

Requirements Document, Level 1 - Company Wide

# CPCC-RD-EN-1819

## Engineering Requirements

Revision 1, Change 6

Published: 12/31/2025

Effective: 12/31/2025

Periodic Review Due Date: 04/12/2028

Program: Engineering

Topic: Engineering Program

Technical Authority: Baker, Rachel K

Functional Manager: Kujath, Brett A

# Use Type: Administrative



USQ Facility	USQ Review	Screener
105 KW Facility	GCX-8 (Not in Safety Basis Compliance Matrices)	Meyer, Matthew F
324 Building	GCX-8 (Not in Safety Basis Compliance Matrices)	Hicks, Jarrod J
Below HazCat 3	<b>Exclusion Reason:</b> <i>N/A per PRC-PRO-NS-062, Section 1.3; LHC3F</i>	
Canister Storage Building/Interim Storage Area	GCX-8 (Not in Safety Basis Compliance Matrices)	Dubois, Valerie M
Capsule Storage Area	GCX-8 (Not in Safety Basis Compliance Matrices)	Dubois, Valerie M
D4ES-Central Plateau	GCX-8 (Not in Safety Basis Compliance Matrices)	Griebel, Scott D
Solid Waste Operations Complex	GCX-7 (Minor Change)	Masulonis, John U
Transportation	GCX-7 (Minor Change)	Bridges, Alvia E
Waste Encapsulation Storage Facility	GCX-8 (Not in Safety Basis Compliance Matrices)	Dubois, Valerie M

**JHA:** Administrative

**Periodic Review Due Date:**04/12/2028

Rev. 1, Chg. 6

## Change Summary

### Description of Change

Updated QA driver from DOE/RW-0333P to NQA-1 throughout.  
 Section 2.3.1 added implementing procedures to a, b, and c for consistency.  
 Section 2.3.2 removed CPCC-PRO-EN-440  
 Section 2.3.2.f added CPCC-PRO-EN-8336  
 Section 2.3.4.c added CPCC-PRO-EN-2001 and removed -440.  
 Section 2.3.4.e added CPCC-PRO-EN-40259  
 Section 2.3.4.f removed CPCC-PRO-EN-286 and -40264  
 Section 2.3.4 removed CPCC-PRO-EN-440  
 Section 2.3.4.l added CPCC-PRO-EN-40271

**Engineering Requirements**

Published Date: 12/31/25

Effective Date: 12/31/25

**TABLE OF CONTENTS**

1.0	INTRODUCTION .....	2
1.1	Purpose.....	2
1.2	Scope.....	2
1.3	Implementation .....	2
2.0	REQUIREMENTS.....	2
2.1	Engineering Personnel Requirements .....	4
2.1.1	Engineering Qualification and Training .....	3
2.1.2	Engineering Responsibilities .....	5
2.2	Engineering Configuration Management Requirements .....	7
2.3	Design Process Requirements .....	8
2.3.1	Initiate Design .....	8
2.3.2	Identify Design Inputs.....	9
2.3.3	Process Design Criteria .....	16
2.3.4	Perform Design Analysis .....	16
2.3.5	Develop Design Outputs .....	23
2.3.6	Verify Design.....	24
2.3.7	Release Design.....	24
2.3.8	Install Design.....	25
2.3.9	Test Design .....	26
2.3.10	As-built Design Documents/Drawings.....	31
2.3.11	Accept Design .....	31
2.3.12	Update Technical Baseline .....	31
2.4	Additional Engineering Requirements.....	32
2.4.1	Procurement of Engineering Items and Services.....	32
2.4.2	Materials and Equipment .....	33
2.4.3	Inspections .....	33
2.4.4	Development of Technical Standards .....	34
3.0	FORMS.....	35
4.0	RECORD IDENTIFICATION.....	35
5.0	SOURCES .....	35
5.1	Requirements.....	35
5.2	References.....	36

**List of Appendixes**

Appendix A -	Activities Which Mandate Licensed Professional Engineer Stamp or Certification .....	38
--------------	--	----

**Engineering Requirements****Published Date: 12/31/25****Effective Date: 12/31/25****1.0 INTRODUCTION****1.1 Purpose**

This Requirements Document establishes engineering requirements (including procured engineering services) to be used for or by Central Plateau Cleanup Company (CPCCo) and the CPCCo projects. These requirements have been arranged according to their application within a typical engineering process. The requirements apply to all life cycle stages of a structure, system, or component (SSC).

The document provides a mapping of requirements to implementing procedures for use by engineering management. Compliance with the requirements is ensured if individual engineers perform engineering tasks as described in the referenced procedures.

This document implements portions of the requirements of CPCC-MP-QA-599, *Quality Assurance Program*, and NQA-1-2022, Part II, Subpart 2.25, *Quality Assurance Requirements for High Level Waste Custodians*.

**1.2 Scope**

This Requirements Document is applicable to CPCCo Team employees performing engineering activities for CPCCo Projects and/or activities. The Integrated Safety Management System (ISMS) core functions of defining scope of work; identify hazards and implement controls; perform work within controls; feedback and improvement; and management review; have been incorporated in this document.

