SALT WASTE PROCESSING FACILITY

CONFIGURATION MANAGEMENT PLAN

Contract No. DE-AC09-02SR22210
Phase II

Function: Configuration Management
Doc. No.: P-CDM-J-00001
Revision: 7
Date: 04/16/2019
SWPF Configuration Management Plan

SIGNATURE PAGE

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4/15/2019

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4/18/19

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4/15/19
### SUMMARY OF CHANGES

<table>
<thead>
<tr>
<th>Revision No.</th>
<th>Date</th>
<th>Description of Change</th>
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<tbody>
<tr>
<td>0</td>
<td>01/12/2006</td>
<td>Initial Issuance.</td>
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<tr>
<td>1</td>
<td>10/04/2006</td>
<td>Periodic Review.</td>
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<tr>
<td>2</td>
<td>11/08/2007</td>
<td>Periodic Review.</td>
</tr>
<tr>
<td>3</td>
<td>11/19/2008</td>
<td>Revise to reflect changes in DCN/FCN Process and to incorporate CSE Program.</td>
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<td>4</td>
<td>04/08/2009</td>
<td>Revised per DMR-0685 to add reference to ASME NQA-1-2004 which is a Contractual Requirement (as noted by DOE EM 60, February Outbrief Draft Finding #14).</td>
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<tr>
<td>5</td>
<td>08/01/2011</td>
<td>Revise per DMR-1631. As part of the MSA-10-08 recommendation appendix needs to be added to define the specific criteria and information needed to identify what documents/drawings need to be as-built as part of the SWPF construction activity. Additional changes made to section 6.4.1 and two new sections (section 6.4.2 and 8.3) added.</td>
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<td>6</td>
<td>09/12/2017</td>
<td>Revise per DMR-3939. Issued as Approved.</td>
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<tr>
<td>7</td>
<td>04/16/2019</td>
<td>Revise per DMR-5019, Periodic Review. Updated all references including approved DSA. Provided additional discussion of section 6.2.4, 6.4 and 6.6.</td>
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Appendix A. As-Built Application Details
LIST OF ACRONYMS AND ABBREVIATIONS

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<th>Description</th>
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<tr>
<td>ANSI</td>
<td>American National Standards Institute</td>
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<tr>
<td>ASME</td>
<td>American Society of Mechanical Engineers</td>
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<td>CCB</td>
<td>Change Control Board</td>
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<tr>
<td>CM</td>
<td>Configuration Management</td>
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<tr>
<td>CSE</td>
<td>Cognizant System Engineer</td>
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<tr>
<td>DCN</td>
<td>Design Change Notice</td>
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<tr>
<td>DOE</td>
<td>U.S. Department of Energy</td>
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<tr>
<td>DSA</td>
<td>Documented Safety Analysis</td>
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<tr>
<td>EIA</td>
<td>Electronic Industries Alliance</td>
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<tr>
<td>EPC</td>
<td>Engineering, Procurement, and Construction</td>
</tr>
<tr>
<td>FCN</td>
<td>Field Change Notice</td>
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<tr>
<td>MEL</td>
<td>Master Equipment List</td>
</tr>
<tr>
<td>N/A</td>
<td>Not Applicable</td>
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<tr>
<td>NCR</td>
<td>Nonconformance Report</td>
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<td>PMB</td>
<td>Performance Measurement Baseline</td>
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<td>PP</td>
<td>Project Procedure</td>
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<td>SB</td>
<td>Safety Basis</td>
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<tr>
<td>SBCN</td>
<td>Safety Basis Change Notice</td>
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<td>SRS</td>
<td>Savannah River Site</td>
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<tr>
<td>SSC</td>
<td>Structure, System, and Component</td>
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<td>SWPF</td>
<td>Salt Waste Processing Facility</td>
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<tr>
<td>TSR</td>
<td>Technical Safety Requirement</td>
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1.0 INTRODUCTION

The Salt Waste Processing Facility (SWPF) is located at the Savannah River Site (SRS) in J-Area, near the southeast corner of S-Area. The facility will receive high-curie salt waste that has been removed from various liquid radioactive waste source tanks, blended, and staged in the H-Area Tank Farm. The SWPF will process this waste and send the final products to the Saltstone Production Facility or the Defense Waste Processing Facility for final treatment/disposal.

2.0 CONFIGURATION MANAGEMENT POLICY

It is the policy of the Engineering, Procurement, and Construction (EPC) Contractor to implement Configuration Management (CM) to ensure that the Technical Baseline is properly documented and controlled throughout the Design, Construction, Commissioning, and Operations phases of the SWPF Project. CM provides an integrated approach to the establishment of consistency among the design requirements, physical facility configuration, and facility documentation. This consistency shall be maintained throughout the life-cycle phases of the facility. The physical configuration shall conform to the design requirements. Facility documents shall accurately reflect how the design requirements are incorporated into the physical configuration.

Changes to design requirements shall be evaluated and reflected in the facility documents and the physical configuration. Changes to the facility physical configuration or facility documentation shall be consistent with the design requirements. The SWPF Project shall evaluate each proposed change to determine the potential impact and to ensure that work can be performed safely, correctly, expeditiously, and efficiently.

This plan will be revised and updated, as required, in subsequent phases of the Project.

3.0 EPC CONTRACTOR ORGANIZATION, ROLES, AND RESPONSIBILITIES

The EPC Contractor’s SWPF Organization and related roles and responsibilities are presented in V-IM-J-00001, SWPF Project Organization, Roles and Responsibilities Manual. This Manual describes the EPC Contractor’s SWPF Project Organization and defines the roles and responsibilities of Project staff. Also included are brief descriptions of the U.S. Department of Energy (DOE) and Site Contractor organizations, as well as other groups that contribute to or are associated with the EPC Contractor’s SWPF Project Organization. In addition, major authorities for key positions are identified. Qualification requirements for these positions are maintained in Project Position Descriptions and the qualifications are provided for the identified positions per Project Procedure (PP) PP-TR-1802, Employee Indoctrination and Training.

4.0 PURPOSE

The purpose of this plan is to define the objectives of a CM process for the SWPF (including activities, procedures, and operations) and define key roles and responsibilities. CM involves both management and technical direction to establish and document the design requirements and
the physical configuration and to ensure that they remain consistent with each other and the documentation.

This plan satisfies the EPC Contractor’s SWPF Contract (DE-AC09-02SR22210, Design, Construction, and Commissioning of a Salt Waste Processing Facility [SWPF])³ requirements to implement CM in compliance with DOE O 413.3B, Program and Project Management for Acquisition of Capital Assets⁴ and complies with V-PMP-J-00002, SWPF Project Execution Plan⁵, and V-PMP-J-00001, SWPF Project Control System Description⁶. DOE O 413.3B⁴ requires that a CM process be established that controls changes to the physical configuration of Project facilities and structures, systems, and components (SSCs), in accordance with American National Standards Institute/Electronic Industries Alliance (ANSI/EIA) 649-A-2004, National Consensus Standard for Configuration Management⁷. This plan also satisfies the requirement of DOE O 420.1C, Chg 1, Facility Safety⁸, relative to establishing CM as part of the System Engineer Program. DOE O 420.1B, Facility Safety⁹ is the code of record for Design. Further, the SWPF Contract (DE-AC09-02SR22210³) includes DOE-STD-1073-2003, Configuration Management¹⁰, to supplement ANSI/EIA 649-A-2004⁷. DOE-STD-1073-2003¹⁰ was updated on December 2016 and ANSI/EIA 649-A-2004⁷ in 2015. However, these are not part of the SWPF Contract (DE-AC09-02SR22210³) list of requirements. This plan also implements the CM related requirements of American Society of Mechanical Engineers (ASME) NQA-1 as implemented by V-QP-J-00001, SWPF Quality Assurance Plan¹¹.

