for anticipated tasks and take Boeing training as well as off-site classes to acquire new skills or enhance their current skills as part of their Professional Development Plan (PDP).

The following processes are used to maintain the competence of SSFL employees.

- **Employment Requisitions –**

  Appropriate experience, knowledge, skills, and abilities for work responsibilities are identified in employment requisitions for all employees, including management.

- **Boeing Performance Management (PM) –**

  Performance Management (PM) integrates performance evaluation and development planning. Performance Management is designed to help employees and managers identify, record, track, and evaluate employees' performance on Business Goals and Objectives and Performance Values or Leadership Attributes. As part of the PM process, development planning provides employees the opportunity to engage in discussion with their manager on current development needs as well as career goals and aspirations. The Performance Management (PM) process applies to all Boeing SSFL employees.

  Performance Management for managers will include a review of ISMS-related responsibilities. Managers complete performance evaluations annually for personnel under their direction. Technical performance, adherence to safety policy, and assessment of training needed are subjects covered in the annual employee evaluation.

- **Employee Training Assessments –**

  Appropriate training facilitates achieving the competence needed for assigned responsibilities. Managers review training requirements and completed training records for all of their employees to determine training needs consistent with current job skill requirements. The Boeing My Learning web tool provides a Boeing enterprise-level tool for managers and employees to track completion of EHS training requirements.

- **MyLearning** -

  Boeing Enterprise EHS has specified the training requirements necessary to comply with regulatory standards applicable to company operations, which, in turn help achieve the ISMS objective.

- **Radiation Safety – Visitor Orientation-**

  In addition to the processes used to maintain employee competence, visitors to ETEC Closure areas will, at the discretion of the ETEC Closure Project Management Office or other direction of Health, Safety and Radiation Services, receive orientation training on the subject. Records are kept to document training completion.

Performance Objectives, Measures and Commitments

Objectives and Attributes

- Boeing recognizes employees are its most valuable asset and has a robust training program.

- Boeing training and professional development processes ensure that technical capabilities are current for the employees.
- Continuous learning is a sustained value through definitive training and qualification programs.
- Assignments and delegations of safety are made to individuals with the necessary technical expertise and experience.
- Training upholds management standards and expectations.
- ETEC employees are informed of significant DOE Lessons Learned (LL), Occurrence Reports (ORPS), and Operating Experience Summaries (OES).
- Outside expertise is acquired as needed to ensure competent mission performance
- ETEC has knowledgeable employees able to make a broad spectrum of project, operational and technical decisions.
- ETEC employees investigate and analyze anomalies.
- Candid dialogue and debate are present during the evaluation of safety issues.
- Differing opinions are welcomed and respected; ETEC employees have the freedom to raise differing professional opinions.

Functional Areas Incorporating Boeing Management Systems to Achieve Objectives and Attributes
- Boeing SSFL EHS
- ETEC Closure Program Office

Boeing Policies and Procedures
- POL-4, *Environment, Health and Safety*
- PRO-910, *Protection of the Environment, Health and Safety*
- PRO-4338, *Learning, Training and Development*
- EPA-00060, *Health & Safety Plan for Contract DE-A03-99SF21530*
- EPA-00062, *10 CFR 851 Compliance Plan*
- EID-04450, *ETEC Closure Training Plan*

Performance Measures and Commitments
- Review, as necessary, qualifications and training status for ETEC Closure staff
- Complete Perfromance Development Plans for each employee

6.1.4 Principle 4: Balanced Priorities

Boeing clearly sets out expectations for line management to ensure that appropriate resources are devoted to ensuring effective EHS management over its operations. For ETEC Closure, the ETEC Site Closure Contract describes the overall work to be performed. The current year scope of work is also detailed in the Performance Baseline For each project, work instructions are detailed in a statement of work or details of Cost Accumulation Plans. The Multi-Year Work Plan requires that safety be incorporated into work planning and budgeting.

ETEC uses the following tools, as appropriate to the planned activities, to achieve balanced priorities of the contract closeout activities and the safety objectives:

- Contract
- Performance Baseline
- Program Management Plan (PMP)
- Project Management Plan (PMP)
- Statement of Work (EID)
- Process Hazards Analysis (EID-06146)
- Engineering Report (ER)
- Engineering Information Document (EID)
- Engineering Work Request (EWR)
- Radiation Work Permit (RWP)
- Budget process

The annual budgeting process includes identifying and prioritizing:

- Site investigation and characterization
- Remediation operations
- Hazards and hazard mitigation activities
- Waste management
- Demolition
- Site restoration

The ETEC Closure Contract work scope or mission to be accomplished for each year is negotiated between DOE and Boeing SSFL. The overall mission is subdivided into summary and detailed tasks (Project Management Plan or Statement of Work). Summary and detailed tasks are broken into sub-tasks which are working instructions for the PICs, (Engineering Information Document, Engineering Work Request Document, Radiation Work Permit), and a logic linked schedule showing task inter-relationships. Hazards and risks associated with each major project are identified at the time of writing a Project Management Plan or Statement of Work. The tasks necessary to mitigate the hazards are included in the overall Program Schedule and related Program Budgets. Detailed, time-phased budgets for all tasks are developed to provide management visibility for the work to be performed during the upcoming year. The basic continuous operation and remedial operation activity budgets contain funding for daily safety actions required by team members. The safety actions, such as daily safety meetings, process hazard analysis, Project Impact Evaluations, site-specific safety training, etc. are integrated into closure tasks.

The budgets and schedule are reviewed by the ETEC Closure Program Office to assure that adequate resources are allocated to perform the operational as well as the safety, health and environmental aspects of the contractual work. Priorities are modified if necessary and earned value milestones are established in the time-phased budgets. The cost account plans (CAPS) are then approved for implementation. Funds are released to the ETEC closure team and progress tracking begins. This process assures that program resources are reviewed frequently and that they are efficiently allocated to address safety, programmatic, and operational considerations.

Program management regularly communicates the status of contractual work, including any safety issues and needs, with the SSFL EHS Director.

The general work scope process flow, incorporating risk-based hazard analysis, is pictured in FIG. 3.

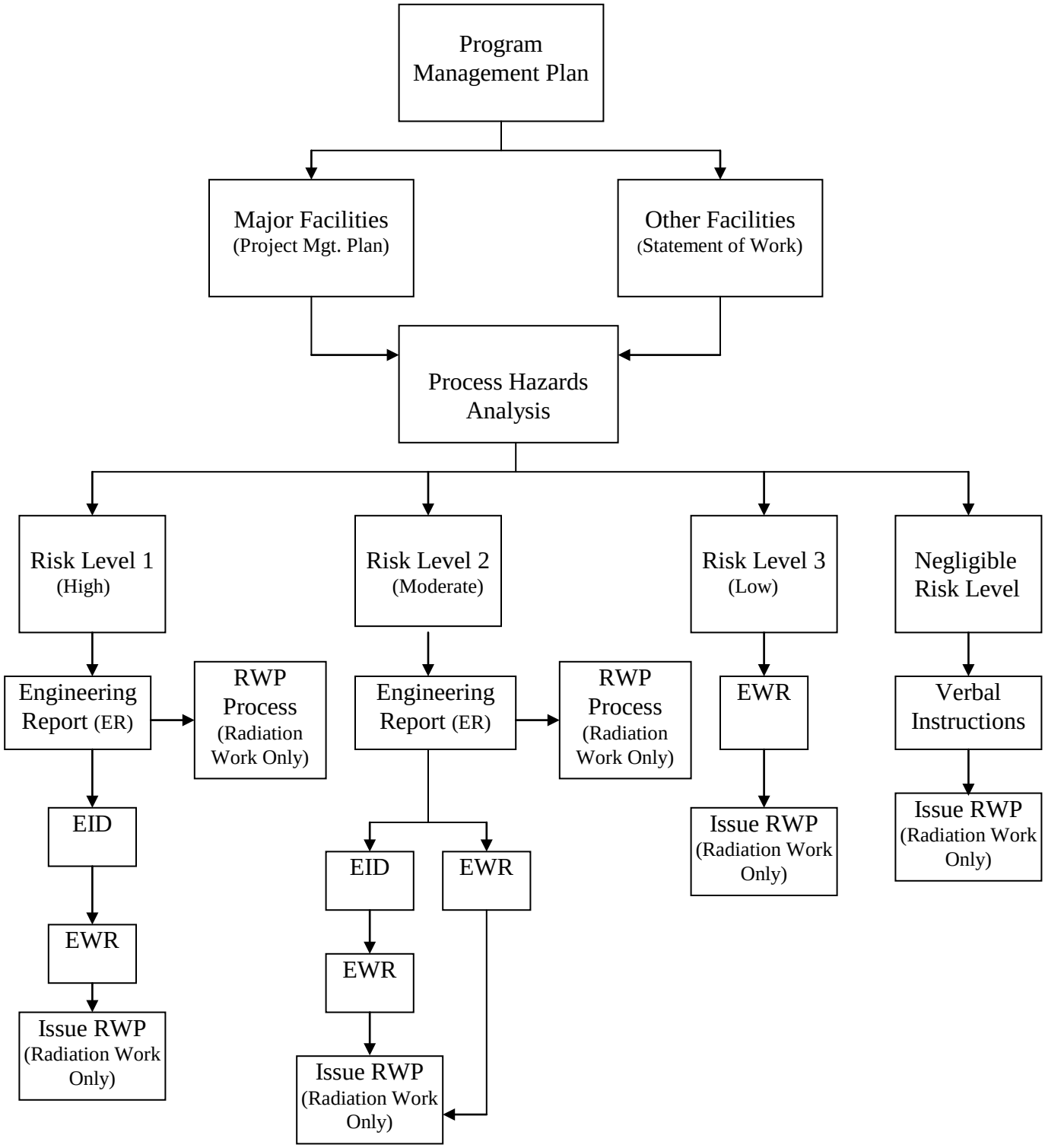

FIGURE 3 - In-House Work Scope Process Flow Chart

Performance Objectives, Measures and Commitments

Objectives and Attributes
- Project management systems are in place to plan the mission, evaluate performance, control cost to authorized funding levels, and implement baseline changes as needed.
- Safety and quality concerns receive full consideration in funding/schedule decisions.
- System checks and balances ensure safety considerations are adequately weighed and prioritized.
- Safety and quality are incorporated into projects and activity reviews specific to technology development and implementation.
- SSFL management is informed of significant safety issues in a timely manner.
- Adjust ETEC budget priorities to address safety concerns.

Functional Areas Incorporating Boeing Management Systems to Achieve Objectives and Attributes
- Boeing SSFL EHS
- ETEC Closure Program Office

Boeing Policies and Procedures
- POL-4, *Environment, Health and Safety*
- PRO-910, *Protection of the Environment, Health and Safety*
- EPA-00060, *Health & Safety Plan for Contract DE-A03-99SF21530*
- EPA-00062, *10 CFR 851 Compliance Plan*

Performance Measures and Commitments
- ETEC Closure Project management ensures that adequate EHS review is performed for new and continuing projects.

6.1.5 Principle 5: Identification of Safety Standards and Requirements

The Boeing Company and the ETEC Closure Program have policies, procedures, programs, and processes, as well as qualified staff designed to ensure that appropriate EHS standards and requirements are identified for proposed work tasks. SSFL EHS, ETEC Closure staff, and subcontractors coordinate efforts to identify applicable EHS standards and requirements through the SSFL Project Impact Evaluation System or the Facility Demolition Process as implementing elements of the Process Hazards Analysis.