**1.3 Implementation**

This document is effective upon publication.

**2.0 REQUIREMENTS**

All engineering and design performed under the CPCCo scope of work shall comply with applicable laws and regulations. Key requirements from other sources, such as other CPCCo procedures, are referenced in portions of this requirements document. All the requirements in this document are based on well-established good business practices for engineering and the requirements of CPCC-MP-QA-599.

The CPCCo contract with the U.S. Department of Energy (DOE), Richland Operations Office (DOE-RL) specifies that CPCCo will comply with applicable Federal Regulations and the listed DOE Orders (DE-AC06-08RL14788, *Plateau Remediation Contract*). For Quality Assurance, this requires compliance with Title 10, *Code of Federal Regulations*, Part 830, (10 CFR 830) *Nuclear Safety Management*, and CRD O 414.1D, *Quality Assurance*.

In addition to the above requirements, CPCCo work scope specifically tasked with dealing with spent nuclear fuel (SNF) is required to meet applicable OCRWM requirements. OCRWM requirements are only applicable to OCRWM-related scope; additional engineering requirements may be found in facility specific procedures.

**Engineering Requirements****Published Date: 12/31/25****Effective Date: 12/31/25**

Designs and services involving Occupational Radiation Protection require compliance with 10 CFR 835, *Occupational Radiation Protection*, and DOE-HRD-SH-51953, Hanford Radiological Health and Safety.

*The following sections address the requirements associated with CPCCo engineering tasks and processes:*

**Section 2.1 Engineering Personnel Requirements**

- 2.1.1 Engineering Qualification and Training
- 2.1.2 Engineering Responsibilities

**Section 2.2 Engineering Configuration Management Requirements****Section 2.3 Design Process Requirements**

- 2.3.1 Initiate Design
- 2.3.2 Identify Design Inputs
- 2.3.3 Process Design Criteria
- 2.3.4 Perform Design Analysis
- 2.3.5 Develop Design Outputs
- 2.3.6 Verify Design
- 2.3.7 Release Design
- 2.3.8 Install Design
- 2.3.9 Test Design
- 2.3.10 As-Build Design Documents/Drawings
- 2.3.11 Accept Design
- 2.3.12 Update Technical Baseline

**Section 2.4 Additional Engineering Requirements**

- 2.4.1 Procurement of Engineered Items and Services
- 2.4.2 Materials and Equipment
- 2.4.3 Inspections
- 2.4.4 Development of Technical Standards

Published Date: 12/31/25

Effective Date: 12/31/25

### 2.1 Engineering Personnel Requirements

#### 2.1.1 Engineering Qualification and Training

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
a.	<u>General Training:</u> Personnel performing engineering shall be qualified as “Engineers.”	CPCC-MP-QA-599, Section 2 CRD O 414.1D CRD O 426.2	CPCC-STD-TQ-40175
b.	<u>Project Specific Training:</u> Engineering Managers shall be responsible for defining engineering training requirements for engineers assigned to their Project.	CPCC-MP-QA-599, Section 2 CRD O 414.1D CRD O 426.2	CPCC-STD-TQ-40175
c.	<u>Technical Support Staff:</u> Individuals performing engineering support activities (e.g., design/drafting) within the CPCCo organization shall be qualified.	CPCC-MP-QA-599, Section 2 CRD O 414.1D CRD O 426.2	CPCC-STD-TQ-40175
d.	<u>Technical Staff:</u> Individuals designated as technical staff (e.g., Engineers) in Appendix 1 of the facility/project Training Implementation Matrix (TIM) shall be trained in accordance with CRD O 426.2, <i>Personnel Selection, Qualifications, and Training Requirements for DOE Nuclear Facilities</i> and the individual project’s training program.	CPCC-MP-QA-599, Section 2 CRD O 414.1D CRD O 426.2	CPCC-STD-TQ-40175
e.	<u>Engineering Managers:</u> For each qualified Design Authority (DA), there will be a qualified Engineering Manager.	CPCC-MP-QA-599, Section 2	CPCC-STD-TQ-40175
f.	<u>Design Authorities (Das):</u> Design Authorities shall meet specific qualifications above those required for personnel qualified as an Engineer.	CPCC-MP-QA-599, Section 2 CRD O 426.2	CPCC-STD-TQ-40175
g.	<u>System Engineers (Ses):</u> Each CPCCo managed DOE Category 1, 2, and 3 nuclear facility shall designate a qualified System Engineer for each active Vital Safety System (VSS).	CRD O 420.1C (Change 3)	CPCC-STD-TQ-40175 CPCC-MP-EN-54929
h.	For each qualified SE, there will be a qualified Engineering Manager.	CRD O 420.1C (Change 3)	CPCC-STD-TQ-40175 CPCC-MP-EN-54929

## Engineering Requirements

Published Date: 12/31/25

Effective Date: 12/31/25

## 2.1.2 Engineering Responsibilities

Responsibilities assigned to an engineer vary based on the engineering task being performed. All engineers have certain responsibilities. DAs and SEs have additional responsibilities. SE responsibilities defined in this section define CPCCo implementation of the SE portion of CRD O 420.1C (Change 3), *Facility Safety*. VSSs are systems that contain active Safety Class (SC) or Safety Significant (SS) SSCs or active systems that perform an important Defense-in-Depth (DID) safety function as defined in the documented safety analysis (DSA) of a nuclear facility. The assigned SE fulfills the general DA responsibilities plus additional responsibilities applicable to VSS.