The CM Functions of ANSI/EIA-649-A-2004⁷ are more general than the CM Elements of DOE-STD-1073-2003¹⁰, in that DOE-STD-1073-2003¹⁰ provides more detail and is the basis for its use as the primary reference for this plan. This plan serves as the Planning and Management function, which is the foundation for the applicable DOE Standards which include the following ANSI/EIA standards.


SWPF personnel, qualified per PP-TR-1802², as having an understanding of CM, implement the requirements of DOE-STD-1073-2003¹⁰ (see Section 7.1 of this plan), and ensure requirements for Safety SSCs are incorporated into SWPF procedures and plans. Safety SSCs are defined as the Safety-Significant SSCs, identified in S-SAR-J-00002, SWPF Documented Safety Analysis¹² (DSA), and include those SSCs considered to be major contributors to Defense-in-Depth and worker safety. There are no Safety-Class SSCs in the SWPF, per the DSA (S-SAR-J-00002¹²). For SSCs that are not Safety SSCs, SWPF personnel will use DOE-STD-1073-2003¹⁰ as a guidance document for SWPF procedures and plans. SWPF personnel follow the procedures and plans which implement the CM requirements.
As required by V-QP-J-00001\textsuperscript{11}, procedures implementing CM were established and documented at the earliest practical time prior to facility operation and include responsibilities and authority of the organizations whose functions affect the configuration of the facility, including design, construction, procurement, licensing, maintenance, and operations. This plan satisfies the requirement in DOE-STD-1073-2003\textsuperscript{10} to have a formal policy that endorses the use of CM and defines key roles and responsibilities.

### 5.0 SCOPE

This plan applies to SWPF Project personnel and subcontractors/suppliers performing work for SWPF. For subcontractors and suppliers, compliance with these requirements is limited to the specific design and performance requirements specified in the purchase order and associated specifications relative to their respective scopes of work.

This plan applies to the test requirements, as well as the adoption of test data into the facility Technical and Safety Baselines.

This plan also applies to flow down of design requirements and performance specifications, per PL-PR-6001, *SWPF Acquisition Process System Description*\textsuperscript{13}, to suppliers of Procurement Level-2 and -3 SSCs, and the control of their submitted manuals and instructions, and related technical data used in the facility Technical Baseline.

### 6.0 CONFIGURATION MANAGEMENT PLAN

This plan describes the CM process for the SWPF Project. While CM always applies, CM is normally established at a significant Project milestone, such as completion of Conceptual Design or initiation or completion of Preliminary Design. However, CM shall occur no later than the start of construction (DOE G 420.1-1, *Nonreactor Nuclear Safety Design Criteria and Explosive Safety Criteria Guide for use with DOE O 420.1, Facility Safety*\textsuperscript{14}). CM of a drawing, document, or database commences when the media is issued as a Revision 0 and is maintained on all subsequent revisions. Once CM starts, the media can only be changed through the formal Change Control processes described in Section 6.4. SWPF design documents will be maintained as records through the life of the SWPF Contract (DE-AC09-02SR22210\textsuperscript{3}) and turned over in a manner supporting the ASME NQA-1 requirement as implemented in V-QP-J-00001\textsuperscript{11} to be maintained for the life of the facility. Records management and turnover shall be per V-ESR-J-00022, *SWPF Document Control Interface Control Document (ICD-22)*\textsuperscript{15}

The SWPF Project initiated CM with submittal of the Critical Decision-2 Package and establishment of this plan and implementation of the CM elements delineated in this section. This plan is an evolving document that will be revised as required to define and improve implementation of the CM requirements throughout the Project Design, Construction, and into the SWPF Commissioning and Operations phases. This plan defines CM-related program and Project interfaces, information systems and activities. CM implementation is primarily through related processes and procedures such as Design Control, Document Control, Work Control, Interface Management, Computer Software Management, and Assessments.
6.1 Configuration Management Processes

CM consists of a set of integrated processes to ensure that:

- The physical and functional characteristics of facilities, systems, equipment, and software are accurately defined and documented at all times;
- Proposed changes to configuration are properly evaluated and approved prior to implementation;
- Training is performed related to approved changes prior to returning a system to operations;
- Accurate records are captured and controlled; and
- Comprehensive assessments are conducted to validate the processes throughout the SWPF life cycle.

CM includes management planning and administration, as well as the key CM elements of Design Requirements Identification, Work and Procurement Control, Change Control, Document Control, and Assessments. Management planning and administration incorporates the planning, coordinating, and managing of all tasks necessary to implement CM principles and conduct CM activities. CM ensures that a cost/benefit analysis is included for proposed changes over a specified cost or schedule impact, in accordance with the Change Control process.

The following sections contain the definitions, requirements, and scope for each CM element.

6.2 Design Requirements Identification

6.2.1 Technical Baseline

As the Projects’ safety basis (SB) has been developed and is approved, the SWPF Technical Baseline evolved from Conceptual Design through Final Design, Construction, and now through Commissioning, and Operations.

The SWPF Conceptual Design was initiated with the input of functional requirements and other technical direction from the SWPF Contract (DE-AC09-02SR222103). The technical requirements are developed into design requirements to provide the collection of documents that define Preliminary and Final Design.

SWPF Final Design provided the collection of documents that describe details of the design necessary for fabrication, assembly, construction, installation, inspection, testing, and acceptance of the facilities and equipment necessary to meet mission needs. Completion of Construction occurred April 2016 and included requirements for all essential and support drawings to be as-built, as described in Appendix A. Completion of Testing and Commissioning in accordance with design documents and incorporation of approved field changes and as-builts (see Section 6.4.1 for as-built criteria) into Project documents results in the basis for operation and maintenance of the SWPF.
The Technical Baseline consists of a controlled list of high-level documents defined in SWPF PP-EN-5001, Design Control\(^2\). PP-EN-5001\(^2\) describes the responsibilities and mechanisms for developing and maintaining the facility design. Documents that require Design Authority and DOE approval are defined in PP-EN-5012, Design Change Notices\(^2\). The Design Authority for SWPF is defined in Section 6.2.2.

The technical baseline is a sub-set of those drawings and documents managed under CM. Change Control of essential and support drawings and technical documents covered by PP-EN-5001\(^2\) is in accordance with the processes described in Section 6.4.