Each process involves the early identification of hazards and relevant EHS standards and requirements. Expectations are identified initially by Boeing after which the subcontractor provides a health and safety plan. The submitted plan is then reviewed by key EHS subject matter experts for adequacy before authorization to proceed is given.

Performance Objectives, Measures and Commitments

Objectives and Attributes
- Clear technical safety directives are established based on sound data and judgment.
- Clearly-defined safety requirements incorporated into closure project contracts.
- Boeing will manage contracts to enforce safety performance.
- Boeing approves deviations based upon thorough analysis of safety requirements.

Functional Areas Incorporating Boeing Management Systems to Achieve Objectives and Attributes
- Boeing SSFL EHS
- ETEC Closure Program Office

Boeing Policies and Procedures
- POL-4, *Environment, Health and Safety*
- PRO-910, *Protection of the Environment, Health and Safety*

- PRO-2751, *Environmental, Safety and Health Management Program for Service Providers*
- EPA-00060, *Health & Safety Plan for Contract DE-A03-99SF21530*
- EPA-00062, *10 CFR 851 Compliance Plan*
- EID-06146, *Process Hazards Analysis for Closure of ETEC*
- PB08-009, *Demolition Subcontractor General Requirements*
- PMP-00001, *Program Management Plan for ETEC Closure*
- Document 239-10-00214, *Boeing Service Provider Manual (including SSFL Addendum)*

Performance Measures and Commitments
- ETEC Closure Project management ensures that adequate EHS review is performed for new and continuing projects.

6.1.6 Principle 6: Hazard Controls Tailored to Work Being Performed

An effective EHS management process ensures that hazard controls are tailored to the work being performed and the nature and extent of the hazards. The tailoring of hazard controls is integrated into the Project Impact Evaluation System and Facility Demolition process. Health and Safety Plans provided by subcontractors are evaluated against the scope of work and initial hazard control requirements identified by Boeing. Any adjustments are communicated through the PIC to the subcontractor for action before authorization to proceed is given. Field changes to the agreed EHS criteria are accepted by Boeing and recorded in the project documentation before implementation.

Performance Objectives, Measures and Commitments

Objectives and Attributes
- ETEC Closure work will be performed within the hazard controls specified within the authorization basis documentation.
- ETEC Closure work hazard analyses will be based on sound data and judgment.
- ETEC Closure work is designed and controlled to reduce/eliminate the hazards.
- Work is not performed until the hazard analysis is complete and potential threats are addressed.
- ETEC will provide sufficient oversight to ensure controls within the authorization basis adequately address known hazards.

Functional Areas Incorporating Boeing Management Systems to Achieve Objectives and Attributes
- Boeing SSFL EHS
- ETEC Closure Program Office

Boeing Policies and Procedures
- POL-4, *Environment, Health and Safety*
- PRO-910, *Protection of the Environment, Health and Safety*
- PRO-2751, *Environmental, Safety and Health Management Program for Service Providers*
- EPA-00060, *Health & Safety Plan for Contract DE-A03-99SF21530*
- EPA-00062, *10 CFR 851 Compliance Plan*
- EID-06146, *Process Hazards Analysis for Closure of ETEC*
- PB08-009, *Demolition Subcontractor General Requirements*
- Document 239-10-00214, *Boeing Service Provider Manual (including SSFL Addendum)*
- RS-00014, *Radiation Protection Plan for the Implementation of 10 CFR 835*

Performance Measures and Commitments
- Boeing Health and Safety will conduct audits of field operations to verify that agreed hazard controls are implemented.
- Boeing EHS will adequate review of authorization basis documentation.

6.1.7 Operations Authorization

The ETEC Closure Program assures operations authorization of subcontractor activities through the Boeing Supplier Management contracting process, Security access authorization, the Project Impact Evaluation System, and the Facility Demolition process. At each of these stages authorization to conduct operations is assessed to ensure that the subcontractor is qualified to perform the work, has provided a cost-effective workplan, has minimum insurance coverage, has received Boeing contract and safety obligations requirements, has appropriately trained employees, appropriate citizenship status, and an adequate safety and health plan consistent with the approved scope of work. Additionally, all field operations are overseen by an assigned PIC.

Performance Objectives, Measures and Commitments

Objectives and Attributes

- The ETEC Closure Project Office ensures that site work is properly reviewed using established Boeing work processes and SSFL project oversight processes.

Functional Areas Incorporating Boeing Management Systems to Achieve Objectives and Attributes

- Boeing SSFL EHS
- ETEC Closure Program Office

Boeing Policies and Procedures

- POL-4, *Environment, Health and Safety*
- PRO-910, *Protection of the Environment, Health and Safety*
- PRO-2751, *Environmental, Safety and Health Management Program for Service Providers*
- EID-06146, *Process Hazards Analysis for Closure of ETEC*
- PB08-009, *Demolition Subcontractor General Requirements*
- Document 239-10-00214, *Boeing Service Provider Manual (including SSFL Addendum)*
- RS-00014, *Radiation Protection Plan for the Implementation of 10 CFR 835*
- QA-0007, *Evaluation and Approval of Suppliers*

Performance Measures and Commitments

- Boeing Health and Safety will conduct audits of field operations to verify that agreed hazard controls are implemented.
- Boeing EHS will adequate review of authorization basis documentation.

6.1.8 Supplemental Safety Culture Principle 1: Individual Attitude and Responsibility for Safety

Boeing has assigned to each employee the responsibility to conduct their activities in a safe and environmentally responsible manner, provides a comprehensive training system to communicate necessary knowledge, skills and performance expectations, and has instituted management systems to encourage and make corrections to, when necessary, employee safety performance. ETEC fosters an open, proactive culture for employees to take the initiative to question or take immediate action, when necessary, to ensure safe environmentally responsible operations.

PICs and other key oversight personnel meet frequently to review planned and ongoing field activities, indicate concerns, ask questions, and obtain actionable responses. The SSFL EHS Council, comprised of line management and key subject matter experts, meets monthly to review incidents, assess overall program performance and act on questions or issues of concern that have been raised.

Performance Objectives, Measures and Commitments

Objectives and Attributes

- ETEC employees understand and demonstrate responsibility for safety. Safety and its ownership are apparent in everyone's actions and deeds.

- ETEC employees are actively involved in identification, planning, and improvement of work and work practices. They follow approved procedures. They can stop unsafe work at any level or during unexpected conditions.
- ETEC employees promptly report errors and incidents. They feel safe from reprisal in reporting errors and incidents; they offer suggestions for improvements.
- ETEC employees maintain a questioning attitude toward safety and are intolerant of conditions or behaviors that create unacceptable compromises to site safety or the environment.

Functional Areas Incorporating Boeing Management Systems to Achieve Objectives and Attributes
- Boeing SSFL EHS
- ETEC Closure Program Office

Boeing Policies and Procedures
- POL-4, *Environment, Health and Safety*
- PRO-910, *Protection of the Environment, Health and Safety*
- EPA-00060, *Health & Safety Plan for Contract DE-A03-99SF21530*
- EID-06146, *Process Hazards Analysis for Closure of ETEC*
- SSFL Injury & Illness Prevention Program

Performance Measures and Commitments
- Boeing Health and Safety will conduct audits of field operations to verify that agreed hazard controls are implemented.
- Boeing EHS will adequate review of authorization basis documentation.

6.1.9 Supplemental Safety Culture Principle 2: Operational Excellence

Boeing and SSFL provide layers of systems and processes to foster a culture and performance of safety excellence. Performance is measured and tracked to maintain safe operations and progress. These processes include:

- The Safety Deck - a standardized collection of monthly EHS metrics related to leadership commitment, EHS training, incident investigation, hazard prevention, and injury rate tracking
- The Incident Reporting System (IRS) - documents incident investigations and mitigating actions to closure
- The SSFL EHS Council – a monthly meeting of SSFL leaders devoted to monitoring and assessing EHS performance matters
- The Contractor Safety Forum – a quarterly meeting designed to communicate with subcontractors about relevant matters concerning site safety and performance
- Frequent communication – EHS Bulletins and other useful information concerning safety and health are distributed to site personnel, including subcontractors.
- Safety auditing and behavioral safety observations – Field activities are visited frequently to monitor EHS performance and the information documented. Managers undertake to perform behavioral safety observations/engagements regularly and record the interactions in the Boeing behavior-based safety tracking system.

Close communications are a key. ETEC holds its personnel to high standards of performance and utilizes the expertise of its staff to ensure appropriate levels of review, analysis, and decision making. Boeing provides incentives for operational excellence through the Pride at Boeing system.

Performance Objectives, Measures and Commitments

Objectives and Attributes
- ETEC employees understand and demonstrate responsibility for safety. Safety and its ownership are apparent in everyone's actions and deeds.
- ETEC employees are actively involved in identification, planning, and improvement of work and work practices. They follow approved procedures. They can stop unsafe work at any level or during unexpected conditions.

- ETEC employees promptly report errors and incidents. They feel safe from reprisal in reporting errors and incidents; they offer suggestions for improvements.
- ETEC employees maintain a questioning attitude toward safety and are intolerant of conditions or behaviors that create unacceptable compromises to site safety or the environment.

Functional Areas Incorporating Boeing Management Systems to Achieve Objectives and Attributes
- Boeing SSFL EHS
- ETEC Closure Program Office

Boeing Policies and Procedures
- POL-4, *Environment, Health and Safety*
- PRO-910, *Protection of the Environment, Health and Safety*
- EPA-00060, *Health & Safety Plan for Contract DE-A03-99SF21530*
- EID-06146, *Process Hazards Analysis for Closure of ETEC*
- SSFL Injury & Illness Prevention Program

Performance Measures and Commitments
- Boeing conducts audits and behavioral safety observations of field operations to verify that agreed hazard controls are implemented.
- Boeing EHS will provide an adequate review of authorization basis documentation.

6.1.10 Supplemental Safety Culture Principle 3: Oversight for Performance Assurance

ETEC provides performance oversight through appropriate subcontractor selection, clear communication of performance expectations, site safety orientation, advance reviews of proposed project EHS documentation, field oversight by PIC staff, safety audits by Health and Safety staff, and behavioral safety observations by management and staff. Boeing EHS participates closely with subcontractors in the planning and implementation of proposed projects yet clearly communicates performance expectations to the subcontractor to own the responsibility for completing their projects safely and in compliance with applicable laws, regulations, and customer requirements. Subcontractors provide their own EHS oversight as part of their regulatory compliance and contractual obligations. Performance shortfalls, such as injuries, spills, etc., are promptly followed up to ensure that the circumstances leading to the incident are evaluated and effective control measure are in place to prevent recurrence.

Performance Objectives, Measures and Commitments

Objectives and Attributes
- ETEC ensures its performance through a system of oversight activities designed to anticipate, recognize, evaluate and control environmental, health and safety risks.
- ETEC management sets an example for safety through direct involvement in oversight activities and performance improvement.
- Performance improvement needs receive adequate and timely attention.

