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MAR 18 2019

Mr. Jeff Bradford, Program Manager
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PPPO-02-5469242-19

Dear Mr. Bradford:

CONTRACT NO. DE-EM0004895: APPROVAL OF THE INTEGRATED SAFETY MANAGEMENT SYSTEM DESCRIPTION, CP2-HS-1000/FR2

Reference: Letter from J. Bradford to M. Fultz, "Four Rivers Nuclear Partnership, LLC—Integrated Safety Management System Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky," (FRNP-19-2173), dated March 5, 2019

The U.S. Department of Energy (DOE) approves the *Integrated Safety Management System Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky,* CP2-HS-1000/FR2. DOE acknowledges this revision corrects observations from the 2018 Integrated Safety Management System (ISMS) Phase I and II Verification Review, updates organizational titles, and clarifies content while not substantially changing the implementation of ISMS.

If you have any questions or require additional information, please contact Chris Wagner at (270) 441-6816.

Sincerely,

Robert E. Edwards III

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CP2-HS-1000/FR2

Integrated Safety Management System Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky

FOUR RIVERS NUCLEAR PARTNERSHIP, LLC

This document is approved for public release per review by:

FRNP Classification Support — Date: 03/05/19

CP2-HS-1000/FR2

Integrated Safety Management System Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky

Date Issued—March 2019

U.S. DEPARTMENT OF ENERGY
Office of Environmental Management

Prepared by
FOUR RIVERS NUCLEAR PARTNERSHIP, LLC.,
managing the
Deactivation and Remediation Project at the
Paducah Gaseous Diffusion Plant
under Contract DE-EM0004895

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APPROVALS

Integrated Safety Management System Description
for the Paducah Gaseous Diffusion Plant,
Paducah, Kentucky
CP2-HS-1000/FR2

March 2019

Approved by:

Roland Chretien
Health, Safety, Security, and Quality Director

03.05.19
Date

DOE Approval Letter: PPPO-02-5469242-19 Date: 3-18-2019

Effective Date: 3-19-2019

Required Review Date: 3-05-2020

Nuclear Safety Documentation: N/A per CP3-NS-2001, Step 6.1.1

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REVISION LOG

REVISION NUMBER	DATE	DESCRIPTION OF CHANGES	PAGES AFFECTED
FR0		Initial Release for FRNP	ALL
FR1	4/11/2018	Correct numerous typographical errors throughout, correct procedural reference errors	ALL
FR1A	5/16/2018	Update reference to DOE Order	5, 23
FR2	March 2019	Annual review and to address corrective action CA-001542	ALL

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ACRONYMS

CFR	*Code of Federal Regulations*
D&R	deactivation and remediation
DEAR	DOE Acquisition Regulation
DOE	U.S. Department of Energy
DSA	Documented Safety Analysis
EMS	Environmental Management System
ES&H	environment, safety, and health
EVMS	earned value management system
FRNP	Four Rivers Nuclear Partnership, LLC
HSS&Q	Health, Safety, Security, and Quality
ISM	Integrated Safety Management
ISMS	Integrated Safety Management System
JHA	job hazard analysis
NCS	nuclear criticality safety
NS	nuclear safety
OBS	organizational breakdown structure
ORPS	Occurrence Reporting and Processing System
PGDP	Paducah Gaseous Diffusion Plant
PM	program manager
POMC	performance objectives, measures, and commitments
PPE	personal protective equipment
QA	quality assurance
QAPD	Quality Assurance Program Description
RFP	request for proposal
RM	responsible manager
SME	subject matter expert
SOW	statement of work
TSR	technical safety requirement
WBS	work breakdown structure
WPC	Work Planning and Control
WSHP	Worker Safety and Health Program

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EXECUTIVE SUMMARY

The policy of Four Rivers Nuclear Partnership, LLC, (FRNP) is to provide a safe and healthy workplace for all people supporting the Paducah Gaseous Diffusion Plant (PGDP) Deactivation and Remediation (D&R) Project. FRNP is dedicated to the belief that all injuries, accidents, and incidents are preventable and is committed to integrating safety and other operational requirements (e.g., environmental, quality, security) into all aspects of work planning and execution, as described in this Integrated Safety Management System (ISMS) Description.

This ISMS Description document provides a road map to FRNP's systematic and structured approach to integrating health, safety, security, and quality into work planning and execution for the PGDP D&R scope of work. The overall objective of Integrated Safety Management (ISM) is to "Do Work Safely" while ensuring protection of workers, the public, and the environment, as well as compliance with operational requirements.

FRNP work is performed safely when management and workers cooperate to do the following:

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

These activities are the five "core functions" of ISM.

This system description is consistent with U.S. Department of Energy (DOE) policy and the DOE Acquisition Regulation requirements for integration of environment, safety, and health into work planning and execution, and is in compliance with laws, regulations, and DOE directives contained within Contract No. DE-EM0004895 (hereafter referred to as the Contract). FRNP also has implemented the CP2-HS-2000, *Worker Safety and Health Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky,* which supports implementation of ISMS and the Contract.

The FRNP ISMS is based on the five core functions outlined above and the seven guiding principles that are described in DOE P 450.4A, *Integrated Safety Management Policy*. The guiding principles are as follows:

- Line Management Responsibility for Safety,
- Clear Roles and Responsibilities,
- Competence Commensurate with Responsibilities,
- Balanced Priorities,
- Identification of Safety Standards and Requirements,
- Hazard Controls Tailored to Work Being Performed, and
- Operations Authorization.

An honorary eighth Guiding Principle is often cited as Worker Involvement. More about worker involvement at FRNP can be found in Section 3.15 of this document.

As described herein, the FRNP ISMS is applicable to all work performed under the Contract, whether the work is self-performed or subcontracted. This ISMS Description document specifies how FRNP will

ensure that all employees, including subcontractors, perform work in a manner that ensures the protection of employees, the public, and the environment. The ISMS Description document is maintained with configuration control managed through the established FRNP Document Control process according to CP3-OP-0025, *Document Control Process*.

1. PURPOSE

This Integrated Safety Management System (ISMS) Description identifies how environment, health, safety, and quality are integrated into work planning and execution of the scope of work described in DE-EM0004895, Paducah Gaseous Diffusion Plant (PGDP) Deactivation and Remediation (D&R) Project Contract and U.S. Department of Energy (DOE) Acquisition Regulation (DEAR) 970.5223-1, *Integration of Environment, Safety, and Health into Work Planning and Execution*.

The scope of this document is those programs and processes used by Four Rivers Nuclear Partnership, LLC, (FRNP) to implement the requirements of the Contract in the integration of environment, health, safety, and quality including pollution prevention, waste minimization, and safeguards and security, into work activities for FRNP and its subcontractors using ISMS. The Appendix to this document identifies the requirements contained in the Integrated Safety Management (ISM) Clause and provides a crosswalk to the corresponding FRNP implementing document(s).

2. ISMS OVERVIEW

The overall objective of the FRNP ISMS is to systematically integrate environmental, health, safety, and quality into project management and work practices at all levels to accomplish the PGDP D&R mission while protecting the worker, the public, and the environment. This objective of ISMS is summed up simply by the statement, “Do Work Safely.” In ISMS, the term “safety” is used synonymously with environment, health, safety, and quality to encompass protection of the public, the workers, and the environment.

To accomplish this objective, the FRNP ISMS is structured around the five Core Functions and seven Guiding Principles established by DOE in DOE P 450.4A, *Integrated Safety Management Policy*. This system aligns with the DEAR requirements for integration of environment, health, safety, and quality into work planning and execution and is in compliance with laws, regulations, and DOE directives contained within the Contract. Consistent with DOE expectations and recommendations in DOE G 450.4-1C, *Integrated Safety Management System Guide*, FRNP also implements several other management systems that are integrated with ISMS, such as the Worker Safety and Health Program (WSHP), Environmental Management System (EMS), Quality Assurance Program, Radiation Protection Program, Emergency Management Program, and Nuclear Maintenance Management Program.

FRNP work is performed safely when management and workers cooperate to do the following:

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

These activities are the five core functions of ISM. The seven guiding principles used in support of the core functions are as follows:

- Line Management Responsibility for Safety,
- Clear Roles and Responsibilities,

- Competence Commensurate with Responsibilities,
- Balanced Priorities,
- Identification of Safety Standards and Requirements,
- Hazard Controls Tailored to Work Being Performed, and
- Operations Authorization.

FRNP understands the role the organizational culture plays in the implementation of the ISMS at every level throughout the organization and is committed to instilling a strong positive safety culture that is embraced by all project personnel. FRNP core values include performing work safely and compliantly while ensuring worker involvement in all aspects of work planning and performance. FRNP programs, policies and procedures support and sustain the efforts to ensure safety and environmental requirements are understood and followed.

Management is directly responsible for establishing and maintaining a culture that strives for excellence in work planning and performance and promotes productivity and safety. Line management encourages a safety culture that supports individual ownership, accountability, teamwork, continuous improvement, and proactive prevention and correction of problems at their earliest identification. Open and effective communications, constructive feedback, a questioning attitude, and healthy collaboration that make up the elements of a safety conscious work environment, are encouraged at all organizational levels.

As described herein, the FRNP ISMS is applicable to all work performed under the Contract, whether the work is self-performed or subcontracted. This ISMS Description document identifies programs and processes that have been put in place to ensure that employees and subcontractors perform work in a manner that ensures the protection of people, the public, and the environment.