### 6.2.2 Design Agent / Design Authority

The EPC Contractor is the Design Agent responsible for the SWPF design. The EPC Contractor is responsible for the professional quality, technical accuracy, and coordination of all design, drawings, specifications, and other services furnished under the SWPF Contract (DE-AC09-02SR22210\(^3\)). The EPC Contractor shall prepare all design documents and supporting information and shall maintain the design basis, design requirements, salt processing optimization, and all requirements established in the SWPF Contract (DE-AC09-02SR22210\(^3\)) between DOE and the EPC Contractor. DOE administers its oversight of design documentation and EPC Contractor design deliverables for the SWPF Contract (DE-AC09-02SR22210\(^3\)) in accordance with SPD-SWPF-002, Design Documentation Administration for the Salt Waste Processing Facility\(^16\), and V-PMP-J-00002\(^5\). Prior to the completion of construction, the DOE Design Authority was defined as the person or group responsible for confirming the final acceptability of and changes to Technical Baseline Documents. The DOE Design Authority was responsible to inspect and accept the SWPF physical, functional, and operational attributes to confirm they are in accordance with SWPF Contract (DE-AC09-02SR22210\(^3\)) requirements during the design and construction phases of the Project.

On May 26, 2017 (see SWPF-16-229, Salt Waste Processing Facility (SWPF) Design Authority Transition\(^17\)) DOE transferred the Design Authority Role to Parsons. As the Owner, DOE continues performing a formal review and approval of any changes to the following requirements documents:

- P-SPC-J-00002, SWPF Functional Specification\(^18\),
- P-ESR-J-00011, SWPF Operations Requirements Document\(^19\),
- P-DB-J-00002, SWPF Design Criteria Database\(^20\),
- P-DB-J-00003, SWPF Process Basis of Design\(^21\),
- P-DB-J-00004, SWPF Balance of Plant Basis of Design\(^22\)
- P-DB-J-00005, Next Generation Solvent Deployment at Salt Waste Processing Facility, Design Criteria Database\(^23\), and
- P-DB-J-00006, Next Generation Solvent Deployment at Salt Waste Processing Facility Basis of Design\(^24\).
6.2.3 Design Basis

The design basis provides the technical and analytical basis for the design requirements. The design requirements specify “what” is required and the design basis documents “why” a design requirement is specified. In addition to SB documents (DSA [S-SAR-J-00002\textsuperscript{12}], approved SB Change Notices, and S-TSR-J-00001, \textit{SWPF Technical Safety Requirements}\textsuperscript{25} [TSRs]), design basis information is found in calculations and other hazard analyses, including Fire Hazards Analyses and As Low As Reasonably Achievable Reviews. Unreviewed Safety Question reviews will begin as described in section 6.4. The SB documentation for the Next Generation Solvent annex will be developed at a future date.

The design basis is documented in P-DB-J-00003\textsuperscript{21}, and P-DB-J-00004\textsuperscript{22} for SWPF and in P-DB-J-00005\textsuperscript{23} and P-DB-J-00006\textsuperscript{24} for the Next Generation Solvent Annex. Design requirements from high-level Project documents are incorporated into P-DB-J-00002\textsuperscript{20}. P-DB-J-00002\textsuperscript{20} provides a central source of design requirements by integrating environmental permitting, safety and health, operational, functional, and contractual requirements into one source. Included in P-DB-J-00002\textsuperscript{20} is a subset of the standards and requirements from S-RCP-J-00001, \textit{SWPF Standards/Requirements Identification Document}\textsuperscript{26}, that comprise specific design criteria (e.g., IBC-2003, \textit{International Building Code}\textsuperscript{27}). S-RCP-J-00001\textsuperscript{26}, P-DB-J-00002\textsuperscript{20}, P-DB-J-00003\textsuperscript{21}, P-DB-J-00004\textsuperscript{22}, P-DB-J-00005\textsuperscript{23}, and P-DB-J-00006\textsuperscript{24} are approved by DOE and changes require DOE approval (see Section 6.4).

6.2.4 Scope of Configuration Management Structures, Systems, and Components

A graded approach has been established at the SWPF to determine the CM requirements for SSCs and documents. It is recognized that the CM process may be more stringent for safety SSCs than for those SSCs that are not specified as Safety-Significant or Defense-in-Depth by the DSA (S-SAR-J-00002\textsuperscript{12}). For example for simple, limited scope changes, that do not affect Safety-Significant components, can be performed per PP-EN-5034, \textit{Field Change Notices (FCNs)}\textsuperscript{2}, while changes that affect Safety-Significant components and/or are of a more significant nature must be processed per PP-EN-5012\textsuperscript{2}. The difference is in the amount of additional reviews. All design changes are reviewed by the Engineering/Design Manager and affected Cognizant System Engineers (CSEs) and all changes go through an Unreviewed Safety Question review, now that the SWPF DSA (S-SAR-J-00002\textsuperscript{12}) is approved.

CM was applied to SWPF SSCs through construction, with a few limited exceptions. The exceptions include SSCs related to architectural features (interior plumbing, doors, windows, etc.) that are non-pressurized and/or non-energized systems in the Administration and non-process support Buildings, as well as non-pressurized and/or non-energized yard systems and temporary systems for construction use only. Once Construction was complete, all drawings were categorized as shown in Section 6.4.2. All drawings categorized as “Essential” or “Support” will remain under configuration control. Staff who wish to use a “Reference” drawing understand they will need to walk the drawing down rather than relying on the current accuracy.

With construction complete (April 2016), configuration control is being maintained through the application of formal Conduct of Operations, Conduct of Maintenance, and Conduct of
Engineering. Permanent plant equipment is being maintained under CM, regardless of its functional classification. This does not include portable tools and equipment (including tools or equipment that may plug into 110 Volt wall outlets). Additional software documentation was provided to control tagging and nomenclature of non-safety equipment, such as temporary trailer ventilation and temporary valving during testing. As necessary, Operations and Engineering will proceduralize additional CM controls for these SSCs. Even for facilities such as the Administration Building or yard systems, any hazardous, high-pressure, or energized system is remaining under CM. CM does not mean the same level of detail is required to be maintained between administrative (non-radioactive, non-hazardous facilities) and nuclear process facilities.

Similarly design information (e.g., specifications, drawings, or other design documentation) provided to suppliers/vendors as part of the procurement process to support the procurement are maintained under change control and updates to those documents will be provided to the supplier/vendor when they are updated or revised by Design Change Notice (DCN) per PP-PR-6012, *Preparation and Change Management of Requisitions* and PP-PR-6024, *Coordination for Flowdown of Controlled Information to Vendors/Suppliers*.

A Master Equipment List (MEL) is maintained per PP-EN-5042, *Master Equipment List*. All permanent plant components, including anything with a Safety-Significant functional classification are maintained in the MEL. Portable equipment (e.g., that do not require special rigging to move) such as test or laboratory analysis equipment are typically not included in the MEL. In some cases the control level for a component may be an electrical cabinet or vendor-supplied skid. Where operations required an additional level of detail, Operating Diagrams (M-MA-J-xxxxx drawings) were created and approved by the CSE and the Engineering/Design Manager. The lower tier commodities were then entered into a controlled ‘Component’ Database, which is also managed per PP-EN-5042.

