SALT WASTE PROCESSING FACILITY

INTEGRATED SAFETY MANAGEMENT SYSTEM DESCRIPTION

DELIVERABLE: 7.2

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Phase II

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SUMMARY OF CHANGES

Revision No.	Date	Description of Change
0	02/28/2007	Initial Issuance.
1	05/27/2008	Periodic Review.
2	03/12/2009	Revise per DMR-0668, Annual Update to current staffing plan.
3	09/09/2009	Revise per DMR-0977, Annual Update.
4	03/15/2016	Revise per DMR-3102, Total Rewrite for Testing Phase. Revisions Bars will not be shown.
5	02/09/2018	Revise per DMR-3796, Expand applicability to include chemical testing and update implementing procedure numbers.
6	01/31/2019	Revise per DMR-4901, update to address hot operations including radiological programs, enhanced emergency preparedness, and DSA/TSRs.

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LIST OF ACRONYMS AND ABBREVIATIONS

ALARA	As Low As Reasonably Achievable
CAM	Control Account Manager
CAP	Capital Asset Project
CD	Critical Decision
CFR	Code of Federal Regulations
Cs	Cesium
DEAR	U.S. Department of Energy Acquisition Regulation
DOE	U.S. Department of Energy
DPO	Differing Professional Opinion
DSA	Documented Safety Analysis
EPC	Engineering, Procurement, and Construction (Contractor)
ES&H	Environmental, Safety, and Health
FAM	Functional Area Manager
FHA	Fire Hazard Analysis
FPD	Federal Project Director
FY	Fiscal Year
IAP	Integrated Assessment Program
ICD	Interface Control Document
ISMS	Integrated Safety Management System
ISOT	Integrated System Operational Test
JHA	Job Hazard Analysis
KPI	Key Performance Indicator
LL	Lessons Learned
LRW	Liquid Radioactive Waste
LWO	Liquid Waste Operations (Contractor)
M&O	Management & Operating (Contractor)
MOA	Memorandum of Agreement
OE	Operating Experiences
ORPS	Occurrence Reporting and Processing System
ORR	Operational Readiness Review
PITS	Performance Improvement Tracking System
POD	Plan of the Day
POMC	Performance objectives, measures, and commitments
POW	Plan of the Week
PPD	Project Position Description
PS	Policy Statement
QA	Quality Assurance
RWP	Radiological Work Permit
S/RID	Standards/Requirements Identification Document
SB	Safety Basis
SME	Subject Matter Expert
SOM	Shift Operations Manager

LIST OF ACRONYMS AND ABBREVIATIONS (cont.)

SOP	Standard Operating Procedures
SOT	System Operational Test
Sr	Strontium
SRB	Senior Review Board
SRS	Savannah River Site
SSC	Structure, System, and Component
SWPF	Salt Waste Processing Facility
TSR	Technical Safety Requirements
WBS	Work Breakdown Structure

1.0 INTRODUCTION

The Salt Waste Processing Facility (SWPF) mission is to process the high curie portion of salt waste contained in the Liquid Radioactive Waste (LRW) storage tanks in the F- and H-Area Tank Farms at Savannah River Site (SRS). The SWPF will treat saltcake, supernate, and interstitial liquids removed from the LRW tanks. This waste contains high activities of cesium (Cs) and, in some cases, high activities of strontium (Sr) and alpha-emitting actinides. The SWPF will separate and concentrate Cs, Sr, and actinide constituents from the salt waste. The SWPF will produce a decontaminated salt solution that is suitable for disposal at the Saltstone Disposal Facility and a higher-activity concentrate of Cs, Sr, and actinides for vitrification at the Defense Waste Processing Facility.

The U.S. Department of Energy (DOE) selected Parsons as the Engineering, Procurement, and Construction (EPC) Contractor to design, construct, commission, and operate the SWPF for one year according to Contract (DE-AC09-02SR22210: *Design, Construction, and Commissioning of a Salt Waste Processing Facility [SWPF]*[1]). The Contract (DE-AC09-02SR22210[1]) requires Parsons to implement the DOE Integrated Safety Management System (ISMS) according to Title 48 Code of Federal Regulations (CFR), DOE Acquisition Regulations [DEAR] 970.5223-1: *Integration of environment, safety, and health into work planning and execution*[2]. The Project Manager establishes the Guiding Principles and Core Functions as the fundamental approach to integrating safety into management and work processes by Policy Statement (PS)-01, *SWPF Integrated Safety Management System Policy*[3].

Parsons and its key subcontractors Atkins and General Atomics operate seamlessly to the SWPF policies, plans, and procedures comprising the ISMS. Atkins, General Atomics, and onsite subcontractors performing work in J-Area are required to perform work according to SWPF Project policies, plans, and procedures comprising the ISMS.

This document is revised to reflect discrete project phases pursuant to Contract Standard 7 (DE-AC09-02SR22210[1]). This revision describes the ISMS for Commissioning and Operations. The initial Commissioning phase will involve equipment and system checkout primarily with water while the chemical commissioning phase will introduce process chemicals and non-radioactive simulated waste streams, chemically analogous to Tank Farm waste in order to complete integrated testing of the caustic-side solvent extraction (CSSX) process and other equipment. The period of chemical commissioning also includes a period of chemical processing to demonstrate operator proficiency (cold commissioning), perform contractual demonstration tests, and complete Operational Readiness Reviews. Operations for the purpose of this document begins with the introduction of radiological waste via the underground waste transfer lines from the Tank Farms and includes hot commissioning and the one year of operations.

2.0 PURPOSE

The purpose is to describe the policies, plans, and procedures used at SWPF to implement the ISMS Core Functions and Guiding Principles during Commissioning and Operations..

3.0 SCOPE

The description scope comprises the directional documents that establish the responsibilities and methods for analyzing and controlling environmental, safety, and health risks during Commissioning and Operations.

4.0 OBJECTIVE

The objective of the ISMS is to systematically integrate safety into management and work practices so that the mission is accomplished in a manner that protects the public, workers, and the environment. The objective of this document is to provide a roadmap of the SWPF Project safety management system for the Commissioning and Operations. The objective of the initial Commissioning phase will involve equipment and system checkout primarily with water while the chemical commissioning phase will introduce process chemicals and non-radioactive simulated waste streams, chemically analogous to Tank Farm waste. Chemical testing will demonstrate the ability of the facility to perform the intended chemical separation processes. The period of commissioning also includes a period of chemical processing to demonstrate the ability of personnel to safely execute facility operations in accordance with established procedures and processes, perform a series of contractual demonstration tests, and complete Operational Readiness Reviews. Operations includes a period of hot commissioning to verify the radiological aspects of the design such as shielding and radiation instrument response through a series of gradual increases in radiation levels prior to a general release to normal operations.

5.0 SWPF ISMS DESCRIPTION

The following describes the processes used to execute PS-01[3]. This section provides a roadmap of directional documents used to identify, analyze, and control hazards for discrete work scopes, and to improve or correct processes when they do not perform according to expectations. This document is organized to the extent practicable by the ISMS Core Functions and Guiding Principles. For simplicity, these are combined into the following eight areas:

1. Line management responsibility for safety;
2. Clear roles and responsibility for safety;
3. Competence commensurate with responsibility;
4. Defined work scope that balances priorities;
5. Analyze hazards;
6. Hazard controls developed consistent with requirements and tailored to the risks;
7. Work is performed after the appropriate level of authorization, review, and in accordance with the defined hazard controls and requirements; and
8. Performance feedback is gathered and used for improvement.