Functional Areas Incorporating Boeing Management Systems to Achieve Objectives and Attributes
- Boeing SSFL EHS
- ETEC Closure Program Office
- Supplier Management
- Finance

Boeing Policies and Procedures
- POL-4, *Environment, Health and Safety*
- PRO-910, *Protection of the Environment, Health and Safety*
- EPA-00060, *Health & Safety Plan for Contract DE-A03-99SF21530*
- EPA-00062, *10 CFR 851 Compliance Plan*
- EID-06146, *Process Hazards Analysis for Closure of ETEC*

- SSFL Injury & Illness Prevention Program
- PB08-009, *Demolition Subcontractor General Requirements*
- Document 239-10-00214, *Boeing Service Provider Manual (including SSFL Addendum)*
- RS-00014, *Radiation Protection Plan for the Implementation of 10 CFR 835*
- QA-0007, *Evaluation and Approval of Suppliers*

Performance Measures and Commitments
- Boeing will document oversight activities in project files, safety audit records and the behavior-based safety observation system.
- Boeing EHS will provide an adequate review of authorization basis documentation.

6.1.11 Supplemental Safety Culture Principle 4: Organizational Learning for Performance Improvement

Boeing fosters a learning environment through clear and managed mandatory training for EHS compliance, an extensive system of internal professional development training opportunities through the Learning, Training and Development organization, employee Professional Development Plans contained in the Performance Evaluation System designed to stimulate professional growth, and company support for qualified outside learning opportunities.

ETEC distributes insignts received through the Operating Experience Program, Occurrence Reporting System and Lessons Learned system to employees, and subcontractors, as appropriate.

Performance Objectives, Measures and Commitments

Objectives and Attributes
- ETEC fosters a learning environment by utilizing Boeing learning and development tools and disseminating insights available through DOE safety communication systems.

Functional Areas Incorporating Boeing Management Systems to Achieve Objectives and Attributes
- Boeing SSFL EHS
- ETEC Closure Program Office

Boeing Policies and Procedures
- POL-4, *Environment, Health and Safety*
- PRO-910, *Protection of the Environment, Health and Safety*
- EPA-00060, *Health & Safety Plan for Contract DE-A03-99SF21530*
- EPA-00062, *10 CFR 851 Compliance Plan*
- SSFL Injury & Illness Prevention Program

Performance Measures and Commitments
- ETEC will foster a organizational learning through compliance training, professional development, and communication of DOE safety communications directed toward performance improvement.

6.2 Implementation of the Five Core Functions

DOE P 450.4, *DOE Safety Management System Policy*, lists the five core safety management functions that provide the necessary structure for any work activity that could potentially affect the public, the workers, and the environment. The functions are applied as a continuous cycle with the level of detail appropriate to address the type of work activity and the hazards involved.

ETEC incorporates the ISM Principles and supplemental safety culture principles into the core safety management functions to provide an effective safety management system.

6.2.1 Core Function 1: Define Scope of Work

The Scope of Work for the ETEC Closure Project is contained in the Performance Baseline which is revised, as needed, in coordination with the DOE ETEC Project Office. Strategic direction for the Performance Baseline is provided by DOE. The performance measurement baseline consists of technical, scope, and related cost estimates as established in the project baseline. The technical requirements and objectives are used to develop the technical baseline, including work scope. The cost baseline represents estimates, units and dollars required to accomplish the technical work scope. The schedule baseline provides a set of time-phased, logic-driven activities which incorporate the work scope as constrained to cost. This baseline is the starting point for any subsequent baseline change management and is modified only through a formal documented change.

Work scopes for individual field projects defined by the Performance Baseline result in the development of detailed subcontractor work plans supported by comprehensive health and safety plans for Boeing review. Boeing assesses work plans and health and safety plans to ensure that relevant hazards have been identified and appropriate hazard mitigations established.

The figure below shows how the core functions integrate with the ISM principles for work scope definition.

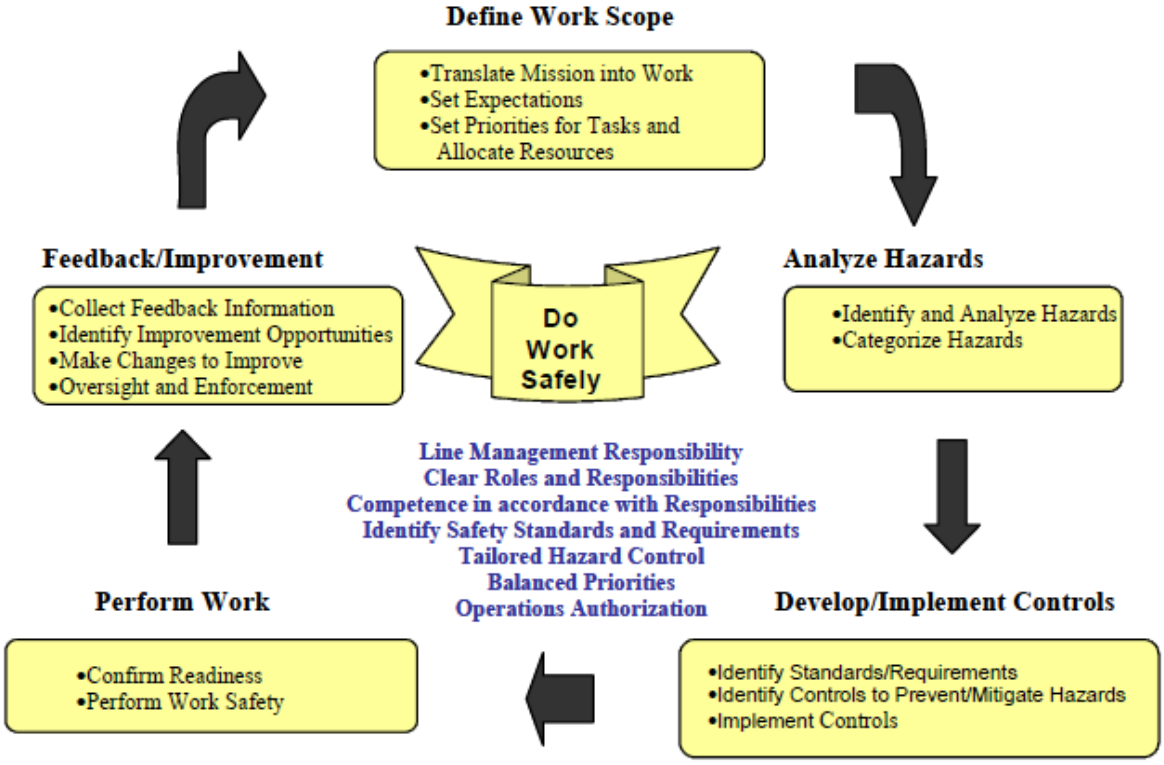

Figure 4 - Core Functions and Applicable Principles

6.2.2 Core Function 2: Analyze the Hazards

ETEC analyzes hazards according to EID-06146, *Guidelines for Performing Process Hazard Analyses for Closure of ETEC* or EID-04446, *Process Hazard Analysis (PHA) for RMHF Operations*, for operations at the Radioactive Material Handling Facility (RMHF). Hazard analyses are typically prepared and submitted to Boeing by subcontractors as an element of their Health and Safety Plan (HASP) or Job Hazard Analysis (JHA). Hazard analyses are reviewed by quaified, designated managers and subject matter experts during the Project Impact Evaluation or Facility Demolition process. Changes, additions, or corrections to submitted plans are referred back to

the subcontractor for action before work is authorized to begin. Changes to the Health and Safety Plan or Activity Hazard Analysis must be accepted by Boeing before implementation, and documented.

6.2.3 Core Function 3: Develop and Implement Hazard Controls

Before work is performed, the associated hazards are evaluated and site management and the operating contractor agree upon a set of EHS requirements that, if properly implemented, will provide adequate assurance that the public, onsite personnel, and the environment are protected. Hazard controls are identified in the subcontractor HASP or JHA consistent with the identified hazards and scaled to the nature and extent of the risk. Hazard controls are reviewed by quaified, designated managers and subject matter experts during the Project Impact Evaluation or Facility Demolition process. Changes, additions, or corrections to submitted plans are referred back to the subcontractor for action before work is authorized to begin. Changes to the Health and Safety Plan or JHA must be accepted by Boeing before implementation, and documented.

6.2.4 Core Function 4: Perform Work within Controls

The ETEC oversight processes - field oversight by PIC staff, safety audits by Health and Safety staff, and behavioral safety observations by management and staff function together with the subcontractor's own oversight processes form the means by which performance to commitments is monitored. Boeing employees have stop work and decline to work authority when such action is necessary until serious hazards are adequately addressed. Subcontractors also invest stop work authority in their employees.

6.2.5 Core Function 5: Provide Feedback and Continuous Improvement

The Program Management Office provides several avenues for communicating concerns about hazards in the workplace to the appropriate authorities for action. The first communication avenue is for workers to inform their manager of concerns.

Feedback on the adequacy of controls and other information that leads to the improvement of safety management systems for this program is obtained through:

- SSFL EHS Council
- Tailgate Safety Meetings
- Incident Reports
- Behavior-Based Safety Observation Program
- Safety Audits
- Safety Metrics
- DOE Operating Experience Analysis, Lessons Learned and DOE-wide ORPS reports
- Annual Review of EHS Programs
- Annual Update of the ISMS Description and Assessment of the ISMS

ETEC managers, Boeing employees and subcontractor personnel are involved with providing feedback and continuous improvement. Methods used to provide feedback and continuous improvements include the following:

- Incident Reports –The ETEC PMP-00001, *Program Management Plan for ETEC Closure*, requires that each incident be reviewed by an EHS subject matter expert and evaluated against the DOE Occurrence Reporting System criteria.

- Behavior-Based Safety (BBS) Program – The BBS Program provides a system for managers to engage workers regarding safe work practices. It facilitates real-time interaction between workers and managers concerning safe work performance and consistency with established work practice requirements. Observations are documented to monitor for any systematic weaknesses.

- Safety Audits - Monthly safety audits at the various ETEC closure facilities are conducted. Audit reports containing findings are issued and the findings are tracked until the findings are closed out.

- Safety Metrics – OSHA Incidence Rate, Lost Time Case Rate, and Lost Workdays Rate are maintained and displayed in metric charts with monthly and rolling 12-month data to provide performance feedback to management. Metrics are also maintained for BBS observations and employee training.

- DOE Health and Safety Information Review - ETEC Closure Contract management reviews and disseminates Lessons Learned, Occurrence Reports and Operating Experience Summaries.

- EHS Program Reviews - Enterprise EHS PROs are reviewed and updated as needed on a three year cycle. SSFL EHS programs are reviewed annually to assess their effectiveness and ensure compliance with applicable statutes, regulations, policies, contracts and procedures.

- Annual Assessment of the Integrated Safety Management System (ISMS), Annual ISMS Report, and Annual ISMS Description Document Update - An annual assessment of the ETEC Closure ISMS is conducted to determine the effectiveness of the program and to identify where process improvements can be made to the system.

- Evaluating and Resolving Non-Compliances - Monthly audits of safety, health and environmental activities are conducted commensurate with the level of operational activity. Corrective action is taken to address deficiencies.

- The ISMS Self Assessment Plan consists of Safety Audits (monthly), Quality Assurance Audits (when operations are in progress), and BBS Observations (when operations are in progress)

- Incidents and audit results are included in monthly ISMS reports.