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
a.	Engineers who stamp any documentation for use on the Hanford Site shall have a current Washington State Professional Engineer (PE) license when such material is required to be stamped by the State of Washington or federal requirements. See Appendix A for additional information.	CPCC-MP-QA-599 Section 2	CPCC-PRO-EN-2001 CPCC-PRO-EN-8016
b.	A DA shall be assigned to each SSC in the Configuration Baseline.	(Change 3) DOE-STD-1073	CPCC-PRO-EN-20050 CPCC-STD-TQ-40175
c.	Engineer, DA, SE, and Engineering Manager qualification requirements and responsibilities are defined.	DOE O 426.2 Chg 1	CPCC-STD-TQ-40175 CPCC-MP-EN-54929
d.	A System Engineer Program shall be established by contractors responsible for operations of Category 1, 2, and 3 nuclear facilities.	CRD O 420.1C, (Change 3)	CPCC-MP-EN-54929
e.	A VSS/SE Program shall establish the process for identification of VSSs.	CRD O 420.1C (Change 3)	CPCC-PRO-EN-20050 CPCC-MP-EN-54929
f.	The VSS/SE Program shall be applied to active safety class and safety significant SSCs, as defined in the nuclear facility's DOE-approved safety basis and other active systems that perform an important defense-in-depth function for the protection of the public, workers, or the environment within the context of the safety basis, as designated by the facility line management and agreed to by the DOE.	CRD O 420.1C (Change 3)	CPCC-MP-EN-54929

**Engineering Requirements****Published Date: 12/31/25****Effective Date: 12/31/25**

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
g.	VSS assessments shall include periodic review of system operability, reliability, and material condition during facility inspections. These periodic reviews shall assess the VSS's ability to perform its design and safety functions.	CRD O 420.1C (Change 3)	CPCC-MP-EN-54929 CPCC-PRO-EN-8323 CPCC-PRO-EN-24208
h.	System and component performance shall be monitored and compared to established performance criteria for listed VSS	CRD O 420.1C (Change 3)	CPCC-MP-EN-54929 CPCC-PRO-EN-8323 CPCC-PRO-EN-24208
i.	A SE shall be designated for each VSS.	CRD O 420.1C (Change 3)	CPCC-PRO-EN-20050 CPCC-MP-EN-54929
j.	The SE shall provide technical assistance in support of line management responsibility to ensure continued operational readiness of the VSS.	CRD O 433.1B CRD O 420.1C (Change 3)	CPCC-PRO-EN-20050 CPCC-MP-EN-54929
k.	The SE shall ensure that the configuration of assigned system(s) is being effectively managed.	CRD O 433.1B CRD O 420.1C (Change 3)	CPCC-PRO-EN-20050 CPCC-MP-EN-54929
l.	The SE shall remain apprised of operational status and ongoing modification activities, assist operations to review key VSS parameters and evaluate VSS performance, initiate actions to correct problems, remain cognizant of system-specific maintenance/operations history, identify trends from operations, provide assistance in determining operability or correcting out of specification conditions or evaluating questionable data, provide or support analysis to determine operability when the system is suspected of inoperability or degradation, review and concur with design changes, and provide input to development of special operation/test procedures.	CRD O 420.1C (Change 3)	CPCC-PRO-EN-20050 CPCC-MP-EN-54929
m.	Implementation of these System Engineer Program requirements should be tailored to facility hazards and the system relied upon to prevent or mitigate those hazards.	CRD O 420.1C (Change 3)	CPCC-MP-EN-54929

Published Date: 12/31/25

Effective Date: 12/31/25

### 2.2 Engineering Configuration Management Requirements

Configuration Management (CM) is the process that documents the functional and physical characteristics of an SSC during its life cycle, controls changes to those characteristics, and provides information on the status of change actions. This document provides the flexibility for the Projects to tailor their approach to the unique operational and organizational requirements and establishes a CM system consistent with DOE STD 1073 2016, *Configuration Management*.