The content and structure of the ISMS varies considerably depending on the level with an organizational hierarchy. Although the divisions are not always perfectly defined, the ISMS can

be viewed at the SRS level, the SWPF or Project level, and at the level of various subsets of activities conducted within the SWPF. The organizational levels are generically referred to Site-, facility-, and activity-level. Site-level safety management includes:

- Environmental Protection Programs: Site Permits and Reporting;
- Safeguards and Security;
- Emergency Management: Emergency Medical Services, Fire Department, Coordinated Emergency Reponses, and Communication; and
- Site-level Training.

Facility-level safety management includes:

- Nuclear Safety Basis (SB): Facility-specific Documented Safety Analysis (DSA), Technical Safety Requirements, Unreviewed Safety Question Process;
- Fire Protection: Facility Fire Hazard Analysis (FHA) and Program Procedures;
- Radiation Protection: Shielding Analysis, Confinement Ventilation, Detection and Alarming; and
- Environmental Protection Programs: Facility Permits, Plans and Procedures.

Activity-level safety management includes:

- Job or Activity-Level Hazard Analysis and Controls,
- Industrial Safety/Industrial Hygiene Procedures and Training,
- Laboratory Safety Program Procedures and Training, and
- Radiation Protection: Work Permits, Postings, Personnel and Facility Monitoring, and Training.

To the extent practical, the eight elements are described with respect to the site-, facility - and activity-level.

5.1 Functions, Responsibilities, Authorities and Competencies

The ISMS Core Functions establish expectations for identifying and controlling risk through effective planning that is improved through ongoing analysis and feedback. The Guiding Principles comprise the essential elements of a procedure-based management system for implementing the five core function. This section decribes the directional documents that define the Function, Responsibilities, Authorities, and Competencies (i.e., Guiding Principles 1, 2, and 3).

5.1.1 SRS Level Functions, Responsibilities and Authorities

SRS is a multi-contractor site that requires clearly defined functions and responsibilities for integration at physical and adminstrative interfaces. The SWPF is part of the SRS LRW treatment

system and must have clearly defined interfaces with Liquid Waste Operations (LWO) Contractor to safely receive wastewater from influent facilities and to transfer treated wastewater to LWO facilities. SWPF also needs well defined interfaces with the Site Management and Operating (M&O) Contractor for utilities and support services. These include, but are not limited to emergency management, permitting, and waste management services. Interfaces between the SWPF and the other site contractors are defined by interface control documents (ICD) and a Memorandum of Agreement (MOA) (SPD-SWPF-0196, *Salt Waste Processing Facility Project Memorandum of Agreement Regarding SRS Interface Pertaining to the Salt Waste Processing Facility Design, Construction, and Operation in J-Area*[4]).

V-ESR-J-00025, *SWPF Interface Management Plan*[5], defines the responsibilities for developing and maintaining ICDs. ICDs are agreements between Parsons, DOE, Site M&O Contractor, and Site LWO Contractor that define the respective functions and responsibilities for each contractor associated with the interface. The set of approved ICDs includes:

- V-ESR-J-00002, *SWPF Domestic Water System Interface Control Document (ICD-02)*[6];
- V-ESR-J-00003, *SWPF Radioactive Solid Waste, Mixed Waste, and Hazardous Waste Interface Control Document (ICD-03)*[7];
- V-ESR-J-00004, *SWPF Stormwater Interface Control Document (ICD-04)*[8];
- V-ESR-J-00005, *SWPF Radioactive Liquid Effluents Interface Control Document (ICD-05)*[9];
- V-ESR-J-00006, *SWPF Liquid Sanitary Wastes Interface Control Document (ICD-06)*[10];
- V-ESR-J-00007, *SWPF Facility Siting Interface Control Document (ICD-07)*[11],
- V-ESR-J-00008, *SWPF Electrical Power Distribution Interface Control Document (ICD-08)*[12];
- V-ESR-J-00009, *SWPF Roads and Rail Interface Control Document (ICD-09)*[13];
- V-ESR-J-00010, *SWPF Waste Transfer Interface Control Document (ICD-10)*[14];
- V-ESR-J-00011, *SWPF Waste Treatability Samples Interface Control Document (ICD-11)*[15];
- V-ESR-J-00012, *SWPF Emergency Response Interface Control Document (ICD-12)*[16];
- V-ESR-J-00013, *SWPF Telecommunications and Controls Datalink System Interface Control Document (ICD-13)*[17];
- V-ESR-J-00017, *SWPF Fire Protection Water System Interface Control Document (ICD-17)*[18];
- V-ESR-J-00018, *SWPF Work Controls Interface Control Document (ICD-18)*[19];
- V-ESR-J-00019, *SWPF Permitting and Monitoring Requirements Interface Control Document (ICD-19)*[20];
- V-ESR-J-00020, *SWPF Training Interface Control Document (ICD-20)*[21];

- V-ESR-J-00021, *SWPF Non-Radioactive Solid Waste Interface Control Document (ICD-21)*[22];
- V-ESR-J-00022, *SWPF Document Control Interface Control Document (ICD-22)*[23];
- V-ESR-J-00023, *SWPF Project Financial Plan and Reporting Interface Control Document (ICD-23)*[24]; and
- V-ESR-J-00027, *SWPF Radiological Controls Interface Control Document (ICD-27)*[25].

ICDs covering the Fire Protection Water System, Emergency Response, and Permitting and Monitoring Requirements are unambiguously part of the safety management system; however, each ICD affects safety. V-ESR-J-00018[19] describes the interface requirements for Work Controls when either the LWO Contractor or Parsons work in the other's respective areas of control. In addition to V-ESR-J-00018[19], DOE also has an MOA (SPD-SWPF-01964) that addresses delineation of ISMS responsibilities for J-Area.

5.1.2 SWPF Project Functions, Responsibilities, Authorities, and Compentencies

Highly reliable organizations are made up of personnel who understand their organization's function; their responsibilities and authorities; and have the necessary knowledge, skills, abilities, and training to accomplish them successfully. These fundamental, desirable characteristics are established as expectations in PS-01[3] and with specific responsibilities and methods for meeting the expectations delineated in Project directional documents. Consistent with Guiding Principles 1, 2 and 3, PS-01[3] establishes the Project Manager's expectations that:

1. Line managers are responsible and accountable for safety;
2. Clear and unambiguous lines of authority and responsibility for safety are established at all levels of the organization, and
3. Personnel possess the experience, knowledge, skills and abilities for their respective job assignments.

These expectations are translated into specific functions, responsibilities, and authorities through a hierarchy of directional documents. V-IM-J-00001, *SWPF Organization, Roles, and Responsibilities Manual*[26], provides a detailed description of each organization's function and defines responsibilities and authorities associated with the management positions in the first two to three organizational levels. For example, the Project Manager's line management responsibility for safety and clearly defined roles and responsibilities are established by the following:

- Ensure that Line Managers understand their Environmental, Safety, and Health (ES&H) and Quality Assurance (QA) management responsibilities and are accountable for integrating safety into all aspects of work, design, planning, and execution to ensure protection of the public, workers, and the environment; and
- Establish the overall organizational structure, functional responsibilities, levels of authority, and interfaces to define clear/unambiguous Roles and Responsibilities flow from senior management to workers.