The CSE (see P-ESR-J-00035, *SWPF Cognizant System Engineering Plan*) shall play a major role in identifying the CM SSCs and associated changes to those systems as well as physically reviewing their specific system configuration control during their monthly walkdowns, per PP-EN-5035, *System Health Reporting and Operability Assessments*. As part of their quarterly reviews, they will identify possible obsolescence of components.

During the procurement process, supplier manuals and instructions relative to testing, operations, and maintenance of SWPF SSCs were, and will continue to be identified, captured, and maintained as records. In addition, all drawings and documents produced by suppliers and used by SWPF personnel were reviewed and released into the SWPF document control system. Operation Installation and Maintenance (OIM) manual information is maintained separately from routine supplier submittals per PP-PR-6022, *Supplier Submittal Management*, thus allowing maintenance staff to maintain the documentation well beyond when the original subcontracts were closed; however, these are not maintained under configuration control (e.g., Design Changes [FCNs, DCNs] are not posted to OIMs). Given the large volume of vendor documentation received (over 80,000 records), a configuration-controlled document category was created for the small subset of information that must be configuration managed. These vendor-provided design information that must be configuration controlled and are not absorbed into the project controlled drawings, are controlled via DP-EN-5031, *Equipment Data Records*. 
6.3 Work Control

Work Control is an administrative process by which work activities (Design, Construction, Maintenance, Commissioning, and Operations) are identified, initiated, planned, scheduled, coordinated, performed, approved, validated, and reviewed for adequacy and completeness, and documented. The total Project work scope is defined through the SWPF Work Breakdown Structure, which is presented in V-PMP-J-00001⁶. Work Control processes as defined in PL-MN-8709, SWPF Work Control Program Plan⁷, will ensure that, when work activities are performed, consistency is maintained among the SWPF documents, procedures, and physical configuration. Work Control responsibilities, authorities, and the expectations of Work Control shall be clearly communicated to all individuals who do work, including facility personnel, subcontractors, and non-facility personnel. Work Control interface requirements are defined in V-ESR-J-00018, SWPF Work Controls Interface Control Document (ICD-18)⁸, which describes the interface requirements and boundaries for pre-construction, construction, and operations phases. Prior to initiation of the Commissioning and Operations phases, the specific responsibilities, authorities, and interfaces related to Work Control are defined in applicable work processes, including procedures developed and implemented to meet the requirements of DOE O 433.1B, Admin Chg 1, Maintenance Management Program for DOE Nuclear Facilities⁹ and DOE O 422.1, Admin Chg 2, Conduct of Operations¹⁰. This plan will be revised as needed to meet the requirements of these SWPF phases.

All work performed for the SWPF Project will be in accordance with the Integrated Safety Management System provided in P-EIP-J-00001, SWPF Project Integrated Safety Management System Description¹¹. The Cost and Schedule aspects of Work Control are managed in accordance with PP-PC-2018, Work Authorization². Construction phase aspects of Work Control are managed in accordance with PP-CS-7201, Construction Work Control Process²; PP-EN-5012²; and PP-EN-5034², which address the Change Control process during the Construction and Commissioning phases. Work Control for testing, operations, and maintenance activities during Testing and Commissioning is managed in accordance with PP-OP-8523, Work Authorization and Release². For transitioning systems or areas from Testing to Operations, PP-OP-8515, Jurisdictional Turnover from Commissioning/Testing to Plant Operations² controls. For all phases, the design change process (PP-EN-5012² and PP-EN-5034²) controls. Maintenance work is controlled per PP-MN-8740, Maintenance Work Control².

The EPC Contractor uses the Integrated Safety Management System process to integrate safety into all aspects of work planning and execution. The Responsible Manager or authorized person approving the work will ensure that the appropriate Change Control process (Performance Measurement Baseline [PMB] and/or Technical Baseline Change Control) is followed prior to implementing any change.
6.4 Change Control

The objective of Change Control is to maintain consistency among SWPF design requirements, physical configuration, and related documentation (i.e., the design basis, as described in Section 6.2.3 and PP-EN-5001\(^1\)). The Change Control process ensures changes are properly reviewed and coordinated across the various EPC Contractor organizations and personnel responsible for activities and programs at the SWPF. The SWPF PMB includes scope (Technical Baseline), schedule, and cost, among other things. The Change Control processes described in this section are implemented in accordance with V-ESR-J-00022\(^15\). The requirements of ICD-22 (V-ESR-J-00022\(^{15}\)) are implemented via PP-EN-5001\(^2\), PP-EN-5012\(^2\), PP-EN-5034\(^2\), and PP-DC-3012, Document/Administrative Procedure Preparation and Review\(^2\). Changes to the PMB are managed in accordance with PP-PC-2017, Change Control Management\(^2\). Technical Baseline Change Control and PMB Change Control are interrelated through the mechanisms for changes described in the implementing procedures.

Section 6.4.1 and Appendix A have been provided to define the specific criteria and information needed to identify what drawings needed to be as-built as part of the SWPF construction activity. As-built verification data is captured via FCNs per PP-EN-5034\(^2\) for implementation into final drawings. Operations completed an independent verification of all essential drawings and select support drawings in support of Construction Complete. Since Construction Complete, the CSE verifies any design change was implemented per the design change and documents that review on Form SWPF-864, Permanent Modification Control Form. Since the beginning of 2019, Operations also completes a formal review of all design changes that are field implemented per PP-OP-8548, Operations Final Acceptance. As part of this review, Operations confirms that all required post modification testing, training, and procedure modifications have been implemented prior to acceptance.

During the finalization of the DSA (S-SAR-J-00002\(^{12}\)) and TSR (S-TSR-J-00001\(^{25}\)), the SB (DSA [S-SAR-J-00002\(^{12}\)]) were maintained per PP-NS-5504, Development and Control of Documented Safety Analysis and Technical Safety Requirements\(^2\), including development of Form SWPF-065, SWPF - Safety Basis Change Notices (SBCN). Nuclear Safety was a required reviewer of DCNs (other than non-technical revisions to DCNs) to ensure any physical modifications or as-built data was captured as needed. FCNs, by their scope, could not affect the Safety Basis during this phase.

With the approval of the DSA (S-SAR-J-00002\(^{12}\)) and TSR (S-TSR-J-00001\(^{25}\)), PP-NS-5507, SWPF Unreviewed Safety Questions\(^2\), which is approved by DOE, is used to evaluate all design changes. Staff who perform this work have received training to this procedure/process. The schedule for submittal and approval of changes to the SB Documents (DSA [S-SAR-J-00002\(^{12}\]) and TSR [S-TSR-J-00001\(^{25}\)]) will be determined jointly by SWPF and DOE on a case-by-case basis.