#	Requirement	Source	Implementing Procedure
a.	Each CPCCo Project shall establish, document, and maintain a configuration baseline.	CRD O 413.3B CRD O 433.1B	CPCC-PRO-EN-20050
b.	Each CPCCo Project shall ensure that those documents that comprise the configuration baseline are identified as Configuration Baseline in the Document Management and Control System (DMCS).	DOE-STD-1073	CPCC-PRO-EN-20050
c.	All drawings in the configuration baseline are designated as either "Essential" I or "Support" (S).	DOE-STD-1073	CPCC-PRO-EN-20050
d.	Documents that define the configuration baseline portion of the system design basis shall be compiled and kept current using formal change control/work control.	(Change 3) DOE-STD-1073	CPCC-PRO-EN-20050 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016
e.	Vital Safety Systems (VSS) physical configuration shall be periodically compared to the configuration baseline.	CRD O 420.1C (Change 3)	CPCC-PRO-EN-20050 CPCC-MP-EN-54929
f.	For nuclear facilities, a master equipment list (MEL) shall be prepared and maintained in conjunction with the safety basis and issued as a controlled document.	DOE O 433.1C	CPCC-PRO-EN-20050 CPCC-MP-EN-54929
g.	VSS performance shall be monitored and compared to established performance criteria.	CRD O 420.1C (Change 3)	CPCC-MP-EN-54929 CPCC-PRO-EN-8323 CPCC-PRO-EN-24208

Published Date: 12/31/25

Effective Date: 12/31/25

### 2.3 Design Process Requirements

The CPCCo Design Process Requirements included in this section reflect the design requirements elements described in DOE-STD-1073-2003, *Configuration Management*. A graphical representation of the CPCCo *Engineering Process* and CPCCo *Design Process* are maintained on the [CPCCo Central Engineering](#) web page.

#### 2.3.1 Initiate Design

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
a.	The design shall be defined, controlled, and verified.	CPCC-MP-QA-599, Section 6	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8336 CPCC-PRO-EN-8016
b.	Design shall be planned to established technical standards and administrative controls using approved instructions or procedures.	CPCC-MP-QA-599, Section 6 DOE O 414.1D, Chg 1, CRD, Attachment 2, Criterion 6	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8336 CPCC-PRO-EN-8016
c.	Design control measures shall be established and applied to the design inputs and outputs for: <ul style="list-style-type: none"> <li>• Design of items that are important to safety</li> <li>• Engineered barriers that are important to waste isolation</li> <li>• Development of as-built drawings and related documentation in a timely manner.</li> </ul>	CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8336 CPCC-PRO-EN-8016

Published Date: 12/31/25

Effective Date: 12/31/25

### 2.3.2 Identify Design Inputs

**NOTE:** *Design inputs include both general design constraints and specific design requirements.*

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
a.	Design methods, materials, parts, equipment, and processes that are essential to the function of an item shall be selected and reviewed for suitability of application.	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271
b.	Design inputs shall be specified and approved on a timely basis and to the level of detail necessary to permit the design work to be carried out in a correct manner that provides a consistent basis for making design decisions, accomplishing design verification, and evaluating design changes.	CPCC-MP-QA599, Section 6 CPCC-MP-QA-599, Section 20 DOE/RW-0351 DOE/RW-0511	CPCC-PRO-EN-40271
c.	Changes from approved design inputs, including the reason for the changes, shall be identified, documented, approved by the responsible design organization, and controlled.	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016
d.	Design inputs based on assumptions that require confirmation shall be identified and controlled as the design proceeds.	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271
e.	Changes shall be approved by the same affected groups or organizations that approved the original design documents: <ol style="list-style-type: none"> <li>1. If an organization that originally was responsible for approving a particular design document is no longer responsible, then a new responsible organization shall be designated; and</li> <li>2. The designated approving organization shall have demonstrated competence in the specific design area of interest and have an adequate understanding of the requirements and intent of the original design.</li> </ol>	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016

**Engineering Requirements**

Published Date: 12/31/25

Effective Date: 12/31/25

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
f.	The design process and design verification methods and implementing documents shall be reviewed and modified, as necessary, when a significant design change is necessary because of an incorrect design.	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8336C PCC-PRO-EN-8016
g.	Errors and deficiencies in approved design documents, including design methods (i.e., computer software supporting a safety or waste isolation function), that could adversely affect SSCs important to safety or waste isolation shall be documented and action taken to ensure all errors and deficiencies are corrected.	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016
h.	Deviations from specified quality standards shall be identified and formally documented. Procedures shall be established to ensure control of these deviations.	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016
i.	<p>CPCCo is required to ensure that DOE nuclear facilities are designed and constructed so as to ensure adequate protection for the public, workers, and the environment. To this end, the design shall be integrated with the safety analysis and other hazard mitigation requirements to ensure required safety SSCs and their functions are specified in the final design. The requirements passed down by CRD O 420.1C (Change 3) include the following:</p> <ol style="list-style-type: none"> <li>1. Nuclear facilities shall be designed with the objective of providing multiple layers of protection to prevent or mitigate the unintended release of radioactive materials to the environment.</li> <li>2. Facilities shall be sited and designed in such a manner that gives adequate protection for the health and safety of the public and for workers, including those at adjacent facilities, from the effects of potential facility accidents involving the release of radioactive materials.</li> </ol>	CRD O 420.1C (Change 3) 10 CFR 835.1001 10 CFR 835.1002 WAC 246-247 CPCC-00175	CPCC-PRO-EN-40271 CPCC-PRO-EN-20050 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016 CPCC-PRO-RP-1622