V-IM-J-00001[26] defines the responsibilities, functions, and authorities of the key safety management subject matter experts (SMEs), including the Nuclear Safety Manager, ES&H Manager, Radiation Protection Program Manager, Environmental Program Manager, Safety Manager, Industrial Hygiene Staff, Director of Configuration Management, QA Manager, and Assurance Manager. Project functions and responsibilities for other project personnel are defined in Project Position Descriptions (PPDs). PPDs (Form SWPF-098, *SWPF Project Position Description [PPD]*) are developed when a position is opened and a new employee is hired (PP-TM-1402, *New Hire and On/Off Boarding*[27]) and are managed by the Training organization in accordance with PP-TR-1802, *Employee Indoctrination and Training*[27].

The plans and procedures described in the following sections define specific safety management responsibilities and authorities in the necessary detail. For example, PP-NS-5505, *Hazard Analysis Supporting the Safety Basis*[27], establishes the responsibilities of the Nuclear Safety Manager for selecting and conducting the appropriate type of hazard analysis (e.g., Preliminary Hazard Analysis, Failure Modes and Effects Analysis, or Hazard and Operability Analysis) and the line management authorities for approval of the Hazard Analysis by the Director of Engineering and the Project Manager. Similarly, the Job Hazard Analysis (JHA) procedure (PP-SH-4407, *Job Hazards Analysis*[27]) establishes the Manager of the work activity as the authority to approve JHAs for work under their cognizance (i.e., Operations Manager, Maintenance Manager, Director of Construction, etc.) while the Radiation Protection Program Manager is responsible for analyzing radiation hazards as part of the Radiological Work Permit process (PP-RP-4529, *ProRad RWP Preparation*[27]).

SWPF Project responsibilities and methods for selecting, training, and qualifying personnel are defined in PL-TR-1801, *SWPF Project Personnel Selection, Training, and Qualification Plan*[28]. Position-specific education and experience requirements are specified in the SWPF PPD (Form SWPF-098) by the employee's supervisor following PP-TR-1802[27]. The PPD identifies the following for each position:

- Minimum education, experience and training requirements;
- Specialized qualifications/certifications (if applicable to the position);
- Specific knowledge, skills, and abilities; and
- Roles and responsibilities.

The responsibilities and methods for defining and, assigning responsibilities and training requirements are defined in PP-TR-1802[27]. Personnel are trained to conduct assigned work activities as necessary. Training requirements are developed by the Training organization, line management, and SMEs by:

- Identifying training requirements for specific job positions through the use of needs analysis and job analysis;
- Using information from analyses to select training settings, prepare training program descriptions, and write specific learning objectives and evaluation methods that guide the development of training materials and strategies;

- Using training program descriptions, objectives, learning objectives, and evaluation methods to select appropriate instructional methods and develop training materials;
- Allocating resources, plan and schedule, and conduct and document training; and
- Evaluating the effectiveness of the aforementioned analysis, design, development, and implementation activities.

PP-TR-1803, *Selection of Personnel for SWPF Job Positions*[27] establishes the processes for verifying that the employee meets the requirements defined in the PPD.

5.1.3 SWPF Activity-Level Functions, Responsibilities, Authorities, and Compentencies

The general responsibilities and authorities for managing work safely are defined in procedures that govern testing and maintenance activities, respectively.

- PP-CM-8019, *Conduct of Testing*[27],
- PP-MN-8740, *Maintenance Work Control*[27], and
- PP-OP-8523, *Work Authorization and Release*[27].

These procedures establish the responsibilities and authorities for planning, analyzing, controlling, and authorizing testing (including chemical testing) and Commissioning, maintenance, and construction activities. Responsibilities and authorities for controlling specific hazards such as the control of hazardous energy, confined space entry, and work at elevation are defined PM-OP-8501, *Operations Safety Manual*[29], PP-CONOPS-10, *Lockout/Tagout Program*[27], and PL-RP-4500, *Radiation Protection Implementation Plan for 10 CFR 835 Occupational Radiation Protection Program*[30]. Construction activities will be authorized in accordance with PP-OP-8523[27]. Development and execution of Construction Work Packages, Job Hazard Analysis, Safe Work Briefs and Competent/Qualified Person Program will be in accordance PM-SH-4301, *SWPF Construction Safety Manual*[31]. Otherwise, Construction activities will be conducted according to the safety and health procedures in PM-OP-8501[29].

Requirements for training and qualification for specific disciplines necessary to conduct or support Testing are defined in:

- DP-CM-8200, *Test Engineer Qualification*[27];
- PL-TR-1802, *SWPF Operations Training Program Description*[32];
- PL-TR-1803, *SWPF Maintenance Training Program Description*[33];
- PL-TR-1804, *SWPF Laboratory Training Program Description*[34];
- PL-TR-1805, *SWPF Cognizant System Engineering Training Program Description*[35];
- PL-TR-1806, *Radiation Protection Personnel Training Program Description;*[36]
- PL-TR-1807, *SWPF Safety/Industrial Hygiene Training Program Description*[37];

- PL-TR-1808, *SWPF Quality Assurance/Quality Control Training Program Description*[38];
- PL-TR-1809, *SWPF Instructional Staff Training Program Description*[39];
- PL-TR-1813, *SWPF Engineering Technical Staff Training Program Description*[40];
- PL-TR-1814, *SWPF Shift Technical Engineer Training Program Description*[41], and
- PL-TR-1816, *SWPF Manager and Supervisor Training Program Description*[42]

These plans define specific:

- Responsibilities and authorities for conducting the training program in the specified functional area or discipline;
- Methods of instruction, evaluation, failure policies, entry level requirements, initial and continuing training, and requalification requirements; and
- Curricula for the respective positions.

Qualification standards and qualification cards are developed for applicable positions. For example, Test Engineers are qualified in accordance with DP-CM-8200[27]. PP-TR-1805, *On-The-Job Training and Job Performance Measures*[27], provide guidance on advanced training and qualifications processes used for critical positions such as Facility operations personnel.

5.2 Work Scope and Balanced Priorities

Project work scope is defined by the Contract (DE-AC09-02SR22210[1]). The Contract (DE-AC09-02SR22210[1]) defines the general Project work scope for the design, construction, testing, commissioning and one year of operations. The Contract (DE-AC09-02SR22210[1]) scope is translated into more specific details and criteria through several Contract (DE-AC09-02SR22210[1]) deliverables, including but not limited to:

- P-DB-J-00003, *SWPF Process Basis of Design*[43]*;*
- P-DB-J-00004, *SWPF Balance of Plan Basis of Design*[44]*;*
- P-DB-J-00002, *SWPF Design Criteria Database*[45]*;*
- P-SPC-J-00002, *SWPF Functional Specification*[46]*;*
- P-ESR-J-00011, *SWPF Operations Requirements Document*[47]*;*
- S-EIP-J-00001, *SWPF Environmental Plan*[48]*;*
- S-RCP-J-00001, *SWPF Standards/Requirements Identification Document*[49]*;*
- S-SAR-J-00002, *Documented Safety Analysis*[50] (DSA) ;
- S-TSR-J-00001, *Technical Safety Requirements*[51] (TSR); and
- P-SUP-J-00001, *SWPF Commissioning Plan*[52].

- P-DB-J-00005, *Next Generation Solvent Deployment at Salt Waste Processing Facility Design Criteria Database*[53]
- P-DB-J-00006, *Next Generation Solvent Deployment at Salt Waste Processing Facility Basis of Design*[54]

These DOE-approved documents and the Contract (DE-AC09-02SR22210[1]) provide upper-tiered scope definition. During the Commissioning and Operations phases, the scope consists of commissioning, Hot Operational Testing, and finally Radiological Operations. Limited construction activities, including demobilization are also anticipated during this period. The scope of commissioning activities is defined in the:

- Water runs,
- Chemical runs,
- Proficiency demonstrations, and
- Readiness Reviews.