CM needs are met by requiring the implementing procedures listed above and changes to them are reviewed by the CM Subject Matter Expert to ensure that the requirements of DOE-STD-1073-2003\(^{10}\) and V-QP-J-00001\(^{11}\), continue to be implemented, as required by PP-AS-1200, SWPF S/RID Maintenance and Compliance\(^2\), and PP-DC-3012\(^2\).
6.4.1 As-Built Drawings

As-built documentation (per DOE-STD-1073-2003\textsuperscript{10}) consists of “documentation (for example, Piping and Instrumentation Diagrams and database records) verified by physical inspection as depicting the actual physical configuration and verified as consistent with the design requirements”. To further supplement that definition, DOE-STD-1189-2008, *Integration of Safety into the Design Process*\textsuperscript{34}, which is not part of the SWPF Contract (DE-AC09-02SR22210\textsuperscript{3}), was reviewed to understand the DOE expectations for as-built data:

(Section 3.5.2, *Construction*, of DOE-STD-1189-2008) “Therefore, rigorous configuration management of the design and the safety analysis documentation is important to understand whether a design change can affect the approval basis for the PDSA, and to maintain consistency between the as-built facility and the SB documentation (DSA[S-SAR-J-00002\textsuperscript{12}] and TSR [S-TSR-J-00001\textsuperscript{25}]).”

(Section 3.5.3, *Development of Safety Basis*, of DOE-STD-1189-2008) “The DSA cannot be completed until there is a high degree of certainty that facility configuration matches the design documentation, safety design basis documentation, and the operating procedures for that configuration.”

As-built information during construction was obtained via two methods:

- **Build-to-print.** In these cases, authenticated Inspection Reports will document that the work was installed to the configuration managed design drawings.

- **Additional verifications.** (e.g., surveying data to supplement the build-to-print data) are provided when specified by Engineering in the approved Design Documents. Engineering, with input from other affected organizations, including Plant Operations, and Environment, Safety and Health, may specify additional verifications when an added level of detail is needed. Examples include:
  - Confirming final location of buried utilities (pipe, electrical, etc.). As-built points will be specified either on the drawings (for self performed work) or within the subcontract (for subcontracted installations) at a frequency to assure that the underground utility can be located (e.g., vertical and horizontal coordinates).
  - Confirming the safety-significant equipment physical attributes identified by Engineering on the drawing as requiring specific measured documentation of position or orientation as part of construction.

Drawings subject to as-built requirements include:

- Architectural,
- Civil/Structural,
- Electrical,
- Instrumentation and Controls,
- Mechanical, and
• Plant Design.

Additional requirements beyond the normal build-to-print are defined by Engineering on specific drawings which require as-built verification information, normally in the drawing notes. Components which require additional as-built verification as defined above shall be identified in the Construction Work Package per PP-CS-7201². Areas requiring as-built data are inspected per PP-QC-4802, Quality Control Inspection² and captured in FCNs per PP-EN-5034² or DCN’s per PP-EN-5012². Resulting FCNs or DCNs are incorporated into the final design per engineering procedures. Appendix A provides a summary of the types of drawings where additional verification would normally be required and those where build-to-print information is expected to be sufficient.

In addition to construction as-built data, Operations and Commissioning, during construction to testing turnover activities, confirmed final configuration, including physical valve lineups, of all components needed to operate the facility. This activity will continue through system operational Testing and Cold Commissioning.

After Construction was declared complete and the facility turned over to Testing and Operations, any design change (DCN or FCN), made to the facility must be walked down by the CSE to confirm implementation was to the approved design change, per PP-EN-5012² or PP-EN-5034². This step is required prior to incorporating the approved change (FCN or DCN) into any affected drawings and documents. For DCNs with documents that support specific work flow processes (e.g., equipment labeling input to Computerized Maintenance Management System), the Engineering/Design Manager may authorize incorporation of a needed work flow document (e.g., Equipment Database, Valve List, Instrument Index) to facilitate continued work flow processing prior to Form SWPF-684 completion.

6.4.2 Drawing Change Control Categories

Prior to the facility transitioning to hot operations, all project drawings will be categorized into one of the following categories:

• Essential – Drawings depicting active SSCs and are necessary to support emergency response actions. Essential drawings include all drawings referenced in Emergency Operating Procedures or so designated by Plant Management. Once the SWPF is in operation, this category of drawing shall have any approved change incorporated within 30 calendar days of the change being implemented.

• Support – Drawings, in addition to Essential, that provide Engineering, Maintenance, and Operations the details necessary for plant operations. Support Drawings are designated by the applicable CSE, after consideration of input from operations and Maintenance personnel. Once the SWPF is in operation, they must be updated within 60 days after 5 changes have been implemented or when requested by Plant Management (if less than 5 changes).

• Reference – Drawings that supplement Essential and Support drawings, and provide construction details, additional design or historical information. Reference drawings are records but are not kept current (e.g., not under Configuration Control).
• **Archive** – Drawings removed from the active SWPF drawing database. These are normally construction-aide sketches which provide supplemental information or those drawings that were developed and issued but not used in construction. Archived drawings include any drawing sheets that have been voided, deleted, superseded, or transferred to another Contractor (e.g., transfer line drawings transferred to the Liquid Waste Operations Contractor in Fiscal Year 2018). Archived drawings are not kept current. They remain records under the SWPF Document Control Program.

These definitions are consistent with the recommended best practice definitions developed by the Energy Facility Contractors Group as part of the development of best CM practices (see *Configuration Management for Facilities Transitioning to Closure*). The specific drawing categories are controlled via Electronic Data/Document Management System maintained by EPC Contractor Document Control. All Essential and Support drawings were identified and tagged within Document Control system based on documentation from Plant Operations and Engineering by the construction complete date, and continue to be maintained and updated, as needed, as Operations procedures are finalized.

The CSE, with input from Operations and Maintenance staff, shall define which drawings are categorized as Reference drawings and which are to be archived for their assigned systems. The CSE shall also be required to confirm field implementation of approved changes to their system(s). The SWPF Project Collaboration Portal has been updated to include the appropriate drawing categorization.

### 6.4.3 Status of Design Changes

DCNs and FCNs are all statused by Document Control, with status visible to all staff with access to the DCN/FCN Library, as follows:

• Working: DCN or FCN scope has been requested, and is in development and review. It is not approved for field use.

• Open: DCN or FCN has been completed, checked, reviewed, and approved for field use (e.g., modification of documents and/or facility). The change document is ‘posted’ (stamped on top of the drawing or controlled document). The field work has not been field verified by the CSE as complete/as-built.

• Field Work Complete – Not Incorporated: The CSE has verified that the field modification matches the approved design change. The Engineering staff are now authorized to incorporate the design change in the drawing/documents.

• Closed: All affected drawings and documents affected by the DCN/FCN have been updated, and new revision(s) released for field use.

• Cancelled: The DCN/FCN was cancelled prior to the work being field implemented.

PP-EN-5012 provides additional information on the work flow and process of design changes.
In early Fiscal Year 2019, a step was added for Operations to review and document final acceptance of any facility change per PP-OP-8548. This ensures that any procedure change or operations training has been completed, if required, prior to accepting the change as complete.

### 6.5 Document Control

Document Control ensures that the most current approved versions of documents are available for use in the process of designing, constructing, operating, maintaining, modifying the facility, and that older archived versions are available upon request. Controlled documents are updated to reflect changes. Such changes are controlled by using a unique identifier, a revision, and a date. Each outdated document is then replaced by the updated document. Document Control for CM is accomplished in accordance with V-ESR-J-00022 and the requirements and process of PP-DC-3001, Document Control. Managers are responsible for identifying the documents under their respective areas that must be configuration-controlled based on the function of the document relative to its role in defining facility design baseline or to support facility operations and maintenance.