## Engineering Requirements

Published Date: 12/31/25

Effective Date: 12/31/25

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
	3. Facilities shall be designed to facilitate safe deactivation, decommissioning, and decontamination at end of life.		
	4. Facilities shall be designed to facilitate inspections, testing, maintenance, repair and replacement of safety SSCs as part of an overall reliability, availability, and maintainability program.		
	5. Facility process systems shall be designed to minimize the production of wastes and minimize the mixing of radioactive and non-radioactive wastes.		
	6. Safety SSCs shall, commensurate with the importance of the safety functions performed, be designed: (1) so that they can perform their safety functions when called upon to operate, and (2) under a quality assurance program that satisfies 10 CFR 830.120.		
	7. Facility safety class systems (structural, mechanical, process equipment, mechanical handling equipment, electrical, instrumentation/controls/alarms, etc.) shall be designed to the basic approach outlined in Section 5.2 (Specific Criteria) of DOE G 420.1-1, <i>Nonreactor Nuclear Safety Design Criteria and Explosives Safety Criteria Guide for Use with DOE O 420.1, Facility Safety</i> .		
	8. Facilities shall be designed to keep occupational radiation exposure within statutory limits and incorporate as low as reasonably achievable (ALARA) principles in design, including design provisions to facilitate decontamination during the operational period.		

**Engineering Requirements**

Published Date: 12/31/25

Effective Date: 12/31/25

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
j.	Hazards, Environmental Impacts, and Environment Compliance, Radiological Safety, Fire Protection, Industrial Safety and Nuclear Safety Requirements shall be identified.	CRD O 420.1C (Change 3)	CPCC-PRO-EN-40271 CPCC-PRO-EN-20050 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016
k.	Hazards will be identified and analyzed for new designs and design changes. Designs using engineered controls will be created to ensure adequate protection of workers, the public, and the environment.	10 CFR 851 10 CFR 830.202	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016
l.	Design criteria shall be established for all proposed new designs.	CRD O 420.1-1A	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8258
m.	New design criteria shall be developed for changes to existing SSC when existing design criteria is not applicable or does not exist.	CRD O 420.1-1A	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001
n.	Applicable design inputs shall be identified and documented, and their selection reviewed and approved by the responsible design organization.	CPCC-MP-QA-599, Section 6	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001
o.	Nuclear facilities shall be designed to incorporate sufficient factors of safety to require at least two unlikely, independent, and concurrent changes in process condition before a criticality accident is possible.	CRD O 420.1C (Change 3)	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016 HNF-7098
p.	Nuclear facilities shall be designed, constructed, and/or operated so that the general public, the workers, and the environment are protected from the impact of all Natural Phenomena Hazards (NPH). Where no specific requirements are specified, model building codes or national consensus industry standards shall be used.	CRD O 420.1C (Change 3)	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016 CPCC-PRO-EN-097
q.	Statements of work shall be developed, reviewed, approved, and issued for procured engineering services.	CPCC-MP-QA-599, Section 7 CPCC-MP-QA-599, Section 20	CPCC-PRO-AC-40480

## Engineering Requirements

Published Date: 12/31/25

Effective Date: 12/31/25

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
r.	<p>The design process shall be controlled according to the following requirements:</p> <p>A. Design work shall be prescribed and documented on a timely basis and to the level of detail necessary to permit: (i) the design process to be carried out in a correct manner, and (ii) verification that the design meets requirements.</p>	<p>CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20</p>	<p>CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016 CPCC-PRO-EN-286 CPCC-PRO-EN-40264 CPCC-PRO-EN-40189</p>
	<p>B. Design documents shall be adequate to support design, fabrication, construction, and operation. The documentation shall include not only the final design documents, such as drawings, specifications, and their revisions, but also documentation that identifies the important steps, including sources of design inputs supporting the final design.</p>		
	<p>C. Appropriate technical and QA standards shall be identified and documented, and their selection reviewed and approved.</p>		
	<p>D. Changes or deviations from specified standards, including the reasons for the change or deviations, shall be identified, evaluated, approved, documented, and controlled.</p>		
	<p>E. Measures shall be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are important to waste isolation or important to safety functions of SSCs.</p>		
	<p>F. Applicable information derived from experience, as set forth in reports or other documentation, shall be made available to cognizant design personnel.</p>		
	<p>G. The final design (approved design documents and approved changes thereto) shall be relatable to the design input by documentation in sufficient</p>		

## Engineering Requirements

Published Date: 12/31/25

Effective Date: 12/31/25

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
	detail to permit design verification; and identify assemblies and/or components that are part of the item being designed.		
	H. For commercial grade items, the critical characteristics to be verified and the acceptance criteria for those characteristics shall be documented. If a commercial grade assembly or component, prior to installation, is modified or selected by special inspection and/or testing to meet requirements that are more restrictive than the supplier's published product description, then the item shall be represented as different from the commercial grade item in a manner traceable to a documented description of the difference.		
	I. Drawings, specifications, and other design output documents shall contain appropriate inspection and testing acceptance criteria.		
	J. Design documents shall be reviewed by individuals or groups within the QA organization that do not have direct responsibility for performing the work being verified. Reviews shall be performed to assure that the documents are prepared, reviewed, and approved in accordance with implementing procedures and contain the necessary QA requirements, such as inspection and test requirements, acceptance requirements, and the extent to which inspection and test results are required to be documented.		