The chemical runs are intended to demonstrate a treatment capacity and ability to meet waste acceptance criteria, as well as support systems adjustments for optimum performance. The chemical runs will use a combination of special test procedures and Standard Operating Procedures (SOPs) to direct the various activities. PL-OP-8526, *SWPF Chemical Control Plan*[55], identifies the procedures and processes required for protecting facility personnel, equipment, and the environment through authorization of purchasing, requisition, storage, handling and disposal of chemicals at the SWPF.

The Commissioning phase is also intended to demonstrate that the people, procedures, and facility equipment are integrated and capable of safely executing normal operations and maintenance activities and responding to potential abnormal events. These activities will use the normal facility operating procedure, response procedures, and maintenance procedures with simulated radiological conditions. The Commissioning phase will include both training and evaluated evolutions.

Hot Operational Testing will be conducted post Readiness reviews. This period will be the deliberate introduction of radioactive waste into the facility in a gradually increasing concentration of radioactive materials. During this period, monitoring will be performed to validate shielding and other radiological controls are functioning as expected. PL-RP-4500[30] outlines the overall radiological protection program and execution strategy. PL-RP-4507, *Radiation Shielding Verification Test Plan*[56], outlines the process to be used to test and validate radiation shielding effectiveness.

The responsibilities and methods for developing the scope of preventive maintenance and corrective maintenance evolutions are respectively defined pursuant to PP-MN-8741, *Preventive Maintenance*[27] and PP-MN-8740[27]. The scope of Construction activities are defined in Construction Work Packages. The responsibilities and methods for developing Construction Work Packages are defined in PP-CS-7201, *Construction Work Control Process*[27].

The Project Work Breakdown Structure (WBS) elements contained in V-PMP-00065, *SWPF Realized Risk Proposal*[57], define the scope of the discrete activities necessary for Commissioning and Operations. Commissioning preparatory activities include implementing the safety management programs described in Chapters 6 through 17 of the DSA (S-SAR-J-00002[50]), implementing the TSRs (S-TSR-J-00001[51]) through integrating the TSRs into maintenance and operations procedures, and completing training and qualifications necessary for Operations. Commissioning includes preparation for the Contractor and DOE Operational Readiness Reviews (ORRs) and well as performance of the ORRs.

5.2.1 Balancing Mission Objectives and Safety Management Programs

The criteria and guidelines established in the Contract (DE-AC09-02SR22210[1]) and S-RCP-J-00001[49], *SWPF S/RIDS*, constrain the balance of safety management rigor, necessary for a particular work scope. The evaluation criteria used to classify the magnitude of hazards and the criteria used to select hazard controls comprise a critical element of balancing priorities, for example: 25 Roentgen Equivalent Man Evaluation Guideline for a two-hour exposure to an offsite individual per DOE-STD-3009-94, Change Notice No. 2, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses*[58]; 5 Roentgen Equivalent Man radiation worker exposure limit per 10 CFR 835, *Occupational Radiation Protection*[59]*;* and the preference for engineered controls over administrative controls per 10 CFR 851, *Worker Safety and Health Program*[60].

5.2.1.1 Project-Level Balancing of Mission Objectives and Safety

PS-01[3] requires protecting the public, workers, and the environment as the priority in planning and performing work. Within the constraints imposed by the Contract (DE-AC09-02SR22210[1]) and Standards/Requirements Identification Document (S/RID)-based evaluation criteria, the Project Functional Area Managers (FAMs) and Control Account Managers (CAMs), with support from SMEs, identify the appropriate level of resources to safely commission, startup, and operate the SWPF. The FAMs and CAMs are identified in Project Change Request 3526 posted on the SWPF Project Collaboration Portal. FAMs and CAMs balance priorities to ensure that work delineated in the WBS, and the individual Control Accounts and Work Packages have the necessary resources to execute the work in a manner that meets mission objectives and protects the worker, the public and the environment. This process and its outputs are translated into a resource loaded schedule with sufficient numbers of operators, maintenance mechanics, engineers, safety analysts, quality inspectors, auditors, and radiation protection technicians, needed to develop, implement, and oversee the safety management programs defined in the facility's approved SB.

5.2.1.2 Activity-Level Balancing of Mission Objectives and Safety

Commissioning, preventive maintenance activities, construction activities, and operations are part of the baseline and have been planned to provide adequate time and resources to accomplish the mission safely. Emergent work such as corrective maintenance is incrementally planned through the maintenance work control (PP-MN-8740[27]) and planning processes and authorized via the PP-OP-8523[27]. Prioritization of emergent work is managed through the Plan of the Week (POW) with a multi-week rolling schedule. The responsibility and approach for managing the emergent work

is defined in PP-MN-8727, *Maintenance Work Scheduling*[27]. The POW feeds the Plan of the Day (POD) as outlined in PP-MN-8740[27] and PP-OP-8523[27]. Emergent work is prioritized to safely and effectively support facility activities. The Shift Operations Manager (SOM) approves the POD and changes to work priorities needed thereafter. Corrective maintenance that is required to protect personnel or the environment, including emergencies, takes precedence over all work and is performed at the direction of the SOM to place the plant in a safe condition.

5.3 Identification and Control of ES&H Hazards

The primary objective of safety management is identification, elimination, or control of ES&H hazards. Other safety management functions support:

- Hazard identification and control through clear definition of work scope,
- Verify the hazards are eliminated or controlled before starting, and
- Consider improving hazard controls.

Hazard analysis and controls are necessary for waste processing and the standard industrial hazards encountered in commissioning, startup, operations, and maintenance. Identification and control of facility-level latent hazards associated with plant operations as well as immediate or activity-level hazards associated with system operations and maintenance all must be integrated in the work instructions and procedures.

5.3.1 Site- and Facility-Level Hazard Analyses and Controls

Process hazard analyses were largely completed as an integral element of the facility design. These analyses evaluated risks associated with processing liquid radioactive waste. These hazards emerge largely from radioactive waste constituents and to a lesser magnitude from chemical waste constituents and process chemicals. Facility-level hazard analyses, such as the DSA (S-SAR-J-00002[50]), evaluate hazards and upper-bound potential consequences to SRS personnel and the public. Facility-level analyses evaluate hazards associated with Nuclear and Criticality Safety, Radiation Protection, Fire Protection, and Environmental Protection. Table 5-1 specifies the:

- Contract (DE-AC09-02SR22210[1]) or regulatory requirements that drives, and establish the breadth and scope of each analysis,
- Procedures that define the methods and responsibilities for conducting and approving the analyses, and
- Approved documented hazard analysis and control sets.

Sections 5.3.1.1 through 5.3.1.5 provide a summary of facility-level analyses and a brief description of activities that will be conducted pursuant to the specific functional areas during Testing.

5.3.1.1 Nuclear Safety Hazard Analysis and Controls

The SWPF is a Hazard Category 2 nuclear facility with a DOE approved DSA (SWPF-19-006, *Notification of Approval of SWPF Documented Safety Analysis (DSA) S-SAR-J-00002, Revision 0 and Technical Safety Requirements (TSR), S-TSR-J-00001, Revision 0*[61]. PP-NS-5505[27] defines the responsibilities and methods for developing the hazard analysis and controls comprising the DSA (S-SAR-J-00002[50]). The DOE-approved DSA (S-SAR-J-00002[50]) documents the hazard analysis and set of hazard controls that are credited to ensure adequate protection of workers, the public, and the environment.