3. MANAGEMENT POLICY AND EXPECTATIONS

FRNP is committed to performing work safely and in compliance with applicable regulatory requirements through adherence to established policies, programs, and procedures. The ISMS and the FRNP safety, quality, and compliance culture provide public health protection, worker safety, environmental protection and sustainability, feedback and improvement, pollution prevention, waste minimization, and quality assurance (QA) through programs and procedures. These programs are tailored to specific work activities using a graded approach according to CP3-QA-1001, *Graded Approach*. During accomplishment of the work, operating experience and worker feedback, according to CP3-QA-3002, *Operating Experience/Lessons Learned (OE/LL)*, will be captured, evaluated, and applied to achieve continuous process improvement.

A fundamental commitment to emphasize safety, quality, and compliance is reinforced by senior management, through supervisors, to each employee and to subcontractors. With this emphasis, FRNP achieves excellence with the expectations described in the following sections.

3.1 MANAGEMENT COMMITMENT AND LEADERSHIP

Safety leadership starts at the top of the FRNP organization with the FRNP Program Manager (PM), who is accountable for performing the Contract scope of work in a manner that protects the environment, provides necessary quality, and protects the safety and health of each employee (including subcontractor employees), and the public. The PM sets the standard for all other members of the FRNP management team.

The PM and management team demonstrate leadership and commitment to protecting workers, the public, and the environment and set the same expectations for line organizations, employees, and subcontractors. Management is committed to be in the field where work is being performed. Management is committed to ensuring that workers are involved meaningfully in the processes that comprise ISMS, including work control and feedback processes, so that all hazards and requirements specific to the work activity, job site, and/or facility are identified and appropriate controls implemented. All management personnel are held accountable for safety performance and compliance. All workers are free to discuss their concerns with management as well as the established Employee Concerns Program, including the DOE Employee Concerns Program according to CP1-HR-0131, *Employee Concerns*.

3.2 SAFETY AND HEALTH

The FRNP management commitment and expectations for safety, as well as employee accountability for working safely, are publicized and communicated through CP1-HS-1000, *Health and Safety Policy*, and communicated on a daily basis through daily safety messages and pre-job briefs and a status log. All FRNP employees are responsible for complying with CP2-HS-2000, *Worker Safety and Health Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky*, (WSHP) while performing work for FRNP. The WSHP establishes a program that will reduce or prevent accidental losses, injuries, and illnesses and demonstrates compliance with 10 *CFR* 851, *Worker Safety and Health Program*, and other applicable requirements. Subcontractors, their workers, and their subcontractors are held accountable for complying with the FRNP WSHP through the terms and conditions flowed down to them in their contract documents.

3.3 REGULATORY COMPLIANCE

A key expectation of FRNP management is to maintain compliance with the contractual requirements listed in the Contract. FRNP implements a formal process to accurately identify applicable regulations specified in the Contract with DOE and incorporate the requirements from those regulations into functional area programs through implementing procedures and work controls.

3.4 CONDUCT OF OPERATIONS

The FRNP Conduct of Operations program, described in CP2-OP-1100, *Conduct of Operations Program at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, provides FRNP management's expectations for ensuring that activities and facility operations associated with nuclear facilities and nonnuclear hazardous material facilities are managed, organized, and conducted in a manner that assures an appropriate degree of rigor in performance and, therefore, contributes to safe and reliable operations. The program is based on DOE Order 422.1, Admin Chg 2, *Conduct of Operations*. Nuclear safety (NS), nuclear criticality safety (NCS), industrial hygiene, safety, fire protection, radiological protection, emergency management, and safeguards and security are integrated to assure protection for on-site workers, the public, and the environment.

The safety protection level used in the program is based on formal identification of the hazards and a thorough analysis of the potential accidents and risks presented by these activities and facilities. The analyses and protective measures are documented in approved safety documents and integrated with CP2–HS–2000, the WSHP. The *Radiation Protection Program*, CP2-RP-0001, which is an integral part

of the ISMS process, was developed and implemented to meet the requirements of 10 *CFR* 835, *Occupational Radiation Protection*.

A key component of the Conduct of Operations program and the expectation of management is procedural compliance. This expectation is implemented through the disciplined use of performance documents and the FRNP work management program, CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky*, which is described in Section 3.15. The processes and responsibilities for developing, revising, changing, approving, deleting, and controlling procedures at FRNP are implemented through CP3-OP-0002, *Developing and Maintaining Performance Documents*. Protocols for the identification, control, and management of documents and records are contained in CP3-RD-0010, *Records Management Process*. These formal work management and records management programs are integral parts of ISMS.

3.5 NUCLEAR SAFETY PROGRAMS

A principal expectation of FRNP management is the establishment and maintenance of a compliant NS program to provide for the identification and analysis of hazards and the development of appropriate safety basis documents and other associated documents for nuclear, radiological, and nonradiological facilities. The FRNP Documented Safety Analysis (DSA), CP1-NS-3000, *Documented Safety Analysis for the Department of Energy Paducah Site Deactivation Project*, along with the other DSA documents tailored to the contract scope, describe the currently approved safety basis. These DSAs are the basis of the training provided to workers for compliance to NS/NCS requirements. The FRNP NS and NCS programs are integrated with the ISMS and other safety management systems to assure protection for on-site workers, collocated workers, the public, and the environment. Implementation of the FRNP NS and NCS programs also is governed by various supporting documents referenced in the DSAs.

3.6 TARGET ZERO INCIDENTS PROGRAM

FRNP ISMS promotes a “Target Zero” culture to emphasize a desire to have zero occupational illnesses or injuries, environmental impacts, errors, or omissions in the performance of the scope of work. This commitment is based on the premise that all incidents (and resulting accidents) are preventable by effective work planning, use of qualified personnel, commitment to operational formality, instilling a questioning attitude in the workforce, and use of operational experience to continuously improve. Target Zero philosophy applies to all aspects of work and workers are encouraged to apply the Target Zero goals to their daily lives beyond the workplace. FRNP Health, Safety, Security, and Quality (HSS&Q) policies provide management expectations for implementing this philosophy and build it into the FRNP safety culture.

3.7 INTEGRATION OF ISM AND QUALITY ASSURANCE

Effective implementation of QA requirements supports the principles, functions, and safety culture focus areas of ISM. The FRNP fundamental quality expectation is that work meets established requirements the first time it is performed. In this regard, the QA program assures compliance with approved standards and requirements, so that the expectation for safe and compliant work within controls is met, and that each worker, the public, and the environment are protected from harm. These expectations are detailed in CP2-QA-1000, *Quality Assurance Program Description at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (QAPD).

3.8 INTEGRATION OF ISM AND ENVIRONMENTAL MANAGEMENT

FRNP is committed to performing work in a manner that is compliant with environmental requirements of DEAR 970.5223-1, *Integration of Environment, Safety and Health into Work Planning and Execution*; DOE O 436.1, *Departmental Sustainability*; Executive Order 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*; Executive Order 13423, *Strengthening Federal Environmental, Energy, and Transportation Management,* and Executive Order 13693, *Planning for Federal Sustainability in the Next Decade*. FRNP also is committed to accomplishing DOE sustainability goals and requirements and to follow the requirements of the *Energy Policy Act of 2005* and the *Energy Independence and Security Act of 2007*.

CP2-ES-0101, *Environmental Management System for the Deactivation and Remediation Project, Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, describes the methods and processes used to implement the FRNP environmental management program. This system assures that environmental management and safety requirements are integrated to achieve objectives and assure that applicable ISM principles, functions, and safety culture focus areas are incorporated into work control documents. This integration is in accordance with the DOE G 450.4-1C recommendation that the EMS be integrated with the company's ISM system. As required by DOE O 436.1, the FRNP EMS conforms to International Organization for Standardization's 14001:2004 Standard, *Environmental Management Systems—Requirements with Guidance for Use*, which reflects accepted management system principles based on the "Plan, Do, Check, Act," model and aligns with the following five EMS Core Elements:

- Policy
- Planning
- Implementation and Operation
- Checking and Corrective Action
- Management Review

The FRNP EMS also supports site environmental services provided by FRNP to other contractors. These services include environmental monitoring, regulatory management services, and functioning as the EMS designated site coordinator. To address Executive Order 13693 requirements, FRNP reports progress toward meeting DOE's sustainability goals to the site Infrastructure Contractor, including metrics on electrical usage, water usage, fuel usage, natural gas usage, fleet mileage, refrigerant usage, travel, and sustainable acquisition.

3.9 OCCURRENCE REPORTING

Procedure CP3-QA-3005, *Occurrence Reporting*, establishes the FRNP methods for implementing an occurrence reporting process that conforms to DOE O 232.2A, *Occurrence Reporting and Processing of Operations Information*. This process applies to the activities, tasks, and operations managed and performed by FRNP. All identified incidents and accidents are documented and screened for reportability under these requirements. The process includes requirements for categorizing reportable occurrences, notifying DOE as required, and preparing, submitting, and closing out occurrence reports.

3.10 STANDARDS AND REQUIREMENTS

A principal expectation of FRNP management is the effective management of standards and requirements. CP3-OP-3003, *Standards and Requirements Management*, describes the FRNP process for

identifying, communicating, and requiring the incorporation of applicable federal, state, local, and DOE requirements, including laws, regulations, and permits.