**Engineering Requirements**

Published Date: 12/31/25

Effective Date: 12/31/25

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
s.	<p>Design Interface Control:</p> <p>a. Technical design interfaces shall be identified, documented, and controlled throughout the design process.</p> <p>b. Administrative interfaces, which include authorities, responsibilities, and lines of communication between project team members, shall be defined in sufficient detail to identify and establish relationships of such team members as end users, stakeholders, responsible design organizations, designers, purchasing agents, suppliers, and testers/inspectors.</p> <p>c. Transmittal of design information across organizational interfaces shall be documented and controlled.</p> <p>d. Appropriate quality standards shall be identified and documented, and their selection reviewed and approved.</p> <p>Measures shall be provided to ensure personnel are notified of design changes/modifications that may affect the performance of their duties.</p>	<p>CPCC-MP-QA-599, Section 6</p> <p>CPCC-MP-QA-599, Section 20</p>	<p>CPCC-PRO-EN-40271</p> <p>CPCC-PRO-EN-20050</p> <p>CPCC-PRO-EN-2001</p> <p>CPCC-PRO-EN-8016</p>
t.	<p>High performance and sustainable building principles (Guiding Principles) in accordance with EO 13423 must be applied to the siting, design, construction, and commissioning of new facilities and major renovations of existing facilities.</p>	<p>CRD O 413.3B</p> <p>CRD O 436.1</p> <p>HNF-54800</p>	<p>CPCC-PRO-EN-40271</p> <p>CPCC-PRO-EN-2001</p> <p>CPCC-PRO-EN-8016</p>
u.	<p>At a minimum, all new construction and major building renovations must meet U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Gold certification absent an approved waiver from the Acquisition Executive.</p>	<p>CRD O 413.3B</p> <p>CRD O 436.1</p> <p>HNF-54800</p>	<p>CPCC-PRO-EN-40271</p> <p>CPCC-PRO-EN-2001</p> <p>CPCC-PRO-EN-8016</p>
v.	<p>Human Factors shall be considered during design and incorporated into the design as appropriate to ensure safer operation.</p>	<p>DOE-STD-1189</p> <p>DOE-STD-3009</p> <p>HNF-11724</p>	<p>CPCC-PRO-EN-40271</p> <p>CPCC-PRO-EN-2001</p> <p>CPCC-PRO-EN-8016</p> <p>CPCC-PRO-EN-40264</p> <p>CPCC-STD-EN-40255</p>
w.	<p>The dimensional accuracy and</p>	<p>CPCC-MP-QA-599,</p>	<p>CPCC-PRO-EN-40271</p>

**Engineering Requirements**

Published Date: 12/31/25

Effective Date: 12/31/25

#	Requirement	Source	Implementing Procedure
	completeness of design drawings and specifications shall be checked and documented.	Section 203.2.2	CPCC-PRO-EN-20050 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016

**2.3.3 Process Design Criteria**

#	Requirement	Source	Implementing Procedure
a.	<p>Planning activities shall be performed and documented prior to the start of work.</p> <p>Planning shall ensure that work is accomplished under suitably controlled conditions, which includes the use of appropriate equipment, suitable environmental conditions for accomplishing the activity, and assurance that prerequisites for the given activity have been satisfied.</p> <p>Planning shall provide for any special controls, processes, test equipment, tools, and skills needed to attain the required quality/verification of quality and the need for verification of quality by inspection and test.</p>	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001
b.	Computer software used to originate or verify safety or other risk-significant design solutions during the design process shall be validated, and the status of validation shall be identified and documented prior to use.	CPCC-MP-QA-599, Sections 6	CPCC-PRO-EN-40357

## Engineering Requirements

Published Date: 12/31/25

Effective Date: 12/31/25

## 2.3.4 Perform Design Analysis

The requirements in this section apply when developing engineering documentation that will be maintained as part of either a design basis or configuration baseline.