Table 5-1. SWPF Facility Hazard Analysis and Control Processes and Outputs

Functional Area	Requirement	Procedure	Output
Nuclear Safety	10 CFR 830, *Nuclear Safety Management*[62] DOE-STD-1027-92, Change Notice No. 1, *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE O 5480.23, Nuclear Safety Analysis Report*[63] DOE-STD-3009-94, Change Notice No. 2[58]	PP-NS-5501, *Functional Classification Methodology*[27] PP-NS-5504, *Development and Control of Documented Safety Analysis and Technical Safety Requirements*[27] PP-NS-5505[27]	SWPF-19-006[61] S-SAR-J-00002[50] S-TSR-J-00001[51]
Criticality Safety	DOE O 420.1B, *Facility Safety*[64]	DP-NS-5506, *Nuclear Safety Criticality*[27] N-NCS-J-00001, *SWPF Criticality Safety Qualification Card*[65] N-NCS-J-00002, *SWPF Criticality Safety Program Manuals*[66] N-NCS-J-00003, *SWPF Criticality Safety Program Description*[67] N-NCS-J-00004, *SWPF Criticality Safety Methods Manual*[68]	N-NCS-J-00005, *SWPF Nuclear Criticality Safety Evaluation: Fissile Concentration Due to MST*[69] N-NCS-J-00006, *SWPF Nuclear Criticality Safety Evaluation: Accumulation of NAS in SWPF Equipment*[70] N-NCS-J-00008, *SWPF Nuclear Criticality Safety Evaluation: Inadvertent Transfers*[71]
Radiation Protection	10 CFR 835[59]	PP-RP-4501, *ALARA Design Reviews*[27] S-CIP-J-00004, *SWPF Radiation Protection Program for 10 CFR 835 (Occupational Radiation Protection)*[72]	Shielding Calculations and S-EIP-J-00004, *SWPF Final Design ALARA Review Report*[73] PL-RP-4500[30]

Table 5-1. SWPF Facility Hazard Analysis and Control Processes and Outputs (cont.)

Functional Area	Requirement	Procedure	Output
Fire Protection	DOE O 420.1B[64] and DOE O 420.1C, Chg. 1, *Facility Safety*[74]	PP-EN-5022, *Preparation of Fire Hazard Analysis*[27]	F-FHA-J-00001, *SWPF Project Fire Hazard Analysis*[75] F-FHA-J-00002, *SWPF J-Area Warehouse Fire Hazards Analysis (Building 763-S)*[76] F-ESR-J-00001, *SWPF Equivalency Request Process Building Contactor Operating Deck Common Path of Travel*[77] F-ESR-J-00002, *SWPF Equivalency Request Process Building Omission of Sprinklers in Process Vessel Cell Area*[78] F-ESR-J-00005, *SWPF Fire Protection Engineering Equivalency Request Omission of Sprinklers in Waste Transfer Enclosure; West Utility Chase; HVAC Shielding Chase; South Utility Chase and Contactor Support Floor Chase; and East CSSX Tank Cell*[79]
Environmental Protection	DOE O 450.1, Chg. 2, *Environmental Protection Program*[80]	DP-EV-4001, *Identification of Environmental Aspects and Actions*[27]	Q-EIP-J-00002, *SWPF Environmental Aspects and Actions*[81]

SWPF is managed with a configuration management process that protects the assumptions underpinning the hazard analysis and credited hazard controls. The process and procedures that define the responsibilities and methods for configuration management are described in P-CDM-J-00001, *SWPF Configuration Management Plan*[82].

The responsibilities and methods for developing and maintaining the TSR are established in PP-NS-5504[27]. The TSRs ensure that the safety-related Structures, Systems, and Components (SSCs) are operational when required and preserve key initial conditions defined in the respective accident scenarios. During Commissioning and Operations, the limiting conditions of operations and specific administrative controls are integrated into SOPs and into the training and qualification of Operators. Similarly, TSR surveillances are integrated into maintenance procedures and training and qualifications.

5.3.1.2 Fire Hazard Analysis and Controls

DOE O 420.1B[64] and DOE O 420.1C, Chg. 1[74] require development of an FHA for nuclear facilities and other important structures. Project responsibilities and methods for developing an FHA are defined in PP-EN-5022[27]. F-FHA-J-00001[75] (SWPF Process Building) and F-FHA-J-00002[76] (J-Area Warehouse) verify that engineered and fire protection program controls prevent and mitigate fire hazards. The FHA comprises a fire protection design analysis that verifies that criteria in Appendix A, Section 2 of 10 CFR 851[60] are met. The analysis determines the special fire prevention and protection features and controls required to achieve a level of highly protected risk fire protection that limits damage to an acceptable level. These FHAs analyze the SWPF Process Building and Warehouse, and surrounding structures, as appropriate, based on the design described in P-DB-J-00003[43], P-DB-J-00004[44], and the final design packages. The SWPF Process Building FHA (F-FHA-J-00001[75]) was reviewed in the development of the DSA (S-SAR-J-00002[50]). This analysis also evaluates the fire protection and life safety features of the facility, identifies safety and monetary loss concerns, and evaluates code compliance. Based on these analyses, F-FHA-J-00001[75] (SWPF Process Building) and F-FHA-J-00002[76] (J-Area Warehouse), establish essential controls such as automatic sprinkler and standpipe systems, fire water requirements, fire wall locations, and fire alarm and detection systems, consistent with National Fire Protection Association and DOE Standards. In accordance with DOE O 420.1B[64], the F-FHA-J-00001[75] conclusions were incorporated into the DSA (S-SAR-J-00002[50]) and integrated into design basis and beyond design basis accident conditions. F-FHA-J-00001[75] and F-FHA-J-00002[76] were developed and will be maintained pursuant to PP-EN-5022[27].

5.3.1.3 Radiation Protection Program

Radiation dose limits to SWPF workers and facility design objectives are established in 10 CFR 835[59]. The responsibilities and methods for designing SWPF to meet radiological dose limits during operations are defined in PP-RP-4501[27]. Facility-level hazard analyses for radiation protection were completed during the design phase as documented in S-EIP-J-00004[73]. Design features deployed in the SWPF includes robust shielding, confinement, ventilation and radiological instrumentation with alarm capabilities, for the purposes of protecting the workers and the public. Shielding calculations and radiological analyses used to evaluate the radiological conditions in the Process Building design are documented in calculation reports. Additional calculations were performed to evaluate the radiation exposure and tolerance of equipment or subcomponents to minimize future maintenance activities or to design for ease of maintenance. These conditions will be validated during hot commissioning via various direct monitoring and sample collection processes.

During Commissioning the Radiation Protection Program is being implementing per PL-RP-4500[30] in a phased approach as outlined in the DOE approved Radiation Protection Program, supporting the installation and testing of radiation monitoring equipment (including receipt, storage, and use of exempt check sources), and providing simulated radiological conditions during the training and evaluation exercises.

5.3.1.4 Site and Regional Environmental Threats and Impact Analysis

Site and regional environmental threats and impacts associated with construction and operation of SWPF were analyzed in DOE/EIS-0082-S2, *Savannah River Site Salt Processing Alternatives Final Supplemental Environmental Impact Statement*[83] and *Record of Decision: Savannah River Site Salt Processing Alternatives*[84]. DOE/EIS-0082-S2[83] concluded that there were no significant impacts associated with SWPF construction and operation.

5.3.1.5 Facility-Level Environmental Threats and Impacts Analysis

DOE O 450.1 Chg 2[80] requires that Parsons' ISMS comprise an environmental management system that provides for the systematic planning, integrated execution, and evaluation of programs that address:

- Protecting the public, the worker, and the environment,
- Pollution prevention, and
- Compliance with environmental requirements.