3.11 TRAINING AND QUALIFICATION

The FRNP training and qualification processes are integrated throughout ISMS to assure that needed skills for the workforce are identified, developed, and documented to include the knowledge, experience, abilities, and competencies for key positions requiring qualification. These processes are described in CP2-TR-0100, *Training Program for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, and associated implementing procedures. The Training Program is a key component in assuring that all personnel are technically competent to perform the jobs for which they are responsible. FRNP is committed to ensuring that personnel are appropriately trained, experienced, and knowledgeable about procedures, facilities, equipment, hazards, and risks associated with their jobs. The Training Program ensures that workers understand their rights and responsibilities as well as the hazards they might encounter.

To comply with the approved DSA, where applicable, FRNP ensures that appropriate personnel are qualified in accordance with the requirements of DOE Order 426.2, Admin Chg 1, *Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities*, as described in CP2-TR-0100, *Training Program for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, and CP2-TR-0102, *Four Rivers Nuclear Partnership, LLC Paducah Deactivation and Remediation Project Training Implementation Matrix*, which are DOE-approved and define the organization, planning, and administration of the FRNP Training Program and set forth the responsibility, authority, and methods for conducting training. Performance documents that implement the requirements from this Order are included in CP2-TR-0100, *Training Program for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*.

3.12 COMMUNICATION AND OUTREACH

FRNP management expectations include communication programs to reach and engage interested parties (e.g., workers, the public, news media, regulatory agencies, and other government agencies). Each of these programs may include communications concerning environment, health, safety, and quality and other aspects of FRNP work activities. Methods of communication and outreach may include meetings with community leaders and stakeholders, all-hands meetings and written communications for the workers, weekly or monthly newsletters, published news releases regarding major decisions and Deactivation Project progress, and regular meetings with DOE and other agency personnel. A key element of FRNP communication is to regularly inform workers of their right and responsibility to report concerns relating to environment, safety, health, or management of work activities. Workers are encouraged to report issues or concerns through their management chain or by following the guidance for issue and concern resolution contained in CP1-HR-0131, *Employee Concerns*; CP1-HR-0147, *Differing Professional Opinions*, which describes the process for employees to raise technical concerns related to environment, safety, and health (ES&H) that cannot be resolved using routine processes; or the DOE Employee Concerns Program. The guidance contained in these performance documents conforms to the respective DOE directives, DOE O 442.1A, *DOE Employee Concerns Program*, and DOE O 442.2, *Differing Professional Opinions*.

3.13 FEEDBACK AND IMPROVEMENT

In support of Core Function 5, a significant expectation of FRNP management is the consistent use of feedback mechanisms to pursue performance improvement and process optimization opportunities aggressively. FRNP uses data from internal and external reviews, audits, assessments, surveys, worker feedback, and work/performance observations to measure the adequacy and effectiveness of ISMS implementation. Operating experience information is collected locally and from across the DOE Complex to identify available lessons in safety, quality, and performance and applied appropriately to the planning and implementation of activity level work to improve performance. This information is collected and disseminated through the FRNP Operating Experience Program, as defined in CP3-QA-3002, *Operating Experience/Lessons Learned.* The implementing mechanisms for the feedback processes are described in CP2-QA-3000, *Contractor Performance Assurance Program Description at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky,* in accordance with DOE O 226.1B, *Implementation of DOE Oversight Policy.* Worker feedback obtained through daily pre-job briefs and post-job reviews and ad hoc suggestions is conveyed to the line organization to ensure follow up. Identified issues that rise to the level of formal corrective action are tracked to closure through the process defined in CP3-QA-3001, *Issues Management*. These tools are used continually to improve FRNP processes and ISMS implementation in support of ISMS effectiveness reviews performed in accordance with CP3-HS-1000, *Integrated Safety Management System Effectiveness Review and Performance Objectives, Measures, and Commitment Development and Reporting,* to satisfy DOE contractual requirements.

3.14 BUDGET AND FINANCIAL MANAGEMENT

Although the FRNP Earned Value Management System (EVMS) has a role in ISMS by identifying the processes that define the project scope, document the plan to execute work, and measure performance against that plan, it is primarily a tool for planning, managing, controlling, and reporting performance against the project baseline. The EVMS is discussed in detail in CP2-PC-0100, *Four Rivers Nuclear Partnership, LLC, Paducah Gaseous Diffusion Plant Project Controls System Description*, and CP1-PC-0000, *Earned Value Management Policy*.

3.15 ROLES AND RESPONSIBILITIES

FRNP roles and responsibilities are derived from the Contract baseline with the organizational breakdown structure (OBS) aligned with the work breakdown structure (WBS). They are further discussed in the FRNP Project Controls System Description.

FRNP roles, responsibilities, authorities, and accountabilities are described in CP2-TS-1000, *Roles, Responsibilities, Authorities, and Accountabilities (R2A2) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*. This procedure breaks down the R2A2s into multiple areas. Specifically, these areas include (1) Universal R2A2s, (2) Intrinsic R2A2s, and (3) Program R2A2s. The Universal R2A2s apply to all FRNP and subcontractor personnel. Intrinsic R2A2s are implied by the OBS or other means. Program R2A2s are R2A2s specifically assigned to personnel independent of the OBS. FRNP responsibilities are detailed in laws, the prime contract with DOE, regulations, and specific procedures. Approval authority for each management mechanism employed to satisfy a safety management principle or function is established through the OBS described in CP2-PC-0100, *Four Rivers Nuclear Partnership, LLC, Paducah Gaseous Diffusion Plant Project Controls System Description*. At the supervisor and worker level, responsibilities are defined in documents such as procedures and work instructions appropriate to the activity.

Roles and responsibilities are further discussed below under the Guiding Principles and Core Functions/Core Elements in Section 4.0.

3.16 SAFETY CULTURE

The safety culture focus areas defined in DOE G 450.4-1C, *Integrated Safety Management System Guide*, leadership, employee/worker engagement, and organizational learning, are implemented through the FRNP ISMS.

Organizations foster safety culture by leadership commitment and behaviors consistent with those values; establishing a safety conscious work environment in which employees feel free to raise safety concerns to management without fear of retaliation; prioritizing concerns based on safety significance; addressing and resolving those concerns in a manner that provides transparency; and supporting a questioning attitude concerning safety by all employees.

Leadership, coupled closely with Guiding Principle 1, Line Management Responsibility for Safety, includes the following attributes:

- Demonstrated safety leadership;
- Risk-informed, conservative decision making;
- Management engagement and time in the field;
- Staff recruitment, selection, retention and development;
- Open communications and fostering an environment free from retribution; and
- Clear expectations and accountability.

CP1-HS-1000, *Health and Safety Policy*, emphasizes management's expectations to achieve excellence in safety and environmental stewardship. Statements within the Health and Safety Policy advocate the attributes of leadership and are reinforced through various company-level implementing documents. Safety leadership is demonstrated by management time in the field with eyes on the work, mentoring, and coaching employees. Active management involvement in the processes that implement the five core functions of ISMS provides the leadership necessary to satisfy this focus area and enhance the establishment of a safety conscious work environment.

The key to establishing and maintaining a positive safety conscious work environment is active employee/worker involvement in every step of work management and each of the five core functions. Attributes include these:

- Personal commitment to everyone's safety;
- Teamwork and mutual respect;
- Participation in work planning and improvement; and
- Mindful of hazards and controls.

Worker involvement is embedded in the FRNP Health and Safety Policy and is put into practice through numerous performance documents. The most obvious of these documents is CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky*. This program, and a supporting procedure, CP3-SM-1101, *Activity Level Work Request, Planning, Scheduling and Release*, involve workers in planning, hazard analysis and control selection, pre-job briefings, work performance, and post-job reviews. Throughout this process and many of the feedback and improvement mechanisms, workers are expected and encouraged to actively participate and interact with management in the accomplishment of the D&R Project mission and work scope. Workers also are encouraged to stop

work when necessary and report concerns through the use of the FRNP and DOE Employee Concerns Programs.

Organizational learning focuses on the feedback of performance information collected in many different forms, and utilizing that information to make improvements. The attributes of organizational learning include the following:

- Credibility, trust, and reporting errors and problems;
- Effective resolution of reported problems;
- Performance monitoring through multiple means;
- Use of operational experience; and
- Questioning attitude.

Workers are expected to have a questioning attitude and report issues as a result of those questions, document them using CP3-QA-3001, *Issues Management*, and participate in actions to resolve the reported issues. This focus area emphasizes mechanisms identified in CP2-QA-1000, *Quality Assurance Program Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, to collect information on performance and utilize that information to continuously improve. Regular use of the operating experience program, CP3-QA-3002, *Operating Experience/Lessons Learned*, to understand lessons learned from past performance and improve on that knowledge in subsequent actions will raise the bar on performance and effectiveness of ISMS implementation.

4. IMPLEMENTATION OF THE ISMS

The objective of the FRNP ISMS is to systematically integrate the elements of environmental, safety, health, quality, and safeguards and security into management and work practices at all levels to ensure the FRNP mission is accomplished while protecting the public, the worker, and the environment. This is done through effective integration of safety management processes into all facets of work planning and execution.

The following sections describe how the seven guiding principles and five core functions of ISMS are applied to the safe performance of work through the use of key implementing mechanisms, which comprise the FRNP ISMS. Where appropriate, the level of company application is identified.

4.1 GUIDING PRINCIPLES

The following sections describe key FRNP programs and processes that establish the necessary environment or context for each of the guiding principles for work at the PGDP D&R Project.

4.1.1 Line Management Responsibility for Safety

It is the responsibility of management at all levels to take action to protect the workers, the public, and the environment, as stated in top-level documents, such as CP1-HS-1000, *Health and Safety Policy*. It is also the responsibility of management to ensure requirements are incorporated into work documentation so that personnel using such instructions can be confident that their actions are within safety and environmental constraints.