7.0 Integration of EMS and QA into ISM

DOE O 450.1, *Environmental Protection Program*, establishes EMS requirements. The correlation of the EMS and QA components to the ISM principles and core functions is shown below in Table 3. The ETEC Closure Program Contract DE-A03-99SF21530 currently includes DOE O 450.1A, *Environmental Protection Program*. The Boeing Company maintains a strong commitment to the protection and preservation of the environment. This commitment is reflected in Boeing POL-4, *Environment, Health and Safety* and PRO-910, *Protection of the Environment, Health and Safety*.

Table 3 – Correlation of ESM and QA to ISM

ISMS Guiding Principles	Supplemental Safety Culture Principles	ISM Core Functions	Quality Assurance Criteria	EMS Objectives
1. Line Management Responsibility	1. Individual Attitude and Responsibility for Safety 2. Operational Excellence 3. Oversight for Performance Assurance 4. Organizational Learning for Performance Improvement	*All Five Core Functions 1. Define Scope of Work 2. Identify and Analyze Hazards 3. Develop and Implement Hazard Controls 4. Perform Work Within Controls 5. Feedback and Continuous Improvement	• Quality Assurance Program	• Policy, Planning, Implementation and Operation
2. Clear Roles and Responsibilities			• Personnel Training and Qualification	• EM FRA • HR Management Systems • Safety and Health Management
3. Competence Commensurate with Responsibilities			• Work Processes embraced • Documents and Records • Design • Procurement	• Permitting
4. Balanced Priorities			• Quality Improvement • Inspection and Acceptance • Management Assessment • Independent Assessment	• Public Health and Environmental Protection
5. Identification of Safety Standards and Requirements				• Pollution Prevention • Compliance
6. Hazard Controls Tailored to Work				
7. Operations Authorization				

7.1 Environmental Management System

The Boeing Company is committed to being a good steward of the environment. To implement sound stewardship practices which protect the air, water, and land, Boeing has established policies and procedures directed specifically at the responsible management of the environment and regulatory compliance. EM HQ enforces the responsibilities and requirements of DOE O 450.1A for itself and its contractors. The EMS is implemented to ensure environmental protection actions and measures are integrated into all work planning and performance. This is accomplished effectively by integrating EMS requirements into ISMS.
EMS is part of EM's overall ISMS approach for achieving workplace safety and environmental protection. EMS provides a systematic management process for identifying and addressing environmental consequences of an EM action. Processes within the EMS encompass a continuous cycle of planning, implementing, and evaluating to ensure the safety of the workers and public and protection of the environment.

Components of Boeing's environmental management system include:
- Legislative and regulatory review
- Pollution prevention

- Environmental compliance
- Hazardous materials and hazardous waste management
- Real property transactions EHS review
- Radiation protection and radioactive waste management
- Watershed management
- Cultural resource management

Specific elements of the ETEC Environmental Management System compliance plan are provided in the Table 4 crosswalk below.

TABLE 4 - Crosswalk - DOE Order 450.1A, *Environmental Protection Program*

REQUIREMENTS	**EXISTING PROGRAMS/PROCESSES**
1. Develop and implement an environmental management system. This system must be integrated into the site's Integrated Safety Management (ISM) system.	SSFL has an existing ISMS Description.
a. Each environmental management system must— (1) Reflect the environmental management system elements and framework found in the International Organization for Standardization's (ISO) 14001:2004 (E) International Standard or equivalent, including policies, procedures and training to identify operations and activities with significant environmental impacts; to manage, control, and mitigate the impacts of these operations and activities; and to assess performance, implement corrective actions where needed, and ensure continual improvement.	ETEC, through Boeing Policy-4, *Environment, Health and Safety*, is committed to: *"1. Conduct operations in compliance with applicable environmental laws, regulations, and Boeing policies and procedures.* *2. Prevent pollution by conserving energy and resources, recycling, reducing waste and pursuing other source reduction strategies.* *3. Continually improve our environmental management system.* *4. Work together with our stakeholders on activities that promote environmental protection and stewardship.* *Boeing will engage employees and stakeholders to continually improve environmental performance and occupational safety of operations, products and services."* Many details about Boeing's commitment and environmental management activities at Santa Susana can be reviewed on Boeing's web site at: http://www.boeing.com/aboutus/environment/santa_susana/index.html ETEC/SSFL frames its environmental management system in the context of the following local and Enterprise program documents – **LOCAL** *C-100.003, Preservation of SSFL Archeological Sites* *C-203, Hazardous Waste Management Program* *C-204.005, SSFL Stormwater Pollution Prevention Requirements* *C-207, Notification Requirements for the Excavation or Movement of Soil or Construction Debris in California* *SM-40 201, Surface Impoundment Monitoring*

REQUIREMENTS	**EXISTING PROGRAMS/PROCESSES**
	SM-40 202, Waste Analysis Plan **ENTERPRISE** *POL-4, Environment, Health and Safety* *PRO-910, Protection of the Environment, Health and Safety* *PRO-2609, Environmental Action Remediation Management* *PRO-2610, Hazardous Materials and Hazardous Waste Management* *PRO-2617, Safety, Health and Environmental Legislative Regulatory Review* Boeing also conducts its environmental management operations in a transparent manner with regulatory agencies, legislative representatives, and interested community members.
(2) Include environmental, energy, and transportation objectives and measurable targets that are reviewed annually, updated as appropriate, and contribute to achieving the DOE Sustainable Environmental Stewardship goals found in Attachment 2 of DOE O 450.1A, *Environmental Protection Program*, dated 6-4-08, and the energy and transportation goals in the CRD in DOE O 430.2B, *Departmental Energy, Renewable Energy and Transportation Management*, dated 2-27-08.	See SUSTAINABLE ENVIRONMENTAL STEWARDSHIP GOALS below
(3) Address tenant or concessionaire activities wherever such activities affect DOE's environmental, energy, and transportation management.	Not applicable
(4) Contain the elements of an Environmental Compliance Management Plan pursuant to the Council on Environmental Quality's *Instructions for Implementing Executive Order 13423*, page 9, section B, including— (a) A clear statement by senior leadership committing to achieve and maintain compliance with applicable environmental protection requirements.	ETEC meets this requirement through Boeing's POL-4, *Environment, Health and Safety*, which clearly states senior management's commitment to environmental protection.
(b) Clearly articulated roles and responsibilities related to environmental performance at all appropriate levels to ensure accountability for less than desired environmental performance.	For ETEC, environmental management rests with the SSFL Director and the Manager, Environmental Protection. Specific responsibilities are assigned to Environmental Protection staff members and designated subcontractors as shown in the Environment, Health and Safety (EHS) organizational information on the SSFL EHS website.
(c) An environmental compliance audit and review program that identifies compliance deficiencies and root causes of non-compliance.	Audits of ETEC are performed monthly as described in the ISMS Description and a program assessment is prepared annually. Hazardous waste management areas are inspected weekly in accordance with TSDF permit requirements.

REQUIREMENTS	EXISTING PROGRAMS/PROCESSES
(d) Integration of compliance management information and resource allocation procedures to ensure that audit findings and root causes of non-compliance are tracked and addressed, including allocation of funding.	Significant compliance needs are communicated to ETEC Closure Management and incorporated, as needed, into the Performance Baseline.
b. The environmental management system must encompass the environmental aspects of site operations and activities, including environmental aspects of energy and transportation functions, and it must promote the long-term stewardship of a site's natural and cultural resources throughout its design and construction, operation, closure, and post-closure life cycle. The environmental management system must address the following— (1) Sustainable practices for enhancing environmental, energy, and transportation management performance, as stipulated in Section 3(a) of E.O. 13423 and its Implementing Instructions.	SSFL works diligently with regulatory agencies and community members to implement and continue to develop, as needed, comprehensive environmental management plans to preserve and restore the site's natural and cultural resources, including environmental, energy and transportation management during the site closure process. Boeing's long-term plans for SSFL are open-space parkland. Boeing will ensure that natural and cultural resources are appropriately protected during the various environmental remediation programs, including those overseen by the DTSC and the DOE.
(2) Protection of public health and the environment, including but not limited to— (a) Conformity with State Implementation Plans to attain and maintain national ambient air quality standards. (b) Implementation of a watershed approach for surface water protection. (c) Implementation of a site-wide approach for groundwater protection. (d) Protection of other natural resources, including biota. (e) Assessment of the hazard of engineered nanomaterials and implementation of appropriate environment, safety and health controls. (See DOE P 456.1, *Secretarial Policy Statement on Nanoscale Safety*, dated 9-15-05.)	(a) SSFL retains Yorke Engineering to oversee all site operations to ensure federal and local air quality compliance. Yorke is on site at least weekly ensuring compliance by reviewing proposed work plans, inspecting regulated equipment, ensuring proper recordkeeping, and monitoring regulatory changes. (b) SSFL maintains a comprehensive watershed management approach to ensuring surface water protection under the oversight of the Regional Water Quality Control Board (RWQCB) and other agencies. The SSFL program has been a model for Boeing and incorporates the expertise of a panel of world-renowned hydrogeologists. (c) SSFL has implemented a site-wide groundwater remediation system under the direction of a panel of three of the world's leading experts in contaminant hydrogeology of fractured sedimentary rock -- Dr. John Cherry, Dr. David McWhorter and Dr. Beth Parker. Under their direction, the groundwater characterization program applies both conventional and advanced investigation methods, some of which are being pioneered at Santa Susana. The data being collected for groundwater characterization, which include groundwater sampling, seep and spring sampling, and extensive chemical and geotechnical analysis of bedrock core samples, are believed to be the most comprehensive dataset for any site anywhere in the world. (d) Natural resource preservation is a key element of SSFL's approach to site closure. SSFL is host to certain sensitive plant and animal species. Biologists survey every planned work location to identify important species and assist in

REQUIREMENTS	EXISTING PROGRAMS/PROCESSES
	making plans to ensure their preservation. (e) Not applicable
(3) Protection of site resources from wildland fires consistent with site wildland and operation fire management plans that consider the Federal Wildfire Management Policy recommendations. (See DOE G 450-1.4, *Implementation Guide, Wildland Fire Management Program*, for Use with DOE 450.1, *Environmental Protection Program*, dated 2-11-04).	SSFL works to protect site resources from wildland fires by incorporating fire prevention guidance into our Site EHS Orientation, requiring hot work permits, maintaining on-site fire prevention services, and performing annual brush clearing.
(4) Identification and protection of cultural resources.	SOP C-100.3, *Preservation of SSFL Archaeological Sites* provides specific direction concerning the protection of cultural resources at SSFL. Major programs include the input and active involvement of Native American monitors.
(5) The conduct of environmental and effluent monitoring, as appropriate, to characterize pre-operational conditions, and to detect, characterize, and respond to releases from site operations and activities; assess impacts; estimate dispersal patterns in the environment; characterize the pathways of exposure to members of the public; characterize the exposures and doses to individuals and the population; and evaluate the potential impacts to the biota in the vicinity of the release. Where appropriate, conduct an integrated monitoring and sampling approach to avoid duplicative data collection.	SSFL conducts environmental and effluent monitoring through its surface water management program and RCRA Corrective Action Program (CAP). Details concerning these programs are available from the Boeing website at: http://www.boeing.com/aboutus/environment/santa_susana/ Ambient air sampling for radionuclides is conducted in Area IV 24/7, with results reported in the Annual Site Environmental Reports (ASER). Annual NESHAPs reports are prepared for submission to EPA. Management, sampling, and analysis of infiltrated groundwater are conducted. Monitoring of groundwater wells is conducted on a quarterly basis. Radiation exposure to members of the public is analyzed and reported annually in the ASERs.
(6) Assurance that analytical work for environmental and effluent monitoring supports data quality objectives, using a documented approach for collecting, assessing, and reporting environmental data.	Analytical work for environmental and effluent monitoring programs at SSFL have developed and published quality assurance/quality control (QA/QC) procedures to ensure that field and laboratory data quality and project work meet the data quality objectives (DQOs) for the intended data use of the environmental sampling programs at SSFL. Additionally, the objectives of these quality assurance project plans (QAPP) are to ensure the project work performed is in accordance with professional standards and regulatory guidelines as specified within project work plans submitted to the appropriate regulatory agencies (Cal-EPA, DTSC, or RWQCB) for the environmental sampling programs at SSFL. Published SSFL QAPPs can be downloaded from the following websites: http://www.dtsc.ca.gov/SiteCleanup/Santa_Susana_Field_Lab/ssfl_document_library.cfm