The SWPF will have negligible impact on the environment. The plant is permitted as an Industrial Wastewater Treatment Facility; however, no effluents will be discharged to the environment. Treated effluents are transferred to other permitted facilities for treatment and disposal. SWPF processes aqueous waste streams at standard states (room temperatures and pressures) using simple acids, bases, and a nonhazardous organic compound whose low vapor pressures precludes emissions that require permitting, monitoring, or treatment. Assessment of environmental hazards was evaluated following the S-EIP-J-00001[48]. Pursuant to S-EIP-J-00001[48], engineering analyses of toxic, criteria, and radioactive emission determined that release rates and quantities will be below levels of regulatory concern (e.g., Q-CLC-J-00052, *SWPF Radiological Air Emissions, Dispersion, and Dose Assessment for Normal Operations of Ventilated Tanks and Vessels*[85]); therefore, SWPF is exempt from obtaining permits to construct an air emission source under both state and Federal Clean Air Act[86] requirements.

Q-PLN-J-0100, *SWPF Environmental Management System Program Description*[87], describes the Project's approach to reducing environmental risks through regulatory compliance, pollution prevention, and waste minimization. Q-PLN-J-0099, *SWPF Project Pollution Prevention Plan*[88] describes the Project's approach to pollution prevention. Q-PLN-J-0100[87] and DP-EV-4001[27] establish the responsibilities and methods for developing a comprehensive set of potential environmental aspects and impacts. An environmental aspect includes all those facets of SWPF that could interact with the environment. Impacts are defined as any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects. The range of potential environmental aspects, impacts, and control objectives are identified in Q-PLN-J-0100[87] and Q-EIP-J-00002[81].

5.3.2 Activity-Level Hazards Analysis and Control for Testing

The responsibilities and methods for identifying and controlling hazards are defined in PP-SH-4407[27], PP-SH-4364, *Job Hazards Analysis (Construction)*[27], PP-OP-8523[27], and PP-MN-8740[27]. The primary activities include execution of SOP's, preventive/corrective maintenance and limited construction activities such as demobilization, facility modifications, and temporary modifications. Prior to hot commissioning, these activities pose standard industrial and chemical hazards. Hazard controls are defined in safety procedures in PM-OP-8501[29], PM-SH-4301[31], JHAs, Work Permits (e.g., hot work, lockout/tagout, and confined space entry), and in the Job Plan, Work Order or Maintenance Instruction. During Hot Commissioning and Operations, radiological hazards and controls will be addressed through the radiological work permit (RWP) process as defined in PP-RP-4529, *ProRad RWP Preparation*[27]. Task specific JHA controls for SOP are contained within the body of the procedures whereas JHA controls for Testing, Maintenance, and Construction activities are contained within a Work Package approved by the applicable functional manager and authorized for work by the SOM. Radiological controls are addressed in PL-RP-4500[30].

5.4 Verify Readiness, Work Authorization, and Safe Performance

The ISMS comprises verification and authorization to proceed with work at the project and activity level. The start of each life cycle phase is preceded by completion of prerequisites including DOE approval of the appropriate SB documentation and the contractor's ISMS. Similarly, the contractor is responsible to review safety documentation and readiness prior to each shift and hazardous work evolutions to ensure hazards are eliminated or appropriately controlled. The means for documentation, verification, and approval vary for the respective organizational levels; however, the concept remains identical in intent. Work is conducted only after verification that personnel understand their safety management responsibilities and that hazards have been eliminated and or controlled to preclude injury and illness. The following sections identify the Project directional documents that define the responsibilities and methods for verifying readiness and authorizing work.

5.4.1 Project-Level Work Authorization and Performance

The Project work authorization process is established in PP-PC-2018, *Work Authorization*[27]. Before work can proceed, scope and budget are authorized by DOE. The SWPF Project Manager is given authorization to proceed with Contract (DE-AC09-02SR222101) work by DOE in the form of Contractual direction, including the Contract (DE-AC09-02SR22210[1]), Contract Modifications, Notices to Proceed, and other formal communications from the DOE Federal Project Director (FPD) and Contracting Officer. The FPD serves as the Contracting Officer Representative and has the authority to provide direction that is within the scope of the Contract (DE-AC09-02SR22210[1]) to the SWPF Project Manager. After receiving authorization to proceed from the FPD, the SWPF Project Manager authorizes FAMs to begin work according to the scope established in the Contract (DE-AC09-02SR22210[1]) and Design documents approved as part of the Critical Decision (CD) Approval Package and Work Authorization Documents developed pursuant to PP-PC-2012, *Budget Allocation and Control Account Planning*[27], and PP-PC-2018[27]. Readiness to proceed between life-cycle stages is approved by DOE. The prerequisites for

obtaining DOE approval to proceed from each CD are defined in DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets*[89]. Contractor responsibilities and requirements are listed in Attachment 2 of DOE O 413.3B[89]. Each CD requires completion and approval of specific SB documentation as a prerequisite. As described in DOE O 413.3B[89], the following SB documents are prerequisites for CD approval:

- CD-1: SWPF Preliminary Hazard Analysis,
- CD-2: Draft Preliminary DSA,
- CD-3: Preliminary DSA, and
- CD-4: Final DSA.

DOE will, at a minimum, review and approve the Parsons ISMS at each CD (SPD-05-105 Enclosure, *Preparation and Acceptance of the SWPF ISMS Description Document*[90]).

5.4.2 Activity-Level Work Authorization and Performance

The SOM is the SWPF Work Authorization Authority. This authority includes approving specific work scopes defined in discrete Work Package developed according to PP-MN-8740[27]. Before execution of the approved Work Package, readiness is evaluated at the POD and the Pre-Job Brief [or Safe Work Plan for construction activities]. The responsibilities and methods for the POD are defined in PP-MN-8727[27] and PP-OP-8523[27]. The POD is led by the SOM and attended at a minimum by ES&H, QA, Operations, Maintenance, Construction, and Engineering. The SOM verifies personnel have a clear understanding of facility status, Work Permits, and potential interaction with collocated activities during the shift. The SOM documents authorization of specific Work Packages by signing Form SWPF-676, *Scheduled Work.*

Pre-job briefs are performed at the start of each work activity, and prior to any change in the initially planned and briefed work scope as outlined in PP-OP-8534, *Pre-Job Brief and Post-Job Feedback*[27]. If a procedure step cannot be performed, personnel will stop until changes to the procedure are made in accordance with PP-CONOPS-17.2, *Procedure Compliance*[27]. Changes to a procedure that involve a change in scope or hazards shall include revisions to the associated JHA in accordance with PP-SH-4407[27].

Construction activities are currently conducted following an approved Construction Work Package in accordance with PP-CS-7201[27] and the Construction Supervisor will perform a Safe Work Brief in accordance with PP-SH-4365, *Safe Work Brief*[27]. Planning efforts are currently ongoing to consolidate construction work process with maintenance programs.

SWPF personnel have the individual authority and responsibility to stop activities deemed unsafe. This authority is established in PS-01[3]; PS-04, *SWPF Project Manager Policy on Conduct of Business*[91]; PP-SH-4411, *Time Out, Stand Downs, and DOE Directed Stop Work Orders*[27]. PP-SH-4411[27] establishes the responsibilities for calling a "Time Out" and the process for resuming work afterwards. PP-SH-4411[27] also establishes the responsibilities and approach for a management directed safety stand down and responding to a DOE Stop Work Order, including the process for starting work after a formal Stop Work Order.