#	Requirement	Source	Implementing Procedure
a.	Design analyses shall be planned, controlled, and documented.	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001
b.	Design analysis documents shall be legible and in a form suitable for reproduction, filing, and retrieval.	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271 CPCC-PRO-EN-440
c.	Design analysis documents shall be sufficiently detailed as to purpose, method, assumptions, design input, references, and units such that a person technically qualified in the subject can review and understand the analyses and verify their adequacy without recourse to the originator.	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001
d.	Calculations shall be documented and identified by subject, originator, reviewer, and date, or by other data so that the calculations are retrievable.	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271 CPCC-PRO-EN-440
e.	Documentation of design analyses shall include: <ol style="list-style-type: none"> <li>1. Definition of the objective of the analyses</li> <li>2. Definition of design inputs and their sources</li> <li>3. Results of literature searches or other applicable background data</li> <li>4. Identification of assumptions and indication of those that must be verified as the design proceeds</li> <li>5. Identification of any computer calculation, including computer type, computer program (e.g., name), revision identification, inputs, outputs, evidence of or reference to computer program verification, and</li> </ol>	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271 CPCC-PRO-EN-440 <a href="#">CPCC-PRO-EN-40259</a>

## Engineering Requirements

Published Date: 12/31/25

Effective Date: 12/31/25

#	Requirement	Source	Implementing Procedure
	<p>the bases (or reference thereto) supporting application of the computer program to the specific physical problem</p> <p>6. Computer programs may be utilized for design analysis without individual verification of the program for each application provided:</p> <p>a. The computer program has been verified to show that it produces correct solutions for the encoded mathematical model within defined limits for each parameter employed; and,</p> <p>b. The encoded mathematical model has been shown to produce a valid solution to the physical problem associated with the particular application.</p> <p>7. Computer programs shall be controlled to ensure that changes are documented and approved by authorized personnel. Where changes to previously verified computer programs are made, verification shall be required and documented for the change, including evaluation of the effects of these changes to sections 6.a and 6.b.</p> <p>8. Identification of the originator, reviewer, and approver.</p>		
f.	<p>Design verification shall be performed to determine the adequacy of design by using one or a combination of the following methods:</p> <p>1. Design review</p> <p>2. Alternate calculations</p>	<p>CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20</p>	<p>CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8336</p>

**Engineering Requirements**

Published Date: 12/31/25

Effective Date: 12/31/25

#	Requirement	Source	Implementing Procedure
	3. Qualification testing		
g.	The extent of the design verification required shall be a function of the importance to safety or waste isolation, complexity of design, degree of standardization, state of the art, and similarity with previously proven designs.	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016 CPCC-PRO-EN-40264 CPCC-PRO-EN-8336
h.	Guidelines or criteria shall be established and described for determining the method of design verification. The particular design verification method used shall be identified and documented.	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8336
i.	Procedural controls shall provide criteria for determining when design documents that reflect the commitments of the Safety Analysis Report receive formal design verification by interdisciplinary or multi-organizational teams or by a single individual (a signature and date are acceptable documentation). Design documents subject to procedural controls include, but are not limited to, specifications, calculations, associated computer software supporting a safety or waste isolation function, system descriptions, parts of the Safety Analysis Report when used as a design document, and drawings, including flow diagrams, piping and instrument diagrams, control logic diagrams, electrical single line diagrams, structural systems for major facilities, site arrangements, and equipment locations. Specialized reviews should be used when uniqueness or special design considerations warrant.	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016 CPCC-PRO-EN-8336 CPCC-PRO-EN-40264
j.	The results of design verification shall be documented, including the identification of the verifier.	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016 CPCC-PRO-EN-8336 CPCC-PRO-EN-40264
k.	Responsibilities of the verifier, areas and features to be verified, pertinent considerations to be verified, and the extent of documentation shall be	CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016 CPCC-PRO-EN-8336 CPCC-PRO-EN-40264

## Engineering Requirements

Published Date: 12/31/25

Effective Date: 12/31/25

#	Requirement	Source	Implementing Procedure
	identified in procedures.		
l.	<p>Design verification shall be performed by competent individuals or groups other than those who performed the original design but may be from the same organization. If necessary, this verification may be performed by the originator's supervisor provided:</p> <ol style="list-style-type: none"> <li>1. The supervisor did not specify a singular design approach or rule out certain design considerations and did not establish the design inputs used in the design; or</li> <li>2. The supervisor is the only individual in the organization competent to perform the verification.</li> <li>3. The verification is not hastily and superficially done (a cursory review).</li> <li>4. The determination to use the supervisor is documented and approved, in advance, with concurrence of the QA organization.</li> <li>5. QA audits are conducted to evaluate the frequency and effectiveness of the use of supervisors as design verifiers.</li> </ol>	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-2001 CPCC-PRO-EN-8016 CPCC-PRO-EN-40264 CPCC-PRO-EN-8336 CPCC-PRO-EN-40271
m.	<p>Design verification shall be performed at appropriate times during the design process.</p> <ol style="list-style-type: none"> <li>1. Verification shall be performed before release for procurement, manufacture, or construction or release to another organization for use in other design work. In some cases (such as when insufficient data exists), it may be necessary to release unverified designs to support schedule requirements. Unverified portions of the design shall be clearly identified and controlled.</li> </ol>	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20CRD O 413.3B	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016 CPCC-PRO-EN-8336 CPCC-PRO-EN-40264