REQUIREMENTS	**EXISTING PROGRAMS/PROCESSES**
	http://www.boeing.com/aboutus/environment/santa_susana/
(7) The conduct of appropriate operational assessments, such as pollution prevention opportunity assessments, of site operations and activities to identify opportunities to implement sustainable practices as part of achieving DOE's Sustainable Environmental Stewardship goals found in Attachment 2 of DOE O 450.1A.	See SUSTAINABLE ENVIRONMENTAL STEWARDSHIP GOALS below
c. The environmental management system must be validated according to the following criteria. (1) An environmental management system shall be considered fully implemented when— (a) The environmental management system has been the subject of a formal audit by a qualified party outside the control or scope of the environmental management system.	A DOE ISMS/EMS Effectiveness Review is scheduled for 2011.
(b) The appropriate contractor senior management and DOE field office management have recognized and addressed the findings of the audit.	
(c) The appropriate senior manager accountable for implementation of the environmental management system and the cognizant Field Officer Manager, have declared conformance of the environmental management system to the requirements of this CRD.	
(2) Environmental management systems, including those already declared under the previous requirements of the CRD in DOE O 450.1 must meet the new requirements for being "fully implemented" by June 30, 2009.	SSFL's system of environmental management as described herein was and continues to be in effect prior to June 30, 2009.
2. Monitor progress toward meeting the requirements of paragraph 1a, 1b, and 1c of this CRD, and make such information available annually through the DOE operations/field/site office to the Senior Agency Officer (SAO) and the Office of Health, Safety and Security.	The status of environmental management system objectives will be reflected in the ISMS Annual Report.
3. Include in site environmental management systems practices to maximize the use of safe alternatives to ozone-depleting substances (ODS), whereby— a. The use of ODS in new equipment and facilities is eliminated. b. The use of ODS in existing equipment is phased out as the existing equipment reaches its expected service life, and the maintenance of equipment is conducted to prevent or fix leaks.	Items of ODS-containing equipment, such as HVAC units and chillers, have been placed on a quarterly Preventive Maintenance Program to monitor their condition and take corrective action by EPA-certified technicians when needed. As progress continues toward completion of demolition activities the existing equipment will have ODS removed and recycled or reclaimed in coordination with DOE.

REQUIREMENTS	EXISTING PROGRAMS/PROCESSES
c. The replacement of leaking equipment is carried out when leak repair is no longer cost-effective or where it is life-cycle cost-effective to replace the equipment. d. Coordination is conducted within DOE and with the Department of Defense's (DoD) Defense Supply Center Richmond, a component of the Defense Logistics Agency (DLA), as appropriate, before disposal of ODS removed or reclaimed from equipment (including disposal as part of a contract, trade, or donation). For situations in which the recovered ODS is a critical requirement for DoD missions, the DOE facility transfers the ODS to DoD. (See DLA's ODS website at: www.dscr.dla.mil/ExternalWeb/UserWeb/AviationEngineering/Ozone/contact.htm)	
4. Assist the Department in meeting the chemical emergency planning, release, and reporting requirements of the Emergency Planning and Community Right-to-Know Act and the Pollution Prevention Act of 1990, without regard to Standard Industrial Classification/North American Industrial Classification designations. All other statutory and regulatory exemptions apply.	SSFL Environment, Health and Safety (EHS) maintains a Hazardous Materials Business Plan that complies with California requirements for implementing EPCRA 312 requirements.
5. Assist the Department in meeting obligations imposed on it by E.O. 13327, *Federal Real Property Asset Management*, Section 3b(vi), by ensuring incorporation of planning and management requirements for historic property.	SSFL will continue to support DOE's obligation under E. O. 13327 for the management of historic property and for effective and responsible environmental management during the closure of the former ETEC facility.

Sustainable Environmental Stewardship Goals

REQUIREMENTS	EXISTING PROGRAMS/ PROCESSES
GOAL REDUCE OR ELIMINATE THE GENERATION AND/OR TOXICITY OF WASTE AND OTHER POLLUTANTS AT THE SOURCE THROUGH POLLUTION PREVENTION	
OBJECTIVE Reduce environmental hazards, protect environmental resources, minimize life-cycle cost and liability of DOE programs, and maximize operational sustainability by eliminating or minimizing the generation of wastes and other pollutants, through source reduction including segregation, substitution, and reuse, that would otherwise require storage, treatment, disposal, and long-term monitoring and surveillance (i.e., future environmental legacies).	

REQUIREMENTS	**EXISTING PROGRAMS/ PROCESSES**
SUSTAINABLE PRACTICES • Establish operational assessments, such as pollution prevention opportunity assessments, of waste generating activities, as objectives and measurable targets in site environmental management systems. • Based on operational assessments, establish objectives and measurable targets in site environmental management systems for the prevention, reduction, reuse, and recycling of waste streams generated at sites. • Identify through the annual Department budgetary process the funding and resources needed to implement this sustainable environmental stewardship goal and site-specific objectives and targets that are not alternatively funded through Energy Savings Performance Contracts (ESPCs). • Participate in voluntary environmental partnership programs (e.g., National Waste Minimization Program, Waste Wise, National Environmental Performance Track, etc.) where there is a programmatic benefit from doing so (community outreach, technology transfer, regulatory incentives, etc.).	SSFL incorporates operational assessments during the development, review and acceptance of project plans through its Project Impact Evaluation System and its demolition management process. In the course of establishing acceptable projects, SSFL Environment, Health and safety (EHS) assesses the most effective environmental management processes in support of the commitments contained in Boeing POL-4, *Environment, Health and Safety*, and relevant regulatory requirements. Forecasted activities and budgetary requirements are incorporated into the ETEC Closure Project Performance Baseline.
GOAL REDUCE OR ELIMINATE THE ACQUISITION, USE, AND RELEASE OF TOXIC AND HAZARDOUS CHEMICALS AND MATERIALS	
OBJECTIVE Reduce environmental hazards, protect environmental resources, minimize life-cycle cost and liability of DOE programs, and maximize operational sustainability by eliminating or minimizing the acquisition, use, and associated release of toxic and hazardous chemicals and materials, including hazardous substances, ozone-depleting substances (ODS), and other pollutants, that would otherwise require control, treatment, monitoring, and reporting.	
SUSTAINABLE PRACTICES • Establish operational assessments, such as pollution prevention opportunity assessments, of activities using toxic and hazardous chemicals and materials, as objectives and measurable targets in site environmental	The Boeing Company is committed to a leadership role in environmental management and sustainability. This commitment and the specific accomplishments and goals in this area are described in our 2010 Environment Report. As a company Boeing participates in a wide range of organizations devoted to environmental

REQUIREMENTS	**EXISTING PROGRAMS/ PROCESSES**
management systems. • Based on operational assessments, establish objectives and measurable targets in site environmental management systems for minimizing the acquisition, use, and disposal of toxic and hazardous chemicals and materials to reduce releases of pollutants to the environment (air, water, soil, biota). For example— – using more environmentally benign solvents and solvent-less systems that reduce or eliminate the use and/or generation of hazardous substances; or – designing analytical products and processes that reduce or eliminate the use and/or generation of hazardous substances. • Employ tools such as the Green Chemical Alternatives Purchasing Wizard to identify more environmentally benign alternatives and substitutes for laboratory-related chemicals or processes. (web.mit.edu/environment/academic/purchasing.html) • Ensure sites' environmental management systems include practices to maximize the use of safe alternatives to ODS whereby— – the use of ODS in new equipment and facilities is eliminated, – the use of ODS in existing equipment is phased out as the existing equipment reaches its expected service life, and the maintenance of equipment is conducted to prevent or fix leaks, – the replacement of leaking equipment is carried out when leak repair is no longer cost-effective, or where it is life-cycle cost-effective, to replace the equipment, and – coordination is conducted within DOE and with the Department of Defense's (DoD) Defense Supply Center Richmond, a component of the Defense Logistics Agency (DLA), as appropriate, before disposal of ODS removed or reclaimed from equipment (including disposal as part of a contract, trade, or donation). For situations in which the recovered ODS is a critical requirement for DoD missions, the DOE facility transfers the ODS to DoD. (See DLA's ODS website at www.dscr.dla.mil/ExternalWeb/UserWeb/AviationEngineering/ Ozone/contact.htm)	sustainability. This includes - **U.S. Environmental Protection Agency Climate Leaders** Boeing joined the industry-government partnership, Climate Leaders, in 2008, committing to reduce the company's environmental impact by completing a companywide greenhouse gas emissions inventory, establishing reduction targets and reporting progress to the EPA on an annual basis Boeing closure activities at SSFL operate in the spirit of and under the management responsibilities of this commitment. Every activity undertaken at Santa Susana is considered in light of Boeing's commitment to environmental leadership. Serious consideration is given to environmentally responsible, cost-effective implementation of our site closure. Opportunity assessments are incorporated into our Project Impact Evaluation System and Demolition Management Process. In addition, Santa Susana's actions and plans are carefully reviewed by regulatory agencies and interested community members. SSFL closure actions are driven to minimize waste generation, air emissions, and releases to soil and water. Choices of chemical products are reviewed for their environmental impact on the short and long term. .