The management team works together to achieve project integration and safe performance of work and is responsible for the leadership and commitment to safe work performance and continuous improvement within a framework of worker and public safety and health, environmental protection, quality, and compliance. All levels of FRNP management have primary responsibility and accountability for implementation of the requirements contained in this ISMS Description, the FRNP WSHP, the FRNP QAPD, other project program documents, and documents that are prepared to perform work under the scope of the Contract.

Line management has the responsibility for the safe and efficient conduct of work to ensure the protection of the public, the workers, and the environment. This responsibility is reinforced by CP1-HS-1000, which states that line managers demonstrate their commitment to this principle by spending time in the field, placing "eyes on the work activities," coaching, mentoring, and reinforcing safe work practices and behaviors. In addition, line managers encourage workers to report safety issues and demonstrate a visible questioning attitude toward safety. CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky*, and the supporting lower-tier program procedures identified therein specify management and worker responsibilities for safety and the controls required for safe work performance at the facility and activity levels.

A critical element to line management responsibility for safety is the responsible manager (RM) concept as defined in CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky*. The RM has authority and accountability for a specific body of work from its inception to completion by providing continuity of purpose and understanding throughout the work planning and implementation process. Among the areas of responsibility belonging to the RM is ensuring the overall safety of the workers and the overall safe performance of the work activity.

4.1.2 Clear Roles and Responsibilities

Clear and unambiguous lines of authority and responsibility for ensuring safety are established and maintained at all organizational levels. The organization structure and Contract Performance Baseline structure were established to support the scope of work identified in the Contract. The organization and general roles and responsibilities are described in the FRNP Project Controls System Description.

FRNP roles, responsibilities, authorities, and accountabilities are described in CP2-TS-1000, *Roles, Responsibilities, Authorities, and Accountabilities (R2A2) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*. Regarding FRNP senior management, roles, responsibilities, authorities, and accountabilities (as lines of communication and interfaces) of the FRNP senior management team are defined in of CP1-HR-0114, *Organizational Chart Policy*. All personnel are assigned in accordance with the roles, responsibilities, and competencies (education and experience) that the organizational manager has specified. Roles and responsibilities are defined and understood for the RMs, work planners, work supervisors, subcontractors, subject matter experts (SMEs), and other personnel involved in activity level work planning and control (WPC). Documented position descriptions, which describe functional duties and capabilities of each established position, as well as the identification of employees holding these positions, are maintained by the human resources organization.

Performance documents, such as policies, program descriptions, plans and procedures, identify specific roles and responsibilities for the functions and processes presented in the documents, as specified in

CP3-OP-0002, *Developing and Maintaining Performance Documents*. HSS&Q roles and responsibilities are defined by assignment in the organization and the function or activity being performed, which are contained in FRNP policies and procedures; documents credited for implementing ISMS are listed in the Appendix. Based on specified responsibilities for various positions, the CP2-TR-0100, *Training Program for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, and CP2-TR-0102, *Four Rivers Nuclear Partnership, LLC Paducah Deactivation and Remediation Project Training Implementation Matrix*, define the associated training requirements.

FRNP receives infrastructure services, cylinder inventory, and life cycle baseline services from other DOE contractors at PGDP; FRNP has identified points of contacts for the associated interface.

4.1.3 Competence Commensurate with Responsibilities

The FRNP process for ensuring that personnel competence is commensurate with assigned responsibilities is an integrated company-wide effort that ensures work is performed safely by qualified workers in accordance with procedures and work control documents. The basic elements include education, experience, training, and qualification. The processes and procedures used to implement these elements are listed in CP2-TR-0100, *Training Program for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, prepared in compliance with DOE O 426.2, Admin Chg 1, as applicable.

The initial hiring or transfer of employees is controlled by processes established by human resources, such as CP1-HR-0103, *Employment*, to ensure personnel are selected with the education, experience, skills, and qualifications specified in position descriptions for the duties and responsibilities to be assigned. The FRNP Training Program includes implementing procedures for initial training and qualification, continuing training, and remedial training, where necessary. Training is provided at three levels, namely, general employee training, position-specific training, and job- or facility-specific training. CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky*, requires the assignment of qualified personnel to perform work activities. FRNP roles, responsibilities, authorities, and accountabilities are described in CP2-TS-1000, *Roles, Responsibilities, Authorities, and Accountabilities (R2A2) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*. This procedure breaks down the R2A2s into three areas, which are universal R2A2s (all FRNP and subcontractor personnel), intrinsic R2A2s (implied by the OBS or other means), and program R2A2s (assigned to personnel independent of the OBS).

4.1.4 Balanced Priorities

FRNP managers are responsible for assuring that resources are allocated effectively to balance safety, programmatic, and operational considerations—with ES&H as a priority—whenever activities are planned and performed. The FRNP Project Controls System Description defines the budgetary process and controls used at the company level for assuring that protection of workers, the public, and the environment is a priority when planning and addressing changes in the scope, schedule, or budget for authorized work. At the facility or activity level, WPC documents prepared in accordance with CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, specify requirements and assign resources that show balanced considerations for safety and productivity when work is performed in the field.

As recommended by the attributes for this guiding principle contained in DOE G 450.4-1C, the FRNP organizational alignment provides for adequate influence from the safety and quality functions in support of the project execution functions. Similarly, the safety and quality functions, in their oversight role (Core Function 5), have the ability to monitor and confirm that priorities (safety, programmatic and operational) remain appropriately balanced as challenges arise during work execution.

4.1.5 Identification of Safety Standards and Requirements

This guiding principle requires that hazards associated with the work to be performed are evaluated and a set of safety standards and requirements/controls are agreed upon, established, and implemented. Proper implementation of the selected standards and requirements/controls provides assurance that workers, the public, and the environment will be protected from adverse consequences of the work being performed. At the company level, the Contract, which contains the federal laws, regulations, and directives specified for the scope of work to be performed by FRNP. Procedure CP3-OP-3003, *Standards and Requirements Management*, describes the process used by FRNP to maintain and manage changes to the documents affected by changes to those standards and requirements contained in these lists. In addition, other federal, state, and local laws and regulations, as well as consensus standards, are part of the set of standards and requirements used for the FRNP work scope.

The contractual requirements controlled by CP3-OP-3003, are flowed into performance documents in the form of policies, program descriptions, plans, and procedures, which comprise the implementing mechanisms of ISMS. Included in these performance documents are procedures that establish the processes for evaluating hazards and selecting standards and requirements for hazard control at the facility and activity levels.

The requirements are applied using a graded approach to discrete work activities. Facility-specific authorization agreements, deviations, exemptions, and tailoring documents, such as the applicable Conduct of Operations applicability matrix, establish the specific applicability necessary to support work at each project.

4.1.6 Hazard Controls Tailored to Work Being Performed

A standard hierarchy of approaches is used by FRNP to select controls to prevent and mitigate hazards. This hierarchy includes, in descending order, elimination of the hazard, substitution to reduce the hazard, utilization of engineered controls, and establishment of administrative controls, before resorting to the use of personal protective equipment (PPE). The controls are tailored to the work being performed and the associated hazards based on the complexity of the work, the stage of the deactivation process, and the severity of the hazards.

Hazard categorization is performed in accordance with DOE-STD-1027-92, *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports*. The DSA defines the requirements that need to be implemented to maintain the nuclear safety envelope at FRNP. At the facility level, hazards are analyzed according to potential risks and vulnerabilities from credible accident scenarios in accordance with established nuclear safety procedures, as well as CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky*, and CP3-HS-2004, *Job Hazard Analysis*. The selection of hazard controls is based on the type of hazard, the magnitude of the hazard, the type of work being performed, and the life cycle of the facility in which the work is being performed.

4.1.7 Operations Authorization

The Contract provides FRNP with the requirements and authorization to perform activities as defined in the scope of the contract. The conditions and requirements to be satisfied for operations to be initiated and conducted safely are clearly established, agreed upon, and verified through pre-operational and readiness reviews before hazardous work can begin. Authorization to perform work in a facility is governed by CP3-OP-1118, *Facility Management*. Work authorization at the activity level is defined in CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah,*

Kentucky, and CP3-SM-1101, *Activity Level Work Request, Planning, Scheduling and Release*. This work authorization process assures that adequate preparations have been completed, including verification that work methods and requirements are understood, work conditions will be as expected and will not introduce unexpected hazards, and selected controls are in place and being implemented. If these conditions cannot be met or are changed, workers are expected to stop or pause work in accordance with CP3-HS-2009, *Stop/Suspend Work*. The extent of documentation and level of authority for authorization are tailored similar to the selection of hazard controls (i.e., based on the complexity of the work, the stage of the deactivation process, and the hazards associated with the work).

4.2 CORE FUNCTIONS

The focus of the FRNP ISMS is to systematically integrate requirements/controls into management and work practices by using the following five core functions, as defined in DOE Policy 450.4A, *Integrated Safety Management Policy*. Whereas the guiding principles establish the environment or context within which ISM is implemented, the core functions provide the necessary structure for any work activity that could potentially adversely affect the workers, the public, and the environment. The core functions are normally applied as a continuous cycle.

4.2.1 Define the Scope of Work

The first step in the ISM process is defining the work scope, including translating the contract scope of work into a specific program baseline document, setting expectations, prioritizing tasks, allocating resources, and identifying legal and other requirements.