Emergency response is currently conducted per PP-OP-8509, *J-Area Emergency Response*[27]. A qualified SOM and Control Room Manager are assigned to each shift and the SOM (or Control Room Manager if the SOM is not present) acts as the Emergency Coordinator. PP-OP-8509[27] includes response actions for emergencies that may occur during the testing phase, such as medical, emergency, fires, evacuation, etc. During the Commissioning process, PP-OP-8509[27] will be replaced by Emergency Operating Procedures and Abnormal Operating Procedures. Annex K to Site Manual SCD-7, *SRS Emergency Plan*[92] *and* Emergency Preparedness Implementation Procedures are approved but not implemented due to the absence of material that could result in reaching an Emergency Action Level.

5.5 Feedback and Improvement Process

The Project's feedback and improvement processes are described in P-SD-J-00001, *SWPF Contractor Assurance System Program Description*[93]. Feedback and improvement processes are the cornerstone of a generative safety culture. These processes include the Integrated Assessment Program (IAP), Event Reporting, Worker or Personnel Feedback, Performance Monitoring, Lessons Learned (LL), Issues Management, and Corrective Action Program (CAP). The Project's objective is to leverage feedback to preclude more serious problems. High Reliability Organizations are effective at cultivating feedback, particularly from employees, for learning and improving performance.

5.5.1 Issue and Correction Action Management

The issues and corrective action management process is defined in PP-AS-1203, *Corrective Action Program*[27]. The CAP is managed with the assistance of the Performance Improvement Tracking System (PITS). The CAP provides for reporting of nonconforming conditions, recommended improvements or recommended preventive measures. Assurance, the independent oversight organization, is responsible for issues management and the CAP. Nonconforming conditions that are not corrected on the spot require cause analysis per PP-AS-1208, *Cause Analysis*[27]. In general, a nonconforming condition of low significance such as isolated noncompliances with minor impacts to safety, require apparent cause analysis, while those considered to have moderate to significant impact on safety require more formal cause analysis ("root cause analysis"). Assigned Significance Categories, Cause Analysis, and Corrective Actions are reviewed by the Issues Coordinator, Enforcement Coordinator, and QA to ensure alignment. A Corrective Action Review Board (P-CRT-J-0150, *Corrective Action Review Board Charter*[94]), Chaired by the Plant Manager and supported by ES&H, QA, and Assurance, meets monthly to provide an independent final analysis of the adequacy of the corrective actions. PP-AS-1203[27] requires an effectiveness review for all moderate and significant nonconforming conditions and incidents. These are commonly conducted by Assurance to provide an independent evaluation.

5.5.2 Integrated Assessment Program

The Project's IAP, established in PL-AS-1001, *SWPF Integrated Assessment Program Plan*[95], comprises self-assessments and internal independent oversight assessments. Line management oversight through self-assessment supports Guiding Principle 1: line management responsibility

for environment, safety, and health. Internal independent oversight assessments are conducted to provide an additional level of credibility, providing an unbiased analysis.

Each FAM develops an organization-specific assessment plan that is approved by the Project Manager (e.g., PL-OP-8519, *SWPF Commissioning and Operations Annual Assessment Plan*[96]). FAMs review their respective plans annually to determine if revisions are appropriate for the Project's life cycle phase and revise the plan as appropriate. Line management self-assessments are directed and performed by personnel that report to the manager responsible for the organization under review.

Internal independent assessments are conducted by personnel that are not in the reporting line of the manager responsible for the organization under review. SWPF internal independent assessments are commonly conducted at the direction of the ES&H Manager, QA Manager, or Assurance Manager. These assessments are conducted per the following plans:

- PL-AS-1206, *SWPF Assurance Internal Independent Assessment Plan*[97]*;*
- PL-SH-4306, *SWPF Environmental Safety Health Annual Internal Independent Assessment Plan*[98]*;* and
- PL-QA-4702, *SWPF Annual Assessment Plan for Quality Assurance*[99].

Individuals performing internal independent assessments are technically qualified and have knowledge of the Subject Matter Areas (i.e., PP-AS-1200, *SWPF S/RID Maintenance and Compliance*[27]) being assessed. The internal independent assessments focus on specific programs or Subject Matter Areas that typically cut across multiple organizational interfaces including, but not limited to, fire protection, electrical safety, industrial hygiene, radiation protection, environmental protection, waste management, and nuclear safety, etc.

5.5.3 Personnel Feedback

Personnel feedback is encouraged through training and established as an expectation in Project policies PS-01[3], PS-04[91] and PS-10, *SWPF Project Manager Policy on Safety Conscious Work Environment*[100]. PS-10[100] establishes the Project Manager's expectation that Project personnel have a responsibility and obligation to raise issues without fear of harassment, intimidation, reprisal, or discrimination. These Policies require managers to encourage workers to have a questioning attitude, challenge assumptions, and report all conditions that, if uncorrected, could have an adverse impact on quality, safety and health, security, or the environment. In order for these policies to be effective, Senior Management must develop and maintain an overall positive safety culture within the workforce. P-RPT-J-00034, *SWPF Safety Culture Sustainment*[101], documents a periodic evaluation of the current status of the workforce safety culture and outlines proposed actions to sustain and improve the overall safety culture.

Project personnel have several processes that can be used to provide feedback in addition to PITS including:

- Employee Concerns;

- Differing Professional Opinion (DPO);
- Employee Suggestions;
- Opportunities for Improvement;
- JHA/Post Job Briefs; and
- Employee Safety Committees.

The responsibilities and methods for implementing the Employee Concerns Program are described in PP-TM-1408, *Employee Concerns Program*[27]. The Employee Concerns Program is under the cognizance of Talent Management. The Employee Concerns Program implements the requirements of DOE O 442.1A, *Department of Energy Employee Concerns Program*[102] and provides an alternative to PITS that affords greater confidentiality.

The DPO allows personnel to document their disagreement with a Project decision. The responsibilities and methods for managing the DPO process are defined in PP-TM-1400, *Differing Professional Opinions*[27]. DPOs are reviewed by the Senior Review Board (SRB) per P-CRT-J-0151, *Senior Review Board Charter*[103]. The originator is advised by the Project Manager of the outcome of the SRB. Minutes of the SRB meeting are provided to Talent Management and included in the DPO record. A copy of the signed DPO, the SRB minutes, and any clarifying statement by the SRB are provided to the originator.

An Employee Suggestion process is provided to allow personnel to make suggestions for improvements. The responsibilities and methods for implementing the Employee Suggestion Program are described in PP-TM-1411, *Employee Suggestions*[27]. Forms are completed and transmitted from suggestion boxes to the Project Manager. The Project Manager assigns a FAM who completes the form explaining how the suggestion will be addressed or provides an explanation why the suggestion could not be implemented. The Project Manager reviews the FAM response for approval. The employee providing the suggestion has the final signature on Form SWPF-020, *Employee Suggestion Report Form*.

5.5.4 Reporting Incidents and Conditions to DOE

DOE has established programs for reporting incidents and issues. The SWPF Project has established procedures to implement DOE-mandated reporting of problems, issues, and events. These include:

- PP-CONOPS-07.2, *Occurrence Reporting*[27] to implement DOE O 232.2, *Occurrence Reporting and Processing of Operations Information*[104];
- PP-SH-4412, *Environmental, Safety, and Health Reporting*[27] to implement DOE M 231.1-1B, Chg 1, *Environment, Safety, and Health Reporting Manual*[105]; and

- PP-AS-1204, *Price-Anderson Amendments Act and Worker Safety and Health Program Non-compliance Evaluation and Reporting*[27] to implement noncompliance reporting associated with 10 CFR 708, *DOE Contractor Employee Protection Program*[106];10 CFR 820, *Procedural Rules for DOE Nuclear Activities*[107], 10 CFR 830[62]Nuclear Safety Management, *Subpart A: Quality Assurance Requirements*, 10 CFR 835[59], and 10 CFR 851[60].