### 6.6 Assessments (Configuration Verification)

The objective of assessing CM is to detect, document, determine the cause of, and initiate correction of inconsistencies among design requirements, documentation, and physical configuration. Properly performed assessments should help identify inconsistencies among these areas, evaluate the root causes for these problems, and prescribe improvements to avoid similar inconsistencies in the future. Periodic self-assessments to evaluate the CM process shall be conducted by Engineering Management and Supervisors, Construction, Commissioning and Operations personnel, and CSEs. Formal assessments for CM are performed in accordance with the requirements and process of PL-AS-1001, SWPF Integrated Assessment Program Plan.

The five specific types of assessments are discussed below.

1. Construction assessments were performed to ensure that configuration was and continues to be managed throughout the construction process for new construction and will be performed for any major modifications. For the initial Construction to Commissioning turnover, a rigorous process of walkdowns, documentation, and review of facility configuration against the baseline was completed.

2. Physical configuration assessments of the SWPF shall be conducted to evaluate consistency between the physical configuration and the facility documentation. These include routine Operations surveillances (valve alignment, labeling review, etc.), monthly CSE System Walkdowns, as well as more structured Focused Management Self-Assessments per PP-QA-4722, Management Assessment.

3. SWPF design assessments shall be conducted to ensure that design documents have been updated to reflect changes and accurately reflect the design basis and current conditions of the facility. At the end of construction, this was documented per DP-EN-5025, Design Completion Confirmation Process.
4. Post-construction, modification, or installation inspections and tests shall be performed after construction, modification, or installation of a change to the SWPF to verify that operation is as expected. Any modification (DCN or FCN) that impacts the field conditions is verified as correctly implemented prior to drawing incorporation by Engineering, per PP-EN-5012\(^2\), which requires review and signoff of Form SWPF-684, *Permanent Modification Control Form*. PP-EN-5046, *Temporary Modifications*\(^2\) also requires verification. In addition to the Engineering review, Operations conducts a final review, per PP-OP-8548\(^2\). This includes review of the post-maintenance testing, any inspections, confirming that any impacts to procedures and training have been addressed.

5. Periodic performance assessments of the SWPF shall be conducted to verify that systems and components continue to meet design and performance requirements in their current configurations. This is routinely done by Engineering and Operations via their Focused Management Self-Assessments per PP-QA-4722\(^2\), and through the project’s *Integrated Assessment Program Plan* (PL-AS-1001\(^36\)) which requires as a minimum an annual Management Self-Assessment of the health of the CM Program. The CSEs also walk down their systems monthly to identify any CM, design, maintenance, or performance issues (started prior to Integrated Water Runs), and will perform a more detailed system health report quarterly, once the facility is in Hot Operations, per PP-EN-5035\(^2\).

### 7.0 SUPPORTING CONFIGURATION MANAGEMENT REQUIREMENTS

#### 7.1 Configuration Management Training

CM training ensures that an individual or work group possesses the required Project knowledge, skills, and abilities to perform a task or the duties of their position(s) specifically related to CM. CM training is accomplished in accordance with the requirements and process of PL-TR-1801, *SWPF Project Personnel Selection, Training, and Qualification Plan*\(^37\), providing information on CM elements and requirements. CM training has two elements:

**Element 1**: Training on CM processes, plans and procedures. This element is comprised at a minimum of:

- Instruction on the objectives and elements of the CM process;
- Instruction on the implementation of CM, including applicable procedures; and
- Periodic refresher training.

**Element 2**: Continuing training of plant personnel on changes in actual plant configuration. This element is comprised of continuing maintenance and operational training on systems that have been impacted by the Design Change Process in a timely fashion, so as to maintain current knowledge of the system status and configuration. This is addressed within the Continuing and Requalification training for Operations and Maintenance staff.
7.2 Interface Management

Interface management establishes and maintains SWPF Project interfaces with DOE, the SRS Liquid Waste Operations Contractor, other SRS contractors, and external agencies to ensure that Safety Systems, support systems (e.g., potable water system) and organizations fit and function together properly to achieve the Project goals. Interface management is accomplished in accordance with the requirements and process of V-ESR-J-00025, SWPF Project Interface Management Plan38.

7.3 SWPF Project Change Control Board

Responsibility for change management exists at every management level of the Project. Changes are monitored, reviewed, and approved/disapproved by the Change Control Board (CCB) at those levels. The Federal Project Director is established by V-PMP-J-000025 as the Chair of the SWPF Project CCB. The Federal Project Director (as delegated by the Program Secretarial Officer) will approve Level 2 baseline changes and recommend Level 0 and Level 1 changes to the DOE Savannah River Manager and to DOE Headquarters for subsequent higher-level CCB approvals.

An SWPF Project CCB, consists of the Senior Project Management Team supporting the Project Manager. The SWPF Project CCB will disposition Level 3 changes and will recommend Level 0, 1, and 2 changes to the SWPF Project CCB for action. The SWPF Project CCB dispositions both PMB and Technical Baseline changes (i.e., Baseline Change Proposals and DCNs, in accordance with PP-PC-20172 and PP-EN-50122, respectively) and changes that have a non-negligible cost and schedule impact. FCNs, performed in accordance with PP-CS-72242 do not go through the CCB because of their defined, limited scope.

7.4 Configuration-managed Databases

The SWPF configuration-managed databases listed in PP-EN-50012 provide detailed information for SSCs and cross-references to the design and regulatory requirements and documents that contain information, data, or attributes concerning the SSC. The configuration-managed databases are managed in accordance with PP-EN-50012 and PP-IN-1300, Database Management and Control2. Changes to the configuration-managed databases will result from approved DCNs.

The SWPF MEL utilized in the SWPF maintenance program is derived from the configuration managed databases as controlled per PP-EN-50422. The SWPF MEL is a detailed master list of equipment, components, and structures to be included in the maintenance program, in accordance with DOE G 433.1-1, Nuclear Facility Maintenance Management Program Guide for Use with DOE O 433.139. Via the use of a Structured Query Language software reporting tool, integrated reports which gather data from these independently controlled databases are produced to support different activities, including Testing, Commissioning, and ultimately Operations.
7.5 Computer Software Management

CM for computer software is accomplished in accordance with the requirements of V-QP-J-00001, SWPF Quality Assurance Plan, and processes of PL-QA-4704, SWPF Software Quality Assurance Program Description, PP-EN-5028, Acquired Design Software, PP-EN-5029, Developed Design Software, and PP-QA-4714, Software Management. PP-EN-5025, Automated System Configuration and Validation provides for specific CM of the computer software used in the operation of SWPF systems. This Plan and PPs provide for the configuration identification, development, change control, and status control of safety and non-safety software that is acquired or developed to support design, analysis, testing, and operation of SSCs and other quality-affecting SWPF activities. These PPs provide methods to be used to control, uniquely identify, describe, and document the configuration of each version or update of a computer program and its related documentation. A labeling system is used to uniquely identify each configuration item, identify changes to configuration items by revision, and to provide the ability to uniquely identify each configuration. The labeling system is used throughout the software life cycle. Proposed changes to the software are documented, evaluated, and approved for release. Only approved changes are made to the software that has been baselined. Audits and reviews are conducted to verify that the software product is consistent with the configuration item descriptions in the requirements and that the baselined software, including all documentation, is complete. A graded approach is used to implement CM requirements per PL-QA-4704 for computer software based on its software classification and software type. Application of the graded approach is described in individual software quality assurance plans and accomplished using the PPs.