FRNP baseline plans define the scope of work to be performed consistent with budgetary, regulatory, risk prioritization, and other considerations. Budgets for each scope of work in the WBS include the necessary resources required to execute the work within a safe and compliant operating envelope. Contract milestones and baselines are developed and agreed to by DOE and FRNP. The scope of work is further defined and redefined as planning progresses as described in CP3-SM-1101, *Activity Level Work Request, Planning, Scheduling and Release*. The appropriate RM and line organization is responsible for translating the scope of work into field activities.

The Contract establishes performance expectations for FRNP. These expectations are established by DOE as the mechanism for measuring the accomplishment of specific objectives. Expectations and requirements are based upon the approved project baseline. Status of work is reported to DOE and any needed changes to the baseline are documented and approved.

The expectation that work be performed safely, in an environmentally conscientious manner and in compliance with contract requirements, is clearly established in the contract documents. This expectation is promulgated to the FRNP management team and workforce in a consistent manner, regularly reinforced in communications, training, and other mechanisms (e.g., pre-job briefings).

DOE and FRNP jointly use a risk-based prioritization method for determining the overall life cycle sequence of work to be performed. Risk-based prioritization assists management in balancing priorities and in allocating resources to risk reduction activities. Risk reduction activities include mitigating immediate on-site and off-site risks related to deactivation, decommissioning, decontamination and demolition of facilities.

As program or project conditions emerge, changes from the original baseline plan may be required due to a variety of reasons. FRNP uses a baseline change control process to assure that changes in priorities,

scope, cost, and schedule are appropriately reviewed and approved. This process is described in the FRNP Project Controls System Description.

4.2.2 Analyze Hazards

The analysis of hazards addresses potential risks and vulnerabilities from credible accident scenarios at the facility level in the facility health and safety plan, work packages and hazard analyses, including job hazard analyses (JHAs). The analysis of nuclear facility hazards is captured in the DSA, along with the necessary safety management program requirements, technical safety requirements (TSRs), etc., needed to mitigate and/or manage the hazards.

The processes for analyzing activity hazards is defined in the CP2-HS-2000, *Worker Safety and Health Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky*; CP3-HS-2004, *Job Hazard Analysis*; and CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky*. Hazards for each task are identified, analyzed, and documented by an integrated multidisciplinary team prior to the task being initiated. All types of hazards are considered, including nuclear, radiological, environmental, chemical, industrial, fire, external events, and construction.

Worker involvement and review of operating experiences are crucial elements of assuring that hazards have been adequately analyzed. An initial pre-job briefing and daily pre-work briefings, in accordance with CP3-SM-1101, *Activity Level Work Request, Planning, Scheduling and Release,* are conducted to communicate hazard assessment information to field personnel and elicit from the workers any last-minute concerns, questions, or identification and consideration of emerging hazards (e.g., weather conditions). Safety concerns, operating experiences, and hazard assessment information are also shared through CP3-QA-3002, *Operating Experience/Lessons Learned (OE/LL),* and safety council meetings for all workers using CP1-HS-1001, *Employee Safety Council.*

4.2.3 Develop and Implement Hazard Controls

Standards for mitigation of identified hazards are established as contractual requirements through the implementation of procedure CP3-OP-3003, *Standards and Requirements Management*. Standards provide the basis for work control documents used to execute the safe conduct of work activities.

After ES&H hazards are identified, controls necessary to protect workers, the public, and the environment from harm are identified and implemented, in accordance with governing requirements (e.g., exposure limits) and implementing programs/processes. The FRNP ISMS subdivides this process into four distinct steps. The first step in controlling hazards is to identify the standards and requirements associated with the work to be performed. These standards and requirements provide the necessary guidance to complete the second step, which is to determine options for hazard mitigation. After hazard control options are evaluated, the third step is to choose the best option for eliminating or mitigating the hazard. For this step, a standard hierarchy of selection is utilized. The fourth step is to establish, integrate, and implement selected controls.

FRNP complies with the standards and requirements identified in the Contract. FRNP procedure CP3-OP-3003, *Standards and Requirements Management*, describes the process for standards and requirements identification and revision using input and feedback from SMEs, workers, FRNP management, subcontractors, and DOE. Federal, state, and local laws and regulations, as well as consensus standards, are a part of the set of standards and requirements. Additionally, FRNP management sets policies and measurable goals, objectives, and commitments as part of the ISM process, which are

implemented as requirements for site work. Management periodically reviews and updates the established goals, objectives, and commitments, and takes corrective action where necessary.

In addition to the contractual regulations and requirements for training, the standards for personnel qualifications also may be determined based on the scope of work and associated hazards. The resulting requirements are implemented in the CP2-TR-0100, *Training Program for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, and associated implementing procedures, including the DOE-approved CP2-TR-0102, *Four Rivers Nuclear Partnership, LLC Paducah Deactivation and Remediation Project Training Implementation Matrix*.

Controls to mitigate hazards are derived from TSRs, safety bases, permits, regulatory requirements, agreements, procedures, JHAs, and training. Work planning and associated hazard control identification includes a step-by-step review by a team that includes workers who will perform the work, line management, HSS&Q, and other functional area support (e.g., engineering,), as appropriate. The team analyzes how the activity will be performed, which hazards are inherent to the operation and/or may be encountered in an upset condition, and which controls are needed to eliminate or mitigate identified hazards. This analysis considers the complexity of the work to be performed, and the types and severity of the hazards that may be encountered to tailor the selected hazards.

The preferred hierarchy for selecting methods to control hazards, considering balanced priorities and in descending order, is (1) elimination of the hazard; (2) substitution of the source of the hazard to reduce the risk (e.g., a less-hazardous chemical or cleaning agent); (3) application of an engineered control (e.g., designing and erecting a barrier); (4) implementation of an administrative control (e.g., procedures, plans, directives); and (5) use of PPE (e.g., safety harness, respirator). The proposed control set is selected to protect the workers involved in the work activity to be performed, collocated workers, other site personnel, the public, and the environment from the consequences of normal operations, accidents, or releases to the environment. The types of engineered controls, administrative controls, and PPE used to mitigate or preclude identified hazards are specified in work control documents and supporting documents.

Work is categorized in accordance with CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky*. The resulting work control document developed is appropriate for the identified work category. Activity sequences, prerequisites, and hold points are documented as part of the work control process. Methods are established for testing and verifying controls and for ensuring that personnel are qualified to discharge their responsibilities.

If site or workplace conditions change, hazards and controls are reevaluated. The formal change control process, specified in CP3-SM-1101, *Activity Level Work Request, Planning, Scheduling and Release*, ensures that hazards and associated controls are reevaluated when change occurs.

Work planning incorporates a graded approach, according to CP3-QA-1001, *Graded Approach*, to identify the appropriate level of rigor for work planning and the appropriate level of discipline required in work execution. This approach, outlined in CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky*, includes a screening process that is used to evaluate the scope of the work against performance risk, which is a function of hazard and complexity. Work activities determined to present risks that are readily accepted as part of daily life (e.g., involve only limited potential exposure to hazards) when performed in a stable work environment by a competent craftsperson or technician, or that are considered low-risk routine tasks (e.g. administrative support, working in an office environment), can be excepted from the work planning document development process and can be performed using approved procedures or work instructions.

4.2.4 Perform Work Within Controls

Operations authorization to perform work will be given in accordance with the requirements in CP3-OP-1118, *Facility Management*, and CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky*. Facility managers are identified for each facility, and are responsible for approving work in their facilities and for ensuring that hazards associated with the facility operations or other adjacent projects have been factored into the JHAs for the new work scope. The facility manager also is responsible for alerting the supervisors of any adjacent or collocated work activities of the existing hazards and potential creation of new hazards due to any added or modified work scope. The formality and rigor of the authorization process and the extent of documentation and level of approval is based on the hazards and complexity of work to be performed. The authorization and approval process to commence work in a facility or on a project includes careful review of the required documentation, feedback from the readiness determination, and first-hand awareness and observation of the physical condition of the work site to ensure all necessary preparations and arrangements, such as selected hazard controls, are in place and ready for work to begin.

At the activity level, readiness to begin work is the responsibility of the designated RM and includes a walk down by a planning team that includes personnel assigned to perform the work. The planning team identifies existing and potential hazards, as described in procedure CP3-HS-2004, *Job Hazard Analysis*, and determines the required equipment and tools. This information is incorporated into the work plan. The daily pre-job brief covers hazards and controls and provides a mechanism for workers to provide additional feedback on the work plan. A pre-job walkdown is performed prior to the performance of nonroutine activities, including maintenance and infrequently performed facility operations. If necessary, the work plan is revised to address changed conditions.

The RM is accountable to ensure the frontline manager understands and executes hazard controls as planned and intended. This consists of ensuring the work package is understood, the required tools and materials are available, workers with required skills and qualifications are available, and that the workplace conditions are as anticipated.

After work has been approved to start through the documented authorization and readiness processes described above, a pre-job walkdown and pre-job briefing are performed in accordance with CP3-SM-1101, *Activity Level Work Request, Planning, Scheduling and Release*, and updates are made to the potential hazards and mitigation methods, if necessary, to ensure that work is performed safely and in compliance with the work package by the work crew. This process also ensures that any changes to the physical condition of the work site since the authorization and readiness processes were completed are taken into consideration before work begins. If work cannot be performed as planned or conditions change, the work is stopped and the situation is evaluated by the crew, supervisor, and necessary technical and support staff to determine the correct course of action.