Non-compliance Tracking System and Occurrence Reporting and Processing System (ORPS) reported incidents and as found conditions are managed following the Project's corrective action program (PP-AS-1203[27]).

5.5.5 Operating Experience/Lessons Learned

The SWPF Project Operating Experience (OE)/LL Program is a management system designed to identify and evaluate OE/LL for applicability to the Project, and to ensure that applicable OE/LL are properly implemented. The OE/LL Program is described in PP-OP-8546, *Operating Experience Program*[27]. This Procedure describes the methods and responsibilities for identifying, disseminating, and utilizing OE/LL. Plant Management is responsible for the OE/LL Program and assigns a coordinator that is responsible for screening incoming OE/LL, identifying those applicable to the Project, posting applicable OE/LL to an OE/LL file, and forwarding all applicable OE/LL to the SWPF Management Team. Managers are responsible for taking proper actions to implement applicable LL and documenting the actions taken. OE/LL are received from various sources including SRS, Parsons Corporate, and DOE OE/LL websites. OE/LL originating within the SWPF Project are transmitted to the SRS OE/LL Coordinator for further distribution throughout SRS and the DOE Complex, as applicable.

5.5.6 Performance Measures

The Project has several mechanisms for monitoring safety performance. These include the monthly Key Performance Indicators (KPIs), Quarterly ORPS Report to DOE, and the Annual ISMS Objectives, Measures, and Commitments. The Assurance organization has programmatic responsibility for developing, tracking, and disseminating performance measurement data to the Project and the DOE.

5.5.6.1 Key Performance Indicators

The KPIs are reported to the management team on a monthly basis and consist of a suite of KPIs that monitor safety and quality. The current set of KPIs include the recordable injury rate, a risk-based evaluation of safety incidents, reporting frequency, corrective action delinquencies, Nonconformance Report severity.

5.5.6.2 Quarterly ORPS Report to DOE

The Project provides DOE with a quarterly analysis of performance over the previous 12 months per Contract (DE-AC09-02SR22210[1]) requirement DOE O 232.2[104]. This analysis reviews Occurrence Reports, Injury and Illness Reports, PITS reports, Opportunity for Improvement reports, and Nonconformance Reports to determine if there are any notable trends. Each of these

types of feedback is further classified (e.g., missed weld inspection, dropped objects, electrical safety). If there appear to be trends or signs of deteriorating performance, then a PITS report is developed to initiate the CAP.

5.5.6.3 Annual ISMS Objectives, Measures, and Commitments

The Project annually provides DOE with its safety performance objectives, performance measures, and commitments (POMCs) per Contract (DE-AC09-02SR222101) clause Section (e) of DEAR 970.5223-1[2]. POMCs evaluate performance with respect to the ISMS Guiding Principles and Core Functions. This analysis is supported by an annual ISMS Management Self-Assessment. The analysis from the KPIs and the quarterly ORPS reports are also used to support this analysis. The commitments for the coming Fiscal Year (FY) and performance for the previous FY are documented in the annual SWPF Integrated Safety Management System Declaration of Readiness (e.g., P-EIP-J-00019, *SWPF Integrated Safety Management System Declaration FY 2014*[108]) provided to DOE for incorporation in their site-wide rollup report.

5.5.7 Post Job Briefings and Management Reviews

Post-job briefings are performed at the conclusion of work activities per the requirements of PP-OP-8534. Additionally, Senior Supervisory Watches will be used per PP-OP-8535, *Senior Supervisory Watch*[27]. The Senior Supervisory Watch is implemented at the discretion of Senior Management to monitor key activities and is used to improve the program performance. PP-OP-8530, *Management Field Observation*[27] outlines a management field observation process utilized to improve human performance, provide coaching, implement corrective actions, and reinforce desired behaviors through positive reinforcement. This process promotes a Safety Conscious Work Environment, hazard recognition and mitigation, and open communication with employees.

6.0 REFERENCES

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[2] DEAR 970.5223-1, *Integration of environment, safety, and health into work planning and execution*.

[3] PS-01, *SWPF Integrated Safety Management System Policy*. Parsons, Aiken, South Carolina.

[4] SPD-SWPF-0196, Revision 1, *Salt Waste Processing Facility Project Memorandum of Agreement Regarding SRS Interfaces Pertaining to the Salt Waste processing Facility Design, Construction, and Operation in J-Area*, U.S. Department of Energy-Savannah River Operations Office, Washington Savannah River Company, Parsons Infrastructure & Technology Group, and Wackenhut Services, Inc., Aiken, South Carolina. September 2010.

[5] V-ESR-J-00025, *SWPF Interface Management Plan*, Parsons, Aiken, South Carolina.

[6] V-ESR-J-00002, *SWPF Domestic Water System Interface Control Document (ICD-02)*. Parsons, Aiken, South Carolina.

[7] V-ESR-J-00003, *SWPF Project Radioactive Solid Waste, Mixed Waste, and Hazardous Waste Interface Control Document (ICD-03)*. Parsons, Aiken, South Carolina.

[8] V-ESR-J-00004, *SWPF Stormwater Interface Control Document (ICD-04)*. Parsons, Aiken, South Carolina.

[9] V-ESR-J-00005, *SWPF Radioactive Liquid Effluents Interface Control Document (ICD-05)*. Parsons, Aiken, South Carolina.

[10] V-ESR-J-00006, *SWPF Liquid Sanitary Wastes Interface Control Document (ICD-06)*. Parsons, Aiken, South Carolina.

[11] V-ESR-J-00007, *SWPF Facility Siting Interface Control Document (ICD-07)*. Parsons, Aiken, South Carolina.

[12] V-ESR-J-00008, *SWPF Electrical Power Distribution Interface Control Document (ICD-08)*. Parsons, Aiken, South Carolina.

[13] V-ESR-J-00009, *SWPF Roads and Rail Interface Control Document (ICD-09)*. Parsons, Aiken, South Carolina.

[14] V-ESR-J-00010, *SWPF Waste Transfer Interface Control Document (ICD-10)*. Parsons, Aiken, South Carolina.

[15] V-ESR-J-00011, *SWPF Waste Treatability Samples Interface Control Document (ICD-11)*. Parsons, Aiken, South Carolina.

[16] V-ESR-J-00012, *SWPF Emergency Response Interface Control Document (ICD-12)*. Parsons, Aiken, South Carolina.

[17] V-ESR-J-00013, *SWPF Telecommunications and Controls Datalink System Interface Control Document (ICD-13)*. Parsons, Aiken, South Carolina.

[18] V-ESR-J-00017, *SWPF Fire Protection Water System Interface Control Document (ICD-17)*. Parsons, Aiken, South Carolina.

[19] V-ESR-J-00018, *SWPF Work Controls Interface Control Document (ICD-18)*,. Parsons, Aiken, South Carolina.

[20] V-ESR-J-00019, *SWPF Permitting and Monitoring Requirements Interface Control Document (ICD-19)*. Parsons, Aiken, South Carolina.

[21] V-ESR-J-00020, *SWPF Training Interface Control Document (ICD-20)*. Parsons, Aiken, South Carolina.

[22] V-ESR-J-00021, *SWPF Non-Radioactive Solid Waste Interface Control Document (ICD-21)*. Parsons, Aiken, South Carolina.

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