REQUIREMENTS	**EXISTING PROGRAMS/ PROCESSES**
– Implement a chemical inventory tracking system that integrates information throughout the entire chemical lifecycle covering procurement, storage, use, transfer/movement, and final disposition. • Identify through the annual Department budgetary process the funding and resources needed to implement this sustainable environmental stewardship goal and site-specific objectives and targets that are not alternatively funded through ESPCs. • Participate in voluntary environmental partnership programs (e.g., Adopt Your Watershed, Climate Leaders, Green Chemistry and Engineering Programs, National Environmental Performance Track, National Partnership for Environmental Priorities, etc.) where there is a programmatic benefit from doing so (community outreach, technology transfer, regulatory incentives, etc.).	
GOAL MAXIMIZE THE ACQUISITION AND USE OF ENVIRONMENTALLY PREFERABLE PRODUCTS IN THE CONDUCT OF OPERATIONS	
OBJECTIVE Reduce or eliminate environmental hazards, conserve environmental resources, minimize life-cycle cost and liability of DOE programs, and maximize operational sustainability through the procurement of recycled-content, biobased-content, and other environmentally preferable products thereby minimizing the economic and environmental impacts of managing toxic by-products and hazardous wastes generated in the conduct of site activities.	
SUSTAINABLE PRACTICES • Establish environmentally preferable purchasing objectives and measurable targets in site environmental management systems. • Specify environmentally preferable products in the acquisition of site supplies and services. • Procure the following environmentally preferable products, when available, affordable, and effective— – Environmental Protection Agency (EPA) designated recycled-content products,	While ETEC is not engaged in any new construction or renovation applicable to this objective, Boeing, as a company, was named the 2011 Energy Star Partner of the Year by the EPA. Santa Susana's near-term closure status and D&D operations preclude formal energy management targets, however, Boeing Policy 4 states, *"Boeing is committed to:*

REQUIREMENTS	**EXISTING PROGRAMS/ PROCESSES**
– Department of Agriculture designated biobased-content products, – EPA Significant New Alternatives Policy (SNAP) Program acceptable substitutes for ODS, – EPA Energy Star® labeled and FEMP-designated products, – Other environmentally preferable products, such as— o Cleaning products certified by GreenSeal, a U.S. standard setting and environmental labeling organization (www.greenseal.org), o EPA's list of green cleaning resources (www.epa.gov/epp/pubs/products/cleaning.htm), o GreenGuard indoor air quality certified office supplies, furniture, and building materials (www.greenguard.org), o General Services Administration Advantage "environmental aisle" providing access to green products online (www.gsaadvantage.gov), o EcoLogo, the Canadian government's green product certification mark (www.environmentalchoice.com). • Utilize American Petroleum Institute (API) rated re-refined oil, retread truck tires, antifreeze/engine coolant recyclers, water recycling/reclamation vehicle wash facilities, and biobased lubricants, fuels and degreasers/cleaners. • Integrate environmentally preferable purchasing into new construction and major renovation projects, pursuant to the High Performance Sustainable Building requirements of DOE Order 413.3A. *Program and Project Management for the Acquisition of Capital Assets*, and into construction and renovation-related general plant projects and institutional general plant projects, where life-cycle cost-effective. • Identify through the annual Department budgetary process the funding and resources needed to implement this sustainable environmental stewardship goal and site-specific objectives and targets that are not	*1. Conduct operations in compliance with applicable environmental laws, regulations, and Boeing policies and procedures.* *2. Prevent pollution by conserving energy and resources, recycling, reducing waste and pursuing other source reduction strategies.* *3. Continually improve our environmental management system.* *4. Work together with our stakeholders on activities that promote environmental protection and stewardship.* *Boeing will engage employees and stakeholders to continually improve environmental performance and occupational safety of operations, products and services."* All projects involving chemical product use requires the submission of MSDSs for review by designated EHS managers or subject matter experts including Health & Safety, Air Quality, Water Quality, Natural Resources, Hazardous Materials Business Plan, Radiation Safety, Chemical Remediation, and Hazardous Waste. MSDS data is tracked in the Project Impact Evaluation System or demolition process. Products used for routine maintenance and custodial services purposes are also submitted for EHS review. Santa Susana also participates in a variety of environment-oriented community outreach activities including: roadside cleanup, environmental education (Groundwater University), San Fernando Valley Audubon Society Bird Observation Operations, and numerous site tours for local residents as well as the Santa Susana Mountain Parks Association.

REQUIREMENTS	**EXISTING PROGRAMS/ PROCESSES**
alternatively funded through ESPCs. • Participate in voluntary environmental partnership programs where there is a programmatic benefit from doing so (community outreach, technology transfer, regulatory incentives, etc.).	
GOAL REDUCE OR ELIMINATE THE ENVIRONMENTAL IMPACTS OF ELECTRONIC ASSETS	
OBJECTIVE Reduce or eliminate environmental hazards, conserve environmental resources, minimize life-cycle cost and liability of DOE programs, and maximize operational sustainability through the incorporation of electronics stewardship practices thereby minimizing the economic and environmental impacts of managing toxic by-products and hazardous wastes generated in the conduct of site activities.	
SUSTAINABLE PRACTICES • Establish electronics stewardship objectives and measurable targets in site environmental management systems. • Specify environmentally preferable electronics qualified through the Electronic Procurement Environmental Assessment Tool (EPEAT) or its successor, in the solicitation and acquisition of desktop computers, notebooks, monitors, and other electronic products for which there are EPEAT standards. – Utilize the EPEAT network to identify specific models of desktop computers, notebooks and monitors registered by manufacturers and vendors as environmentally preferable and listed according to three tiers of ascending environmental performance and order of preference - bronze, silver, and gold (www.epeat.net). – Utilize the EPEAT network to identify other electronic products (e.g. servers, printers, copiers, etc.) registered in the future by manufacturers and vendors as environmentally preferable. – Strive to purchase EPEAT silver-rated electronic products or higher (gold) as available.	Boeing standard computing products are purchased from Dell, Inc. which is a participating EPEAT manufacturer. Specific computing products used at SSFL are Gold rated. Boeing Surplus Sales resells or donates many computers after appropriate security measures have been taken to remove company information. Boeing IT pushes updates to the laptop/desktops including setting them up with power saving settings, and has successfully deployed enterprise wide hosting services, shared host environments, and implemented server consolidation. Boeing also supports RoHS standards – Reduction of Use of Hazardous Substances – in server hardware technology and factors in the power consumption for the options included in standard server configurations. Boeing also participates in organizations directed at improving sustainable environmental objectives, including - **U.S. Green Building Council** Boeing is a member of the U.S. Green Building Council, a nonprofit organization dedicated to sustainable building practices, which develops and administers the Leadership in Energy and Environmental Design building standards. **U.S. Department of Energy/EPA ENERGY STAR** Since 1997, Boeing has been an industrial partner in the joint U.S. Department of Energy and EPA ENERGY STAR program for energy management and conservation efforts. Boeing buildings in Houston and Long Beach, Calif. have received the ENERGY STAR designation for energy-efficient operations.

REQUIREMENTS	**EXISTING PROGRAMS/ PROCESSES**
• Enable Energy Star® features (power management capabilities) on all computers, monitors, printers, copiers, and other electronic equipment, or to the maximum degree based on mission needs. • Extend the useful lifespan of computer systems and other electronic products through software upgrades and use of EPA's Guidance to Improve the Operation of Electronic Products provided at www.federalelectronicschallenge.net/docs/oamdm.pdf. Strive to extend the useful life of electronic equipment to four (4) or more years. • Reuse surplus and recycle end-of-life electronics. – Utilize the recycling services available through the following sources as an environmentally compliant means for disposition of end-of-life electronics— o Environmental Protection Agency Recycling Electronics and Asset Disposition (READ) Services Government Wide Acquisition Contract (www.epa.gov/oam/read/index.htm), o Department of Justice UNICOR Electronic Recycling Program (www.unicor.gov/recycling), o General Services Administration Federal Supply Service Multiple Award Schedule 899, Reclamation, Recycling and Disposal Services, o Recyclers who meet or exceed EPA's guidelines for materials management; safe electronics recycling (www.epa.gov/plugin), o Recyclers that are members, in good standing, of one or more of the following professional associations— International Association of Electronic Recyclers, Institute of Scrap Recycling Industries, National Recycling Coalition, Electronic Industries Alliance. - Utilize GSA's Computers for Learning Program (GSAXcess) for transferring surplus computer systems and other surplus electronics to eligible schools (gsaxcess.gov); - Specify in IT contracts for leased electronic equipment	

REQUIREMENTS	**EXISTING PROGRAMS/ PROCESSES**
"take-back" provisions where, at the end of the lease period, the equipments is reused, refurbished, donated, or recycled using environmentally sound management practices. • Identify through the annual Department budgetary process the funding and resources needed to implement this sustainable environmental stewardship goal and site-specific objectives and targets that are not addressed through ESPCs. • Participate in the Federal Electronics Challenge, the Electronics Reuse and Recycling Challenge, and the Plug-in to eCycling Partnership where there is a programmatic benefit from doing so (community outreach, technology transfer, regulatory incentives, etc.).	
GOAL REDUCE DEGRADATION AND DEPLETION OF ENVIRONMENTAL RESOURCES THROUGH POST-CONSUMER MATERIAL RECYCLING	
OBJECTIVE Protect environmental resources, minimize life-cycle cost of DOE programs, and maximize operational sustainability by diverting materials suitable for reuse and recycling from landfills thereby minimizing the economic and environmental impacts of waste disposal and long-term monitoring and surveillance.	
SUSTAINABLE PRACTICES • Establish post-consumer material recycling objectives and measurable targets in site environmental management systems. • Recycle office paper, cardboard, aluminum, plastics, and glass. • Recycle spent oil, hydraulic fluid, lubricants, and solvents. • Recycle construction and demolition debris. – Reuse demolition rubble (concrete, brick, and other masonry) on-site by crushing the material to stone for grading, laying utilities, and building roads, driveways, and parking areas. Pulverize and reuse gravel asphalt and sub-base.	SSFL supports the recycling of office paper, cardboard, aluminum, plastics, and glass in all of its office areas. Demolition debris is recycled to the maximum extent possible consistent with Ventura County Integrated Waste Management Division recycling objectives which implement the California Integrated Waste Management Act. Every city and county in California is required to divert 50% or more of its waste from landfills. In January, 1998, the Ventura County Board of Supervisors approved a comprehensive solid waste management Ordinance 4155. **It required all businesses and organizations in unincorporated county areas to separate and recycle certain designated materials from their refuse.** Subsequent County Ordinances such as 4308 and 4421 further highlight the County's ongoing solid waste diversion goals.

REQUIREMENTS	**EXISTING PROGRAMS/ PROCESSES**
– Utilize the General Services Administration Construction Waste Management Database to identify recyclers of 15 commonly-recycled construction and demolition debris such as concrete, asphalt, masonry, metal, plastic, and wood (www.wbdg.org/tools/cwm.php). – Specify recycling of construction materials into new construction and major renovation projects, pursuant to the High Performance Sustainable Building requirements of DOE Order 413.3A, and into construction and renovation-related general plant projects and institutional general plant projects, where life-cycle cost-effective. • Recycle empty, non-refillable, high-density polyethylene (HDPE) plastic pesticide product containers. – Utilize the Ag Container Recycling Council (ACRC), a non-profit organization to collect and recycle professional end-users' containers of EPA registered pesticide products to include agricultural, turf, forestry, vegetative management, specialty pest control, adjuvants, crop oils, and surfactants (www.acrecycle.org). • Collect spent toner cartridges and batteries for remanufacturing. • Recycle surplus commodities and by-products. • Utilize material exchange programs such as Recycler's World Network (www.recycle.net) or the DOE Materials Exchange Network (www.er.doe.gov/epic/recycle.html) to transfer unwanted materials to alternate users. • Identify, through the annual Department budgetary process, the funding and resources needed to implement this sustainable environmental stewardship goal and site-specific objectives and targets that are not alternatively funded through ESPCs.	

7.2 Quality Assurance

ETEC is committed to a high standard of quality assurance and has established the following procedures to standardize its processes.