Whether employed by FRNP or a subcontractor, each worker's ability and commitment to execute activities in a safe manner represents the cornerstone for the FRNP safety culture. Workers possess the authority and personal responsibility to report unsafe conditions related to any work being performed and to stop or suspend work that they believe endangers themselves, other workers, the public, or the environment without fear of reprisal. This stop work empowerment is performed in accordance with CP3-HS-2009, *Stop/Suspend Work*, which includes provisions for documenting the work stoppage, tracking actions required to restart, and the notifications and approval authorities required to restart the work. Workers may submit concerns without fear of reprisal to their supervisor, senior management, union safety representatives, and/or FRNP or DOE Employee Concerns Programs. No worker will be required to perform a task that he or she believes is unsafe or will endanger the environment. Lessons learned from the suspension or stoppage of work are prepared and disseminated.

After the planned work is completed, appropriate housekeeping is performed to leave the job site in a safe condition and, if appropriate, ready for the next work shift to continue the effort. A post-job review is performed in accordance with CP3-SM-1101, *Activity Level Work Request, Planning, Scheduling and Release,* to collect information regarding what went well and what could be improved as feedback to planning and execution of the task the next time. Worker involvement in this post-job evaluation process is critical to understanding the operating experiences of the hands-on workers and the lessons they learned from direct involvement in the work. These post-job reviews are important activities and one of the most beneficial feedback mechanisms in the implementation of Core Function 5, Feedback and Improvement.

4.2.5 Feedback and Continuous Improvement

Feedback within FRNP takes many different forms, all of which feed into a databank of performance information that enhances continuous improvement and organizational learning. The mechanisms for collecting performance information, managing that information to improve performance, and reporting and documenting the information are described in CP2-QA-1000, *Quality Assurance Program Description at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky,* and numerous supporting performance documents contained therein.

Job walkdowns in support of JHA and work package preparation, pre-job briefs, post-job walkdowns to verify completion, and post-job reviews are examples of activities that collect worker feedback at the activity level. This feedback is provided to the frontline managers, line organization manager, work planning organization, and the ISM Department. Other mechanisms for collecting feedback include the following:

- Safety and toolbox meetings,
- Worker observations, suggestions, and concerns,
- Employee/supervisor interactions,
- Management observations and assessments,
- Independent audits,
- Post-event fact finding reviews and accident/incident investigations, and
- Employee Safety Council meetings.

Collected feedback is reviewed for improvement opportunities, and improvements are incorporated into the next iteration of work planning documents, JHAs, procedures, and other performance documents. FRNP also employs management and self-assessment, independent assessment, and observation processes, as described in CP3-QA-1003, *Management and Self-Assessment*; CP3-QA-1004, *Independent Assessment Program*; and CP3-QA-3010, *Performance Observations*. Management assessments (self-assessments) are performed by the organization having primary responsibility for the work, process, or system being assessed. Organizations and individuals outside the direct control and responsibility of the organization being assessed perform independent assessments. Observations of work performance also occur in the course of the management team spending time in the field mentoring and coaching workers, routinely observing work evolutions, or conducting tours or walkthroughs with other FRNP personnel or visitors. The latter methods are institutionalized in CP3-QA-3010, and also are the result of senior management team expectations as stated in CP1-HS-1000, *Health and Safety Policy*. FRNP also identifies opportunities for improvement through review of operational experience and lessons learned from on-site and off-site incidents.

Employee concerns receive immediate attention. Frontline managers and other members of the FRNP management team should be the first resource for employees to voice their concerns, as this team is accountable for creating and sustaining a retaliation-free environment. CP3-SM-1101, *Activity Level Work Request, Planning, Scheduling and Release,* includes a process for frontline identification and

resolution of worker feedback. Those managers closest to the work situation of concern are best able to resolve concerns expeditiously. However, should the managers themselves be contributors to the situation being raised, the Employee Concerns office is the resource that ensures prompt action is taken. The mechanism for using the Employee Concerns office is prescribed in CP1-HR-0131, *Employee Concerns*. Employee Concerns provides feedback to management, who then are responsible and accountable for taking appropriate actions. Similarly, the DOE Employee Concerns Program is available to concerned employees.

FRNP issues are identified and managed through various means, as described in CP3-QA-3001, *Issues Management*. Once identified, issues are tracked in the FRNP Issues Management database. Some issues may be fixed immediately upon discovery, but still be tracked to support trend identification. Not all lower level issues necessarily will be tracked. Key information is captured for issues in the database, including significance, subject area, and causal factors, if identified. This information is used in trending and feedback to FRNP management for improvement. Additional sources of data used for management feedback include the DOE Operating Experience database, the DOE Occurrence Reporting and Processing System (ORPS), and the Price-Anderson Amendments Act Noncompliance Tracking System database.

Operating experience programs including lessons learned from across the DOE Complex and other government or commercial operations are valuable to inform prevention of issues and continuous improvement opportunities. Operating experiences of any type are identified and communicated, as appropriate, to all affected individuals and organizations. Managers are expected to consider applicable lessons learned from the experiences and to assess and adjust functions and operations within their areas of responsibility, as appropriate. The use of operating experiences and lessons learned is described in CP3-QA-3002, *Operating Experience/Lessons Learned*.

Improvement opportunities are implemented in a variety of ways. Procedure CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky*, describes the process for incorporating worker feedback from pre- and post-job reviews as well as from operating experience into future planning and work execution. Improvements may be implemented immediately by the workers or their work unit when they have control of the necessary resources. Changes needed to improve that are identified through an assessment or incident/occurrence would be tracked to closure through CP3-QA-3001. Opportunities for improvement that require a significant level of resources are incorporated into budget planning to balance priorities while effectively managing safety and health risks.

Process improvements to WPC have been captured and incorporated in CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky*. The FRNP approach is to have a simple process to the extent practical. A simple process is better understood and retained, results in improved safety and compliance, ensures consistent implementation, improves overall safety performance, and reduced cost. A critical element to simplifying the process without degradation to performance will be the RM concept. The FRNP WPC process will implement the RM role, with responsibilities appropriate for control of fieldwork, and will ensure personnel in these roles have the authority and accountability necessary to be effective.

5. SAFETY MANAGEMENT OF SUBCONTRACTED WORK

5.1 PROCUREMENT

FRNP manages a portion of its scope through subcontractors. These subcontractors function within the FRNP ISMS structure while performing work in accordance with specific contract scope, requirements, and terms. Procurement systems support ISM functions for scope definition and implementation of controls to mitigate hazards.

5.2 SUBCONTRACTOR SELECTION PROCESS

The request for proposal (RFP) for contracted work is prepared according to CP3-CP-0002, *Acquisition Management*, and CP3-CP-0005, *Preparation of Request for Proposal*, under the authority of the FRNP procurement organization. The RFP includes a detailed statement of work (SOW), environmental, health, safety, and quality requirements, and other appropriate technical requirements as defined by individual projects. The RFP also includes all applicable attachments and ES&H requirements, including the flow down requirements of the ISM DEAR clause. Working conditions, prerequisites, and precautions established by a project planning team are included in the RFP.

To be considered for award, prospective subcontractors first must meet the FRNP prequalification criteria for environment, health, safety, and quality (when required), as established by procurement and consistent with the Target Zero program. The subcontractors' previous health and safety compliance performance are factored into the selection process. Proposals that pass the prequalification process are evaluated on a commercial and technical basis, after which a recommendation for award is made. Subcontractor responsibilities for health and safety, environmental protection, security, and quality performance are defined in their contract.

5.3 SUBCONTRACT ADMINISTRATION AND OVERSIGHT

Once the contract is awarded, the subcontractor uses the SOW, the work control information, and other requirements in the award package to prepare a project-specific work plan. In addition, the subcontractor prepares a JHA specific to the SOW to be performed. The JHA and project-specific work plan are submitted to FRNP where they are reviewed and approved once the submittal satisfies all of the FRNP requirements. This process is completed before any work is authorized for implementation in the field.

Subcontractors are responsible for ensuring the competence of personnel performing work under their SOW in accordance with appropriate requirements. Subcontractors are responsible for maintaining current qualifications and training their employees.

Project personnel are responsible for oversight of daily contract activities and ensuring contract requirements are met, including ensuring that the subcontractor works within the guidelines of the FRNP ISMS and applicable implementing procedures. All subcontractor employees are required to perform work in a manner consistent with FRNP ISMS principles and functions per contract requirements.

6. MAINTAINING AND IMPROVING ISMS

6.1 PURPOSE

FRNP is committed to maintaining continuously the integrity of the ISMS and is responsible for ensuring that the approved ISMS Description is supported by an effective feedback and improvement process so that the implementing processes remain current and the Description reflects changes to the mission, program objectives, contractual and regulatory requirements, and budget direction from DOE.

The FRNP ISMS is maintained and improved via a biennial assessment. The assessment is conducted according to CP2-QA-1000, *Quality Assurance Program Description at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, which defines an assessment program that requires functional area managers to assess the compliance and performance (e.g., effectiveness, efficiency) of their implementing processes, including key ISMS processes, for which they are responsible. The biennial assessment involves a roll-up evaluation of the integrity and effectiveness of ISMS, which may identify issues for correction as well as opportunities for improvement, and is used to update the ISMS Description, if warranted. This rollup process is implemented through CP3-HS-1000, *Integrated Safety Management System Effectiveness Review and Performance Objectives, Measures, and Commitment Development and Reporting*.