8.0 RESPONSIBILITIES

For additional responsibilities see V-IM-J-00001.

8.1 Project Manager

The Project Manager is responsible for establishing and implementing a CM process that meets Project requirements. The Project Manager serves as the Chairman of the SWPF Project CCB.

8.2 Engineering/Design Manager (Design Services)

The Engineering/Design Manager (Design Services) maintains CM of design inputs and the design in accordance with PP-EN-5001.

Responsible for establishing and maintaining the design requirements, ensuring that design output documents accurately reflect the design basis, and maintaining design control and ultimate technical adequacy of the design process.

8.3 CSE Lead/Process Manager

The CSE Lead/Process Manager assigns CSEs to all permanent plant SSCs and assures the CSEs perform their duties to maintain the CM of their assigned systems per P-ESR-J-00035. This
includes designation of all Support Drawings and ensuring all essential and support drawings are maintained. These duties include assuring that appropriate Unreviewed Safety Question review is made of any modification, as defined in Section 6.4.

8.4 Plant Manager

The Plant Manager designates Essential drawings, provides input to CSEs for designation of Support drawings, and ensures these drawings are maintained current to support safe plant operations.

8.5 Functional Area Managers and Support Managers

Functional Area Managers are defined in V-IM-J-00001. Functional Area Managers and their Support Managers are responsible for ensuring that CM is effectively implemented and that requirements are met by the CSEs assigned to the Project. Each Functional Area Manager (or designee) serves as a member on the SWPF Project CCB, as defined in Section 7.3 of this plan.

8.6 Director of CM

The Director of CM has the responsibility and authority for managing the Design Change Control process and ensuring that procedures governing the CM process are appropriately integrated with each other and the technical review processes. The Director of CM is also responsible for developing an implementation process/checklist for performance assessments, periodically assessing the process, and ensuring that appropriate personnel are identified for training. The Director of CM is the Subject Matter Expert, as defined in PP-AS-1200.

8.7 CSE

In accordance with the applicable requirements of DOE O 426.2, Admin Chg 1, Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities, a CSE will be trained and qualified to be knowledgeable of the system(s) and related SB, and will retain a working knowledge of construction activities, the SB, Technical Baseline, facility operation, and current existing condition relative to their assigned system(s). The CSE program and its phased implementation are described in more detail in P-ESR-J-00035.

A CSE will be assigned one or more SSCs, and this responsibility will be formally documented. System Engineers will participate in identification of the design requirements for their systems and the SSCs within their systems, and are responsible for ensuring that the configuration control process is effectively working for their areas of responsibility. The CSE utilizes Subject Matter Experts as defined in PP-AS-1200 as necessary for the performance of responsibilities related to assigned SSCs.

CSEs initiated documented monthly walkdowns of their assigned systems prior to the start of Integrated Water Runs. As part of these walkdowns, they review as-built CM conditions, material condition, spare parts, status of maintenance activities, and performance data. As part of this, they will identify potential obsolescence issues that may need to be addressed.
8.8 Design Authority

The Director of Engineering serves as the Design Authority, as delegated from DOE per SWFP-16-22917.

8.9 Project Controls Manager

The Project Controls Manager is responsible for ensuring that adequate budget is provided to support the CM function and to establish and maintain a process for ensuring that PMB changes undergo a management review for schedule and funding, as appropriate.

8.10 EPC Contractor Document Control Manager

The EPC Contractor Document Control Manager is responsible for ensuring that each updated document is uniquely identified and includes a revision number and date, and that each outdated document is replaced by the latest revision.

9.0 REFERENCES


6 V-PMP-J-00001, *SWPF Project Control System Description*. Parsons, Aiken, South Carolina.


12 S-SAR-J-00002, SWPF Documented Safety Analysis. Parsons, Aiken, South Carolina.

13 PL-PR-6001, SWPF Acquisition Process System Description, Revision 5. Parsons, Aiken, South Carolina.


20 P-DB-J-00002, SWPF Design Criteria Database. Parsons, Aiken, South Carolina.


22 P-DB-J-00004, SWPF Balance of Plant Basis of Design. Parsons, Aiken, South Carolina.

23 P-DB-J-00005, Next Generation Solvent Deployment at Salt Waste Processing Facility, Design Criteria Database, Parsons, Aiken, South Carolina.


25 S-TSR-J-00001, SWPF Technical Safety Requirements, Parsons, Aiken, South Carolina.


28 P-ESR-J-00035, SWPF Cognizant System Engineering Plan. Parsons, Aiken, South Carolina.

29 PL-MN-8709, SWPF Work Control Program Plan. Parsons, Aiken, South Carolina.
30 V-ESR-J-00018, **SWPF Work Controls Interface Control Document (ICD-018)**. Parsons, Aiken, South Carolina.

31 DOE O 433.1B, Admin Chg 1, **Maintenance Management Program for DOE Nuclear Facilities**. U.S. Department of Energy, Washington D.C.

32 DOE O 422.1, Admin Chg 2, **Conduct of Operations**. U.S. Department of Energy, Washington, D.C.

33 P-EIP-J-00001, **SWPF Integrated Safety Management System Description**. Parsons, Aiken, South Carolina.


36 PL-AS-1001, **SWPF Integrated Assessment Program Plan**. Parsons, Aiken, South Carolina.

37 PL-TR-1801, **SWPF Personnel Selection, Training, and Qualification Plan**. Parsons, Aiken, South Carolina.

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


40 V-QP-J-00001, **SWPF Quality Assurance Plan**. Parsons, Aiken, South Carolina.

41 PL-QA-4704, **SWPF Software Quality Assurance Program Description**. Parsons, Aiken, South Carolina.

43 DOE O 426.2, Admin Chg 1, **Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities**. U.S. Department of Energy, Washington, D.C.
## Appendix A. As-Built Application Details