- QA-00001, *Quality Assurance Program Plan for DOE Site Closure Program*
- QA-00002, *QA Inspection Requirements for Radioactive Shipments*
- QA-00003, *Occurrence Reporting*
- QA-00004, *QA Surveillance Requirements for Radioactive Facilities*
- QA-00007, *Evaluation and Approval of Suppliers*
- QA-00008, *Quality Implementation Plan (QIP) for the DOE Site Closure Program*

DOE O 414.1C, *Quality Assurance*, requires contractors to comply with the ten elements included in the order. Specific elements of the ETEC Quality Assurance Program are provided in the TABLE 5 crosswalk below.

TABLE 5 – Quality Assurance

REQUIREMENTS	EXISTING PROGRAMS/PROCESSES
Management/Criterion 1—Program. (a) Establish an organizational structure, functional responsibilities, levels of authority, and interfaces for those managing, performing, and assessing work. (b) Establish management processes, including planning, scheduling, and providing resources for work.	• PMP-00001 - Program Management Plan for ETEC Closure. • PMP-00003 - Radioactive Waste Management Plarl for LLW and MLLW. • QA-00001 - Quality Assurance Program Plan for DOE Site Closure Program.
Management/Criterion 2—Personnel Training and Qualification. (a) Train and qualify personnel to be capable of performing assigned work. (b) Provide continuing training to personnel to maintain job proficiency.	• QA-00001 - Quality Assurance Program Plan for DOE Site Closure Program. • EID-04550 - ETEC Closure Training Plan
Management/Criterion 3—Quality Improvement. (a) Establish and implement processes to detect and prevent quality problems. (b) Identify, control, and correct items, services, and processes that do not meet established requirements. (c) Identify the causes of problems, and include prevention of recurrence as a part of corrective action planning. (d) Review item characteristics, process implementation, and other quality-related information to identify items, services, and processes needing improvement.	• QA-00001 - Quality Assurance Program Plan for DOE Site Closure Program. • RPA-00091 - Closure of ETEC Release Plan of Action. • EID-04482 - Packaging and Shipment of Radioactive Waste. • QA-00004 - QA Surveillance Requirements for Radioactive Facilities.
Management/Criterion 4—Documents and Records. (a) Prepare, review, approve, issue, use, and revise documents to prescribe processes, specify requirements, or establish design. (b) Specify, prepare, review, approve, and maintain records.	• RPA-00091 - Closure of ETEC Release Plan of Action. • QA-00001 - Quality Assurance Program Plan for DOE Site Closure Program. • PMP-00001 - Program Management Plan for ETEC Closure. • EID-04482 - Packaging and Shipment of Radioactive Waste. • QA-00002 - QA Inspection Requirements for Radioactive Shipments. • PMP-00057 - Closure of ETEC-Data Control System Manual. • EPA-00048 - Records Retention Plan for ETEC Closure Contract.

Performance/Criterion 5—Work Processes. (a) Perform work consistent with technical standards, administrative controls, and hazard controls adopted to meet regulatory or contract requirements using approved instructions, procedures, etc. (b) Identify and control items to ensure their proper use. (c) Maintain items to prevent their damage, loss, or deterioration. (d) Calibrate and maintain equipment used for process monitoring or data collection.	• RPA-00091 - Closure 01 ETEC Release Plan of Action. • PDL-00001 - Closure of ETEC Program Data List. • QA-00001 - Quality Assurance Program Plan for DOE Site Closure Program. • EID-04482 - Packaging and Shipment of Radioactive Waste. • QA-00002 - QA Inspection Requirements for Radioactive Shipments.
Performance/Criterion 6—Design. (a) Design items and processes using sound engineering/ scientific principles and appropriate standards. (b) Incorporate applicable requirements and design bases in design work and design changes. (c) Identify and control design interfaces. (d) Verify/validate the adequacy of design products using individuals or groups other than those who performed the work. (e) Verify/validate work before approval and implementation of the design.	• RPA-00091 - Closure 01 ETEC Release Plan of Action. • QA-00001 - Quality Assurance Program Plan for DOE Site Closure Program.
Performance/Criterion 7—Procurement. (a) Procure items and services that meet established requirements and perform as specified. (b) Evaluate and select prospective suppliers on the basis of specified criteria. (c) Establish and implement processes to ensure that approved suppliers continue to provide acceptable items and services.	• RPA-00091 - Closure 01 ETEC Release Plan of Action. • QA-00001 - Quality Assurance Program Plan for DOE Site Closure Program. • QA-00002 - QA Inspection Requirements for Radioactive Shipments. • QA-00007 - Evaluation and Approval of Suppliers
Performance/Criterion 8—Inspection and Acceptance Testing. (a) Inspect and test specified items, services, and processes using established acceptance and performance criteria. (b) Calibrate and maintain equipment used for inspections and tests.	• EID-04482 - Packaging and Shipment of Radioactive Waste. • QA-00001 - Quality Assurance Program Plan for DOE Site Closure Program. • QA-00002 - QA Inspection Requirements for Radioactive Shipments.
Assessment/Criterion 9—Management Assessment. Ensure that managers assess their management processes and identify and correct problems that hinder the organization from achieving its objectives.	• QA-00001 - Quality Assurance Program Plan for DOE Site Closure Program.
Assessment/Criterion 10—Independent Assessment. (a) Plan and conduct independent assessments to measure item and service quality and the adequacy of work performance and to promote improvement. (b) Establish sufficient authority and freedom from line management for independent assessment teams. (c) Ensure that persons conducting independent assessments are technically qualified and knowledgeable in the areas to be assessed.	• PMP-00001 - Program Management Plan for ETEC Closure. • PMP-00003 - Radioactive Waste Management Plarl for LLW and MLLW. • QA-00001 - Quality Assurance Program Plan for DOE Site Closure Program. • EID-04482 - Packaging and Shipment of Radioactive Waste. • QA-00002 - QA Inspection Requirements for Radioactive Shipments.

The waste management activities at SSFL consist of storage, treatment, size reduction, characterization, certification, preparation for off-site disposal, and shipment. The Waste Certification Program Plan (WCPP) ensures that these activities comply with the requirements proscribed in Boeing Corporate procedures, as well as in SSFL implementing operating procedures. Essentially, the WCPP is comprised of the documents listed as follows:

TABLE 6 - ETEC Closure Waste Management Program – Waste Certification Program Plan (WCPP) and Waste Management Document Matrix

Document		Waste Type
No.	Title	LLW
Waste Certification Program Plan (WCPP) Documents		
PMP-00003	Radioactive Waste Management Plan	X
QA-00001	Quality Assurance Program Plan for ETEC Closure	X
QA-00002	QA Inspection Requirements for RA Shipments	X
QA-00003	Occurrence Reporting	
RPA-00091	Closure of ETEC Release Plan of Action	X
EID-04450	ETEC Closure Training Plan	X
EID-04360	Sampling Procedure for Containerized Materials	X
EID-04482	Packaging and Shipment of Radioactive Waste	X
EID-04486	Procedures for Using the RMHF Tracking System	X
EID-04487	Sampling and Analysis Plan for Radioactive Wastes	X
EID-04489	Procurement Specification for Type-1 Industrial Packaging (P-1)	X
RS-00011	Procedures for Surveys of Radioactive Shipments	X
RS-00012	Methods and Procedures for Radiological Monitoring	X
Waste Management Documents		
EID-04446	Process Hazard Analysis for the RMHF	X
EID-04451	On-Site Radioactive Materials Transfer Plan	X
EID-06037	Approved Waste Streams for NTS and Hanford	X
EID-04488	ETEC Waste Minimization & Pollution Prevention Awareness Plan	X
EID-04492	Procedure for Packaging & Shipping of RA Contaminated Protective Clothing	X
EID-04493	Procedure for Packaging & Shipping RA Materials	X
EID-04494	RMHF Radioactive Materials Management and Waste Acceptance Criteria	X
EID-04495	Qualification & Shipment of LLW and MLLW to Envirocare	X
None	RMHF Part B Operations Plan	X
None	RMHF Part A Interim Status Document	X

APPENDIX 1

U. S. Department of Energy Policy

DOE P 450.4 (10/15/96)

"Safety Management System Policy"

U.S. Department of Energy
Washington, D.C.

POLICY
DOE P 450.4

10-15-96

SUBJECT: SAFETY MANAGEMENT SYSTEM POLICY

PURPOSE AND SCOPE

Safety Management Systems provide a formal, organized process whereby people plan, perform, assess, and improve the safe conduct of work. The Safety Management System is institutionalized through Department of Energy (DOE) directives and contracts to establish the Department-wide safety management objective, guiding principles, and functions.

The system encompasses all levels of activities and documentation related to safety management throughout the DOE complex. The objective of this policy is achieved by other means for Naval Reactors (Naval Nuclear Propulsion Program).

Throughout this policy statement, the term safety is used synonymously with environment, safety and health (ES&H) to encompass protection of the public, the workers, and the environment.

POLICY

The Department is committed to conducting work efficiently and in a manner that ensures protection of workers, the public and the environment. It is Department policy that safety management systems described herein shall be used to systematically integrate safety into management and work practices at all levels so that missions are accomplished while protecting the public, the worker, and the environment. Direct involvement of workers during the development and implementation of safety management systems is essential for their success.

The DOE safety management system establishes a hierarchy of components (see figure 1) to facilitate the orderly development and implementation of safety management throughout the DOE complex. The safety management system consists of six components: 1) the objective, 2) guiding principles, 3) core functions, 4) mechanisms, 5) responsibilities, and 6) implementation. The objective, guiding principles, and core functions of safety management identified below shall be used consistently in implementing safety management throughout the DOE complex. The mechanisms, responsibilities, and implementation components are established for all work and will vary based on the nature and hazard of the work being performed.

COMPONENT 1 - *Objective of Integrated Safety Management*

The Department and Contractors must systematically integrate safety into management and work practices at all levels so that missions are accomplished while protecting the public, the worker, and the environment. This is to be accomplished through effective integration of safety management into all facets of work planning and execution. In other words, the overall management of safety functions and activities becomes an integral part of mission accomplishment.

COMPONENT 2 - *Guiding Principles for Integrated Safety Management*

The guiding principles are the fundamental policies that guide Department and contractor actions, from development of safety directives to performance of work.