FRNP utilizes a variety of feedback both formal (e.g., assessments) and informal (e.g., worker feedback) to evaluate the adequacy and effectiveness of the ISMS processes and to assure continuous improvement in ISMS implementation. Data are collected at the program (company), project, task, and activity levels through formal and informal mechanisms. FRNP management systems provide ongoing evaluation of FRNP and subcontractor performance to assure conformance to specified requirements and effective implementation. Examples of these systems include director-level review of contractor submittals and deliverables; assessments of contractor health and safety performance; management by walking around assessments; ISM and QA monitoring of project performance; and periodic independent review performed by corporate parents. Management assessments and independent assessments are conducted to provide ongoing, formal feedback. Issues identified from internal and external assessments are documented, causal analyses are performed as appropriate, and corrective actions developed and tracked to closure. Analyses are conducted on a regular basis to identify trends for management action.

6.2 CONFIGURATION CONTROL

As operations progress under the Contract, FRNP ensures that the ISMS Description remains consistent with implementing processes as they evolve based on operating experience, feedback, and changing requirements. Intent changes to the processes that comprise the FRNP ISMS are evaluated relative to the content of this Description to ensure that key elements of ISMS implementation are preserved or adjusted as appropriate. The ISMS Description is updated, as needed, to incorporate process improvements, as described in CP3-HS-1000, *Integrated Safety Management System Effectiveness Review and Performance Objectives, Measures, and Commitment Development and Reporting*. The document is revised consistent with CP3-OP-0002, *Developing and Maintaining Performance Documents* requirements, and is controlled in accordance with CP3-RD-0010, *Records Management Process*. The CP3-HS-1000 procedure also specifies that the ISMS Description is submitted to DOE for approval in accordance with the schedule defined in the Contract or when a revision is made by FRNP.

6.3 ISMS EFFECTIVENESS—CONTINUAL PROCESSES

The feedback and improvement processes described in Section 4.2.5 are the primary processes for continually maintaining and improving ISMS to ensure that safety is thoroughly integrated with work planning and performance. The project management team continuously monitors the effectiveness of ISMS implementation using the following input:

- Worker feedback obtained through post-job reviews, inspections, concerns, safety discussions, and other methods;
- Assessment results from each level of the organization—from worker and individual activities, facilities, subcontractor activities, and the site level;
- Review of issues and issue closure associated with ISMS implementation as tracked and trended through CP3-QA-3001, *Issues Management*;
- Review of the FRNP Operating Experience/Lessons Learned program to determine how well applicable internal and external experiences were incorporated into ISMS implementing processes and WPC improvements;
- Review and approval of safety management program indicators by an executive safety review board;
- Review of the achievement of performance objectives, measures, and commitments (POMCs); and
- DOE and other stakeholder/regulator feedback and input, as applicable.

6.4 ISMS PERFORMANCE METRICS

The POMCs are established annually by the FRNP senior management team and submitted to DOE for approval. On a regular basis, FRNP management reviews the POMC accomplishments, shares the results with DOE, and directs action to make necessary course corrections indicated by the performance metrics. FRNP management may develop additional performance indicators for internal tracking and performance improvement. Information is obtained from various sources (e.g., Issues Management System, ORPS, safety notification reports, anomalous condition reports, individual projects, SMEs) and is provided to management via a monthly report. Information obtained may be used to initiate program improvements or establish focus areas for further evaluation.

6.5 BIENNIAL ASSESSMENT AND DECLARATION PROCESS

On a biennial basis, FRNP performs an internal assessment of the ISMS program to determine program status and performance, including actions taken to evaluate and improve system effectiveness, POMC results, overall safety performance, and program improvements.

The FRNP process uses feedback information collected throughout previous years to create a comprehensive evaluation of the status and effectiveness of the key ISMS implementing processes and elements. ISMS evaluation and reporting process is performed in accordance with CP3-HS-1000, *Integrated Safety Management System Effectiveness Review and Performance Objectives, Measures, and Commitment Development and Reporting*.

The evaluation considers indicators of ISMS performance, as evidenced by the following:

- Progress in achieving safety performance objectives,
- Success in completing safety performance commitments,
- Performance demonstrated by measures and indicators,
- Resolution of issues from previous ISMS evaluations,
- Assessment findings,
- Occurrences, and
- Worker safety concerns.

An ISMS effectiveness report is prepared based on the results of the biennial evaluation and is submitted to DOE.

7. REFERENCES

10 *CFR* 851, *Worker Safety and Health Program*

CP1-HR-0103, *Employment*

CP1-HR-0114, *Organizational Chart Policy*

CP1-HR-0131, *Employee Concerns*

CP1-HR-0147, *Differing Professional Opinions*

CP1-HS-1000, *Health and Safety Policy*

CP1-HS-1001, *Employee Safety Council*

CP1-NS-3000, *Documented Safety Analysis for the Department of Energy Paducah Site Deactivation Project*

CP1-PC-0000, *Earned Value Management Policy*

CP2-ES-0101, *Environmental Management System for the Deactivation and Remediation Project, Paducah Gaseous Diffusion Plant, Paducah, Kentucky*

CP2-HS-2000, *Worker Safety and Health Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky (WSHP*)

CP2-OP-1100, *Conduct of Operations Program at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*

CP2-PC-0100, *Project Controls System Description*

CP2-QA-1000, *Quality Assurance Program Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*

CP2-QA-3000, *Contractor Performance Assurance Program Description at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*

CP2-RP-0001, *Radiation Protection Program for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*

CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky*

CP2-TR-0100, *Training Program for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*

CP2-TR-0102, *Four Rivers Nuclear Partnership, LLC Paducah Deactivation and Remediation Project Training Implementation Matrix*

CP2-TS-1000, *Roles, Responsibilities, Authorities, and Accountabilities (R2A2) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*

CP3-CP-0002, *Acquisition Management*

CP3-CP-0005, *Preparation of Request for Proposal*

CP3-HS-1000, *Integrated Safety Management System Effectiveness Review and Performance Objectives, Measures, and Commitment Development and Reporting*

CP3-HS-2004, *Job Hazard Analysis*

CP3-HS-2009, *Stop/Suspend Work*

CP3-OP-0002, *Developing and Maintaining Performance Documents*

CP3-OP-0025, *Document Control Process*

CP3-OP-1118, *Facility Management*

CP3-OP-3003, *Standards and Requirements Management*

CP3-QA-1001, *Graded Approach*

CP3-QA-1003, *Management and Self-Assessment*

CP3-QA-1004, *Independent Assessment Program*

CP3-QA-3001, *Issues Management*

CP3-QA-3002, *Operating Experience/Lessons Learned*

CP3-QA-3005, *Occurrence Reporting*

CP3-QA-3010, *Performance Observations*

CP3-RD-0010, *Records Management Process*

CP3-SM-1101, *Activity Level Work Request, Planning, Scheduling and Release*

DEAR 970.5223-1, *Integration of Environment, Safety, and Health into Work Planning and Execution*

DOE G 450.4-1C, *Integrated Safety Management System Guide*

DOE O 226.1B, *Implementation of DOE Oversight Policy*

DOE O 232.2A, *Occurrence Reporting and Processing of Operations Information*

DOE O 422.1, Admin Chg 2, *Conduct of Operations*

DOE O 426.2, Admin Chg 1, *Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities*

DOE O 436.1, *Departmental Sustainability*

DOE O 442.1A, *DOE Employee Concerns Program*

DOE O 442.2, *Differing Professional Opinions*

DOE Policy 450.4A, *Integrated Safety Management Policy*

DOE-STD-1027-92, *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports*

Executive Order 13423, *Strengthening Federal Environmental, Energy, and Economic Performance*

Executive Order 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*

Executive Order 13693, *Planning for Federal Sustainability in the Next Decade*

International Organization for Standardization's (ISO) 14001:2004 Standard, *Environmental Management Systems—Requirements with Guidance for Use*

APPENDIX

ISMS CROSSWALK OF FRNP PROCEDURES

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ISMS CROSSWALK OF FRNP PROCEDURES

970.5223-1 ISMS Element	Implementing Document
(a) For the purposes of this clause,	
(1) Safety encompasses environment, safety, and health (ES&H), including pollution prevention and waste minimization; and	CP2-HS-1000, *Integrated Safety Management System Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*
(2) Employees include subcontractor employees.	CP2-HS-1000, *Integrated Safety Management System Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-HS-2000, *Worker Safety and Health Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky*
(b) In performing work under this contract, the contractor shall perform work safely, in a manner that ensures adequate protection for employees, the public, and the environment, and shall be accountable for the safe performance of work. The contractor shall exercise a degree of care commensurate with the work and the associated hazards. The contractor shall ensure that management of ES&H functions and activities become an integral but visible part of the contractor's work planning and execution processes. The contractor shall, in the performance of work, ensure that:	CP1-HS-1000, *Health and Safety Policy* CP2-HS-1000, *Integrated Safety Management System Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-HS-2000, *Worker Safety and Health Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky* CP3-HS-2004, *Job Hazard Analysis* CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky* CP2-TS-1000, *Roles, Responsibilities, Authorities, and Accountabilities (R2A2) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*
(1) Line management is responsible for the protection of employees, the public, and the environment. Line management includes those contractor and subcontractor employees managing or supervising employees performing work.	CP1-HS-1000, *Health and Safety Policy* CP2-HS-1000, *Integrated Safety Management System Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-HS-2000, *Worker Safety and Health Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky* CP2-RP-0001, *Radiation Protection Program for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky*