<table>
<thead>
<tr>
<th>Drawing Category</th>
<th>Drawing Subcategory</th>
<th>Additional Verification required? (^A)</th>
<th>Build to Print</th>
<th>Method for capturing As-built data</th>
<th>Comments/Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural</td>
<td></td>
<td>No</td>
<td>Yes</td>
<td>Nonconformance Report (NCR) → DCN → Final Drawings</td>
<td>Any specific detail will be identified on the drawing. Minimal architectural drawings will require additional verification.</td>
</tr>
<tr>
<td>Civil/Structural</td>
<td>Underground Water Supply System (Fire protection or sanitary water lines outside of building footprint)</td>
<td>Yes</td>
<td>Not Applicable (N/A)</td>
<td>Survey → FCN → Final Drawing</td>
<td>Additional verification (survey); survey data captured in FCN and posted to drawing(s).</td>
</tr>
<tr>
<td></td>
<td>Rebar</td>
<td>No. See comments.</td>
<td>Yes</td>
<td>NCR → DCN → Final Drawings</td>
<td>Reinforcing steel is installed using approved shop drawings or sketches. Inspection and acceptance is to the issued for Construction design drawings.</td>
</tr>
<tr>
<td>Penetrations (“pens”)/Embeds</td>
<td></td>
<td>No</td>
<td>Yes</td>
<td>NCR → DCN → Final Drawings</td>
<td>NCRs are used to capture any deviations to the drawing specified tolerances and details. If the NCR are ‘accept as is’ then a DCN must be generated (tied to the NCR) and issued to close the NCR. These DCNs will then be incorporated in the final drawing.</td>
</tr>
<tr>
<td>Steel Falsework</td>
<td></td>
<td>No</td>
<td>Yes</td>
<td>NCR → DCN → Final Drawings</td>
<td>Same as above</td>
</tr>
<tr>
<td>Steel Structural</td>
<td></td>
<td>No</td>
<td>Yes</td>
<td>NCR → DCN → Final Drawings</td>
<td>Same as above</td>
</tr>
</tbody>
</table>

\(^A\) If additional verification is required, then the verification will be performed by the verification entity.
## SWPF Configuration Management Plan

### P-CDM-J-00001, Rev. 7

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<table>
<thead>
<tr>
<th>Drawing Category</th>
<th>Drawing Subcategory</th>
<th>Additional Verification required?</th>
<th>Build to Print</th>
<th>Method for capturing As-built data</th>
<th>Comments/Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Site-work -- Utilities</td>
<td>Yes</td>
<td>N/A</td>
<td>Survey → FCN → Final Drawing</td>
<td>Additional verification (survey); survey data captured in FCN and posted to drawing(s). Does not include features exposed to view.</td>
</tr>
<tr>
<td></td>
<td>Site work -- General civil</td>
<td>Yes</td>
<td>N/A</td>
<td>Survey → FCN → Final Drawing</td>
<td>Same as above.</td>
</tr>
<tr>
<td><strong>Electrical</strong></td>
<td>Underground conduits/ductbank</td>
<td>Yes</td>
<td>N/A</td>
<td>Survey → FCN → Final Drawing</td>
<td>Additional verification (survey); survey data captured in FCN and posted to drawing(s).</td>
</tr>
<tr>
<td></td>
<td>Embedded duct or conduit (elevated decks and topping slabs only)</td>
<td>Yes</td>
<td>N/A</td>
<td>Survey → FCN → Final Drawing</td>
<td>Additional verification (survey); survey data captured in FCN and posted to drawing(s) for items not visible. No survey is required for those features exposed to view.</td>
</tr>
<tr>
<td></td>
<td>Exposed conduit (in-facility) (slabs and walls)</td>
<td>No</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In-facility (terminations)</td>
<td>No</td>
<td>Yes</td>
<td>NCR → DCN → Final Drawings</td>
<td>Built to vendor shop drawings</td>
</tr>
<tr>
<td></td>
<td>Panels, Switch Gear and Motor Control Centers</td>
<td>No</td>
<td>Yes</td>
<td>NCR → DCN → Final Vendor Shop Drawings</td>
<td>Built to vendor shop drawings</td>
</tr>
<tr>
<td><strong>Instrumentation and Controls</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Racks/Cabinets</td>
<td>No</td>
<td>Yes</td>
<td>NCR → DCN → Final Vendor Shop Drawings</td>
<td>Built to vendor shop drawings</td>
</tr>
<tr>
<td><strong>Mechanical</strong></td>
<td>Vessels</td>
<td>No.</td>
<td>Yes. See comment 1.</td>
<td>Final vendor shop drawings → NCR → DCN → Final Drawing</td>
<td>1. Vessels are fabricated to vendor shop drawings</td>
</tr>
<tr>
<td>Drawing Category</td>
<td>Drawing Subcategory</td>
<td>Additional Verification required?</td>
<td>Build to Print</td>
<td>Method for capturing As-built data</td>
<td>Comments/Basis</td>
</tr>
<tr>
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</tr>
<tr>
<td>Pumps</td>
<td></td>
<td>No</td>
<td>Yes</td>
<td>NCR→ DCN→ Final Drawings/Isometrics</td>
<td></td>
</tr>
<tr>
<td>Flow Diagrams/</td>
<td>Piping and Instrumentation Diagrams</td>
<td>No</td>
<td>Yes</td>
<td>NCR→ DCN→ Final Drawings/Isometrics</td>
<td>Operations valve lineup will be confirmed during Commissioning.</td>
</tr>
<tr>
<td>Environmental</td>
<td>(Heating, Ventilating, and Air Conditioning) equipment</td>
<td>No</td>
<td>Yes</td>
<td>Final vendor shop drawings</td>
<td></td>
</tr>
<tr>
<td>Plant Design</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facility Piping</td>
<td></td>
<td>No</td>
<td>Yes</td>
<td>NCR→ DCN→ Final Drawings and Isometrics</td>
<td>Does not include pipe which is not dimensionally represented on the design drawings. Piping that is not dimensionally represented does not receive additional verification survey unless it is specified on the Design documents by Engineering.</td>
</tr>
<tr>
<td>Waste Transfer Lines</td>
<td>Yes. See comment 1</td>
<td>Yes. See comment 2</td>
<td></td>
<td>Final vendor shop drawings→ FCN→ Final Drawing</td>
<td>1. Survey data required to be captured in FCN for buried transfer line final location. 2. Piping is built to vendor shop drawings prior to being installed in ground.</td>
</tr>
<tr>
<td>Pipe Supports</td>
<td></td>
<td>No</td>
<td>Yes</td>
<td>NCR→ DCN→ Final Drawings/Isometrics</td>
<td></td>
</tr>
<tr>
<td>Plumbing</td>
<td></td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drawing Category</td>
<td>Drawing Subcategory</td>
<td>Additional Verification required?&lt;sup&gt;A&lt;/sup&gt;</td>
<td>Build to Print</td>
<td>Method for capturing As-built data</td>
<td>Comments/Basis</td>
</tr>
<tr>
<td>------------------</td>
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</tr>
<tr>
<td>Fire Protection Underground Water Supply System (within building footprint)</td>
<td>Yes</td>
<td>N/A</td>
<td>Survey → FCN → Final Drawing</td>
<td>Additional verification (survey); survey data captured in FCN and posted to drawing(s).</td>
<td></td>
</tr>
<tr>
<td>Fire Protection Systems</td>
<td>No</td>
<td>Yes</td>
<td>Final vendor shop drawings</td>
<td>Built to vendor shop drawings</td>
<td></td>
</tr>
<tr>
<td>Fire Alarm and Detection System</td>
<td>No</td>
<td>Yes</td>
<td>Final vendor shop drawings</td>
<td>Built to vendor shop drawings</td>
<td></td>
</tr>
<tr>
<td>Fire Life-safety (e.g., emergency lights and signs)</td>
<td>No</td>
<td>Yes</td>
<td>NCR → DCN → Final Drawings</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>A</sup> Additional verification beyond “Build-to-print”; normally refers to additional Quality Control annotation or survey verification of final location points.