***Line Management Responsibility for Safety**. Line management is directly responsible for the protection of the public, the workers, and the environment. As a complement to line management, the Department's Office of Environment, Safety and Health provides safety policy, enforcement, and independent oversight functions.*

***Clear Roles and Responsibilities**. Clear and unambiguous lines of authority and responsibility for ensuring safety shall be established and maintained at all organizational levels within the Department and its contractors.*

***Competence Commensurate with Responsibilities**. Personnel shall possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities.*

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

***Identification of Safety Standards and Requirements**. Before work is performed, the associated hazards shall be evaluated and an agreed-upon set of safety standards and requirements shall be established which, if properly implemented, will provide adequate assurance that the public, the workers, and the environment are protected from adverse consequences.*

***Hazard Controls Tailored to Work Being Performed**. Administrative and engineering controls to prevent and mitigate hazards shall be tailored to the work being performed and associated hazards.*

***Operations Authorization**. The conditions and requirements to be satisfied for operations to be initiated and conducted shall be clearly established and agreed-upon.*

COMPONENT 3 - *Core Functions for Integrated Safety Management*

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

***Define the Scope of Work**. Missions are translated into work, expectations are set, tasks are identified and prioritized, and resources are allocated*

***Analyze the Hazards**. Hazards associated with the work are identified, analyzed and categorized.*

***Develop and Implement Hazard Controls**. Applicable standards and requirements are identified and agreed-upon, controls to prevent/mitigate hazards are identified, the safety envelope is established, and controls are implemented.*
***Perform Work within Controls**. Readiness is confirmed and work is performed safely.*

***Provide Feedback and Continuous Improvement**. Feedback information on the adequacy of controls is gathered , opportunities for improving the definition and planning of work are identified and implemented, line and independent oversight is conducted, and, if necessary, regulatory enforcement actions occur.*

COMPONENT 4 - *Integrated Safety Management - Mechanisms*

Safety Mechanisms define how the core safety management functions are performed. The mechanisms may vary from facility to facility and from activity to activity based on the hazards and the work being performed and may include:

Departmental expectations expressed through directives (policy, rules, orders, notices, standards, and guidance) and contract clauses.

Directives on identifying and analyzing hazards and performing safety analyses

Directives which establish processes to be used in setting safety standards.

Contractor policies, procedures and documents (e.g., Health and Safety Plans, Safety Analysis Reports, Chemical Hygiene Plans, Process Hazard Analyses) established to implement safety management and fulfill commitments made to the Department.

COMPONENT 5 - *Responsibilities for Integrated Safety Management*

Responsibilities must be clearly defined in documents appropriate to the activity. DOE responsibilities are defined in Department directives. Contractor responsibilities are detailed in contracts, regulations and contractor-specific procedures. For each management mechanism employed to satisfy a safety management principle or function, the associated approval authority needs to be established. The review and approval levels may vary commensurate with the type of work and the hazards involved.

COMPONENT 6 - *Implementation of Integrated Safety Management*

Implementation involves specific instances of work definition and planning, hazards identifications and analysis, definition and implementation of hazard controls, performance of work, developing and implementing operating procedures, and monitoring and assessing performance for improvement.

HAZEL R. O'LEARY
Secretary of Energy

APPENDIX 2

List A – List of Applicable Federal Laws & Regulations

List B – List of Applicable DOE Directives Applicable to Contract DE-AC03-99SF21530

DE-AC03-99SF21530
Environmental Restoration and Remediatin of the Former Energy Technology Engineering Center Site

LIST OF APPLICABLE FEDERAL LAWS & REGULATIONS – LIST A

The federal laws and regulations listed in the table below contain requirements normally relevant to the Contractor scope of work. These laws and regulations, and others, apply regardless whether they are explicitly stated in the Contract. In addition, laws and regulations typically apply to all persons or organizations such as subcontractors, suppliers, and federal employees.

This list does not have to be provided in the Contract, but it may be appended to the Contract for information purposes. Omission of any applicable law or regulation from List A does not affect the obligation of the Contractor to comply with such law or regulation pursuant to DEAR clause 970.5204-2. The Contractor must be aware of changes in the Code of Federal Regulations (CFR), Federal Acquisition Regulations (FAR), the United States Code (USC), Public Laws (PL) or other regulatory entities that have applicability to the Department of Energy and that impact the work scope.

The Contractor will notify DOE and a determination will be made regarding modification to the contract. The following table does not contain any specific state laws, regulations, permits, and licenses, etc.

Regulation	Regulation Title
10 CFR Part 71	Packaging and Transportation of Radioactive Materials
10 CFR Part 707	Workplace Substance Abuse
10 CFR Part 820	Procedural Rules for DOE Nuclear Facilities
10 CFR Part 824	Procedural Rules for the Assessment of Civil Penalties for Classified Information Security Violations
10 CFR Part 830	Nuclear Safety Management
10 CFR Part 835	Occupational Radiation Protection
10 CFR Part 850	Chronic Beryllium Disease Prevetion Program
10 CFR Part 851	Worker Safety and Health Program
10 CFR Part 1021	National Environmental Policy Act Compliance Program
29 CFR Part 1926	Safety and Health Regulations for Construction
40 CFR Part 302	Designation, Reportable Quantities, and Notification
40 CFR Part 355	Emergency Planning and NOrification
40 CFR Part 372	Toxic Chemical Release Reporting : Community Right-To-Know
40 CFR Part 763	Asbestos
41 CFR Part 101	Federal Property Management Regulations
41 CFR Part 102-38	Sale of Personal Property
48 CFR Part 970.5203-2	Performance Improvement and Collaboration
48 CFR Part 970.5204-2	Laws, Regulations, and DOE Directives
48 CFR Part 970.5215-3	Conditional Payment of Fee, Profit, Incentives (or alternatively, 48 CFR Part 952.223-76 or 952.223-77, Conditional Payment of Fee or Profit)
49 CFR Part 107	Hazardous Materials Program Procedures
49 CFR Part 171	General Information, Regulations, and Definitions
49 CFR Part 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans
49 CFR Part 173	Shippers – General Requirements for Shipments and Packagings
49 CFR Part 174	Carriage by Rail
49 CFR Part 177	Carriage by Public Highway
49 CFR Part 178	Specifications for Packaging
5 U.S.C. 552 et. seq.	Freedom of Information Act (FOIA)
42 U.S.C. 2297h-8(a)	Employee Protections
42 U.S.C. 4321	National Environmental Policy Act (NEPA)
42 U.S.C. 6901	Resource Conservation and Recovery Act (RCRA)
42 U.S.C. 7384	Energy Employees Occupational Illness Compensation Program Act (EEOICPA), Public Law 106-398

Executive Order 13221	Energy Efficient Standby Power Devices
Executive Order 13423	Strengthening Federal Environmental, Energy, Transportation Management and its Implementing Instructions

DE-AC03-99SF21530
Environmental Restoration and Remediatin of the Former Energy Technology Engineering Center Site

LIST OF APPLICABLE DOE DIRECTIVES – LIST B

The Contractor Requirements Documents of the DOE Directives listed below are applicable, in whole or in part, in accordance with Section I Clause entitled "DEAR 970.5204-2 LAWS, REGULATIONS AND DOE DIRECTIVES (DEC 2000) ".

DOE Directive (Orders, Policies, Manuals, Guidance, and Standards)	Title/Subject Matter
DOE O 142.3A	Unclassified Foreign Visits and Assignments Programs
DOE O 150.1	Continuity Programs
DOE O 151.1C	Comprehensive Emergency Management System
DOE O 200.1A	Information Management Program
DOE O 205.1B	Department of Energy Cyber Security Management Program
DOE O 210.2	DOE Corporate Operating Experience Program
DOE O 206.1	DOE Privacy Program
DOE O 221.1A Change 2	Reporting Fraud, Waste, and Abuse to the Office of Inspector General
DOE O 221.2A	Cooperation with the Office of Inspector General
DOE O 225.1B	Accident Investigations
DOE O 226.1B	Implementation of DOE Oversight Policy
DOE O 231.1A Change 1	Environment, Safety, and Health Reporting Requirements
DOE O 241.1B	Scientific and Technical Information Management
DOE O 243.1	Records Management Program
DOE O 243.2	Vital Records
DOE O 251.1C	Directives System
DOE O 252.1A	Technical Standards Program
DOE O 311.1B	Equal Employment Opportunity and Diversity Program
DOE O 413.1B	Internal Control Program
DOE O 413.3B	Program and Project Management for the Acquisition of Capital Projects
DOE O 414.1D	Quality Assurance
DOE O 420.1B	Facility Safety
DOE O 422.1	Conduct of Operations
DOE O 425.1D	Verification of Readiness to Start Up or Restart Nuclear Facilities
DOE O 430.1B Change 1	Real Property Asset Management
DOE O 430.2B	Departmental Energy, Renewable Energy, and Transportation Management
DOE O 433.1B	Maintenance Management Program for DOE Nuclear Facilities
DOE O 435.1 Change 1	Radioactive Waste Management
DOE O 442.1A	Department of Energy Employee Concerns Program
DOE O 450.1A	Environmental Protection Program
DOE P 450.4	Safety Management System Policy
DOE O 451.1B Change 2	National Environmental Policy Act Compliance Program
DOE O 458.1 Change 1	Radiation Protection of teh Public and the Environment
DOE O 460.1C	Packaging and Transportation Safety
DOE O 460.2A	Departmental Materials Transportation and Packaging Management
DOE O 461.1B	Packaging and Transportation for the off-site Shipment of Materials of National Security Interest
DOE P 470.1A	Integrated Safeguards and Management (ISSM) Policy
DOE O 470.2B	Independent Oversight and Performance Assurance Program
DOE O 471.1B	Identification adn Protection of Unclassified Controlled Nuclear Information
DOE O 471.3 Change 1	Identifying and Protecting Official Use Only Information
DOE O 522.1	Pricing of Departmental Material and Services
DOE O 523.1	Financial Management Oversight
DOE O 534.1B	Accounting

DOE O 580.1A	Department of Energy Personal Property Management Program
DOE O 5400.5	Radiation Protection of the Public and the Environment
DOE-STD-1027-92, Change 1	Hazard Categorization and Accident Analysis Techniques for Compliance with DOE O 5480.23, Nuclear Safety Analysis Reports
DOE-STD-1030-96	Guide to Good Practices for Lockouts and Tagouts
DOE-STD-1088-95	Fire Protection for Relocatable Structures
DOE-STD-1090-07	Hoisting and Rigging
DOE-STD-1098-2008	Radiological Control
DOE-STD-1104-2009	Review and Approval of Nuclear Safety Basis and Safety Design Basis Documents
DOE-STD-1107-97	Knowledge, Skills, and Abilities for Key Radiation Protection Positions and DOE Facilities
DOE-STD-1120-2005	Integration of Environmental, Safety, and Health into Facility Disposition Activities
DOE-STD-1130-2008	Radiological Worker Training
DOE-STD-1190-2007	Illness and Injury Surveillance Program Guidelines
DOE-STD-3006-2010	Planning and Conducting Readiness Reviews
DOE-STD-3009-94 Change 3	Preparation Guide for the U.S. Department of Energy Nonreactor Nuclear Safety Analysis
DOE-STD-3020-2005	Specification for HEPA Filters used by DOE COntractors
DOE-STD-3022-98	DOE HEPA Filter Test Program
DOE-STD-3025-2007	Quality Assurance Inspection and Testing of HEPA Filters
DOE-STD-3026-99	Filter Test Facility Quality Program Plan
DOE-STD-5506-2007	Preparation of Safety Basis Documents for Transuranic (TRU) Waste Facilities
DOE M 205.1-4	National Security System Manual
DOE M 231.1-1A Change 2	Environmental Safety and Health Reporting
DOE M 231.1-2	Occurrence Reporting and Processing of Operations Information
DOE M 435.1-1 Change 1	Radioactive Waste Management Manual
DOE M 450.4-1	Integrated Safety System Manual
DOE M 460.2-1A	Radioactive Material Transportation Practices Manual
DOE M 470.4-4A Change 1	Information Security Manual
DOE/EH-0535	Handbook for Occupational Safety and Health During Hazardous Waste Activities
DOE/EH-0196	Fire Prevention Measures for Cutting, Welding, and Related Activities