970.5223-1 ISMS Element	Implementing Document
(2) Clear and unambiguous lines of authority and responsibility for ensuring ES&H are established and maintained at all organizational levels.	CP1-HR-0103, *Employment* CP2-HS-1000, *Integrated Safety Management System Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-PC-0100, *Project Controls System Description* CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky* CP2-TR-0100, *Training Program for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-TS-1000, *Roles, Responsibilities, Authorities, and Accountabilities (R2A2) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP3-OP-1118, *Facility Management* FRNP Company Level Management Team and Functional Organizational Charts
(3) Personnel possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities.	CP1-HR-0103, *Employment* CP2-HS-1000, *Integrated Safety Management System Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky* CP2-TR-0100, *Training Program for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*
(4) Resources are effectively allocated to address ES&H, programmatic, and operational considerations. Protecting employees, the public, and the environment is a priority whenever activities are planned and performed.	CP2-HS-1000, *Integrated Safety Management System Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-ES-0101, *Environmental Management System for the Deactivation and Remediation Project, Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-PC-0100, *Project Controls System Description* CP2-RP-0001, *Radiation Protection Program for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky*

970.5223-1 ISMS Element	Implementing Document
(5) Before work is performed, the associated hazards are evaluated and an agreed upon set of ES&H standards and requirements are established which, if properly implemented, provide adequate assurance that employees, the public, and the environment are protected from adverse consequences.	CP1-NS-3000, *Documented Safety Analysis for the Department of Energy Paducah Site Deactivation Project*, along with Documented Safety Analyses (DSAs) and related implementing procedures CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky* CP2-TR-0100, *Training Program for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP3-HS-2004, *Job Hazard Analysis* CP3-OP-0002, *Developing and Maintaining Performance Documents* CP3-OP-3003, *Standards and Requirements Management*
(6) Administrative and engineering controls to prevent and mitigate hazards are tailored to the work being performed and associated hazards. Emphasis should be on designing the work and/or controls to reduce or eliminate the hazards and to prevent accidents and unplanned releases and exposures.	CP2-HS-1000, *Integrated Safety Management System Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-HS-2000, *Worker Safety and Health Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky* CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky* CP2-TR-0100, *Training Program for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP3-HS-2004, *Job Hazard Analysis* CP3-OP-0002, *Developing and Maintaining Performance Documents*
(7) The conditions and requirements to be satisfied for operations to be initiated and conducted are established and agreed upon by the U.S. Department of Energy (DOE) and the contractor. These agreed upon conditions and requirements are requirements of the contract and binding upon the contractor. The extent of documentation and level of authority for agreement shall be tailored to the complexity and hazards associated with the work and shall be established in a Safety Management System.	CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky* CP3-HS-2004, *Job Hazard Analysis* CP3-OP-1118, *Facility Management* CP3-OP-3003, *Standards and Requirements Management*
(c) The contractor shall manage and perform work in accordance with a documented Safety Management System (System) that fulfills all conditions in paragraph (b) of this clause at a minimum. Documentation of the System shall describe how the contractor will:	CP2-HS-1000, *Integrated Safety Management System Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP3-RD-0010, *Records Management Process*

970.5223-1 ISMS Element	Implementing Document
(1) Define the scope of work;	CP2-PC-0100, FRNP Project Controls System Description CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky* CP3-OP-0002, *Developing and Maintaining Performance Documents*
(2) Identify and analyze hazards associated with the work;	CP1-NS-3000, *Documented Safety Analysis for the Department of Energy Paducah Site Deactivation Project,* along with DSAs and related implementing procedures CP2-HS-1000, *Integrated Safety Management System Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-HS-2000, *Worker Safety and Health Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky* CP2-RP-0001, *Radiation Protection Program for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky* CP3-HS-2004, *Job Hazard Analysis* CP3-OP-0002, *Developing and Maintaining Performance Documents*
(3) Develop and implement hazard controls;	CP2-HS-2000, *Worker Safety and Health Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky* CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky* CP2-TR-0100, *Training Program for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP3-HS-2004, *Job Hazard Analysis* CP3-OP-0002, *Developing and Maintaining Performance Documents*

970.5223-1 ISMS Element	Implementing Document
(4) Perform work within controls; and	CP1-NS-3000, *Documented Safety Analysis for the Department of Energy Paducah Site Deactivation Project,* along with DSAs and related implementing procedures CP2-ES-0101, *Environmental Management System for the Deactivation and Remediation Project, Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-OP-1100, *Conduct of Operations Program* CP2-QA-1000, *Quality Assurance Program Description at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky* CP3-HS-2009, *Stop/Suspend Work* CP3-OP-0002, *Developing and Maintaining Performance Documents*
(5) Provide feedback on adequacy of controls and continue to improve safety management.	CP1-HR-0131, *Employee Concerns* CP1-HR-0147, *Differing Professional Opinions* CP2-ES-0101, *Environmental Management System for the Deactivation and Remediation Project, Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-HS-1000, *Integrated Safety Management System Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-QA-1000, *Quality Assurance Program Description at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-QA-3000, *Contractor Performance Assurance Program Description at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP3-OP-0002, *Developing and Maintaining Performance Documents* CP3-QA-1003, *Management and Self-Assessment* CP3-QA-1004, *Independent Assessment Program* CP3-QA-3001, *Issues Management* CP3-QA-3002, *Operating Experience/Lessons Learned* CP3-SM-1101, *Activity Level Work Request, Planning, Scheduling and Release*

970.5223-1 ISMS Element	Implementing Document
(d) The System shall describe how the contractor will establish, document, and implement safety performance objectives, performance measures, and commitments in response to DOE program and budget execution guidance while maintaining the integrity of the System. The System also shall describe how the contractor will measure system effectiveness.	CP2-PC-0100, FRNP Project Controls System Description CP2-QA-1000, *Quality Assurance Program Description at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-SM-1000, *Activity Level Work Planning and Control Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky* CP3-HS-1000, *ISMS Effectiveness Review and POMC Development and Reporting* CP3-OP-0002, *Developing and Maintaining Performance Documents* CP3-QA-3001, *Issues Management*
(e) The contractor shall submit to the contracting officer documentation of its System for review and approval. Dates for submittal, discussions, and revisions to the System will be established by the contracting officer. Guidance on the preparation, content, review, and approval of the System will be provided by the contracting officer. On an annual basis, the contractor shall review and update, for DOE approval, its safety performance objectives, performance measures, and commitments consistent with and in response to DOE's program and budget execution guidance and direction. Resources shall be identified and allocated to meet the safety objectives and performance commitments as well as maintain the integrity of the entire System. Accordingly, the System shall be integrated with the contractor's business processes for work planning, budgeting, authorization, execution, and change control.	CP2-HS-1000, *Integrated Safety Management System Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-PC-0100, *Project Controls System Description* CP2-QA-1000, *Quality Assurance Program Description at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP3-QA-3001, *Issues Management* CP3-QA-3005, *Occurrence Reporting* CP3-RD-0010, *Records Management Process*
(f) The contractor shall comply with, and assist the DOE in complying with, ES&H requirements of all applicable laws and regulations and applicable directives identified in the clause of this contract entitled "Laws, Regulations, and DOE Directives." The contractor shall cooperate with federal and nonfederal agencies having jurisdiction over ES&H matters under this contract.	CP2-ES-0101, Environmental Management System for the Deactivation and Remediation Project, Paducah Gaseous Diffusion Plant, Paducah, Kentucky CP2-HS-1000, Integrated Safety Management System Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky CP3-OP-3003, Standards and Requirements Management

970.5223-1 ISMS Element	Implementing Document
(g) The contractor shall promptly evaluate and resolve any noncompliance with applicable ES&H requirements and the System. If the contractor fails to provide resolution or if, at any time, the contractor's acts or failure to act causes substantial harm or an imminent danger to the environment or health and safety of employees or the public, the contracting officer may issue an order stopping work in whole or in part. Any stop work order issued by a contracting officer under this clause [or issued by the contractor to a subcontractor in accordance with paragraph (i) of this clause] shall be without prejudice to any other legal or contractual rights of the government. In the event that the contracting officer issues a stop work order, an order authorizing the resumption of the work may be issued at the discretion of the contracting officer. The contractor shall not be entitled to an extension of time or additional fee or damages by reason of, or in connection with, any work stoppage ordered in accordance with this clause.	CP2-QA-1000, *Quality Assurance Program Description at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP3-HS-2009, *Stop/Suspend Work* CP3-QA-3001, *Issues Management* CP3-QA-3005, *Occurrence Reporting*
(h) Regardless of the performer of the work, the contractor is responsible for compliance with the ES&H requirements applicable to this contract. The contractor is responsible for flowing down the ES&H requirements applicable to this contract to subcontracts at any tier to the extent necessary to ensure the contractor's compliance with the requirements.	CP2-HS-1000, *Integrated Safety Management System Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-HS-2000, *Worker Safety and Health Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky* CP3-CP-0002, *Acquisition Management* CP3-OP-3003, *Standards and Requirements Management* Terms and Conditions Attachment J-1, *Environmental, Health, and Safety Requirements for On-Site Work*
(i) The contractor shall include a clause substantially the same as this clause in subcontracts involving complex or hazardous work on-site at a DOE-owned or -leased facility. Such subcontracts shall provide for the right to stop work under the conditions described in paragraph (g) of this clause. Depending on the complexity and hazards associated with the work, the contractor may choose not to require the subcontractor to submit a Safety Management System for the contractor's review and approval.	CP2-HS-1000, *Integrated Safety Management System Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* CP2-HS-2000, *Worker Safety and Health Program for the Paducah Gaseous Diffusion Plant Paducah, Kentucky* CP3-CP-0002, *Acquisition Management* CP3-HS-2009, *Stop/Suspend Work*