## Engineering Requirements

Published Date: 12/31/25

Effective Date: 12/31/25

#	Requirement	Source	Implementing Procedure
	2. In all cases, design verification shall be completed before relying on the item to perform its function.		
n.	<p>Use of previously proven designs shall be controlled according to the following requirements:</p> <ol style="list-style-type: none"> <li>1. The applicability of standardized or previously proven designs shall be verified with respect to meeting pertinent design inputs for each application.</li> <li>2. Known problems affecting standard or previously proven designs and their effects on other features shall be considered.</li> <li>3. The original design and associated verification measures shall be adequately documented and referenced in the files of subsequent application of the design.</li> </ol>	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016 CPCC-PRO-EN-8336 CPCC-PRO-EN-40264
o.	Changes in previously verified designs shall require re-verification. Such verification shall include the evaluation of the effects of those changes on the overall previously verified design and on any design analysis upon which the design is based.	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016 CPCC-PRO-EN-8336 CPCC-PRO-EN-40264
p.	<p>Design reviews shall be controlled and performed to ensure:</p> <ol style="list-style-type: none"> <li>A. The design inputs were correctly selected and incorporated into the design.</li> <li>B. The assumptions necessary to perform the design were adequately described, reasonable and where applicable, identified as requiring confirmation as the design proceeds.</li> <li>C. Appropriate design methods, and computer programs when applicable, were used.</li> <li>D. Design outputs are reasonable</li> </ol>	CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016 CPCC-PRO-EN-8336 CPCC-PRO-EN-40264

**Engineering Requirements**

Published Date: 12/31/25

Effective Date: 12/31/25

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
	<p>compared to design inputs.</p> <p>E. The necessary design input and verification requirements for interfacing organizations were specified in the design documents or in supporting implementing documents.</p> <p>F. Suitability of application of materials, parts, equipment, inspection and testing, and processes important to waste isolation or safety functions of SSCs</p>		
q.	<p>Alternate or simplified calculations are calculations or analyses that are made with alternate methods to verify correctness of the original calculation or analyses. The appropriateness of assumptions, input data used, and the computer program or other calculation method used shall be reviewed.</p>	<p>CPCC-MP-QA-599, Section 6 CPCC-MP-QA-599, Section 20</p>	<p>CPCC-PRO-EN-8336</p>
r.	<p>Design analyses shall be sufficiently detailed such that a person technically qualified in the subject can review and understand the analyses and verify the adequacy of the result without recourse to the originator.</p>	<p>ASME NQA-1 Requirement 3 section 400</p>	<p>CPCC-PRO-EN-440 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016</p>
s.	<p>Design analysis documents using computer calculations shall include in the document the computer type, computer program (i.e., name), revision identification, inputs, outputs, evidence of or reference to the computer program verification, and the bases (or reference thereto) supporting application of the computer program to the specific physical problem.</p>	<p>ASME NQA-1 Requirement 3 section 402I</p>	<p>CPCC-PRO-EN-440 CPCC-PRO-EN-40357</p>

**Engineering Requirements**

Published Date: 12/31/25

Effective Date: 12/31/25

**2.3.5 Develop Design Outputs**

<b>#</b>	<b>Requirement</b>	<b>Source</b>	<b>Implementing Procedure</b>
a.	Design products shall be recorded in design documents: such as drawings, specifications, test/inspection plans, maintenance requirements, report, calculations, studies, vendor information, and environmental engineering documentation.	DOE-STD-1073	CPCC-PRO-EN-40271 CPCC-PRO-EN-440 CPCC-PRO-EN-2001
b.	Design products, i.e., drawings, statements of work, or specifications, shall be prepared to document requirements, such as design, performance, hazard mitigation, procurement, fabrication, installation, testing, quality assurance, packaging, storage, and the shipping of such items as engineered equipment, fuel, or software.	DOE-STD-1073	CPCC-PRO-EN-40271 CPCC-PRO-EN-440 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016 CPCC-PRO-EN-40357
c.	Engineering documents submitted to DMCS, with the exception of vendor information, shall have a document number, page number, and revision status on each page of the document.	CRD O 243.1B DOE-STD-1073	CPCC-PRO-EN-440
d.	Vendor information shall contain unique identification to be retrievable.	CRD O 243.1B DOE-STD-1073	CPCC-PRO-EN-440
e.	Procurement documents shall indicate if the material or item to be procured is intended to be dedicated for use in a SC or SS installation or application.	CPCC-MP-QA-599, Section 7	CPCC-PRO-EN-40189 CPCC-PRO-AC-40480 CPCC-PRO-QA-268
f.	Radiological documents shall be identified and retained in accordance with CPCC-PRO-IRM-10588 and CPCC-PRO-RP-1622.	10 CFR 835.704(b) CPCC-00175	CPCC-PRO-EN-440 CPCC-PRO-EN-2001 CPCC-PRO-IRM-10588 CPCC-PRO-RP-1622

Published Date: 12/31/25

Effective Date: 12/31/25

### 2.3.6 Verify Design

Design verification is a documented process ensuring that the resulting system, structure, or component will comply with requirements.

#	Requirement	Source	Implementing Procedure
a.	Design verification shall be performed in a planned and controlled manner and shall provide assurance the final design is correct and satisfactory.	CRD O 413.3B CRD O 414.1D CPCC-MP-QA-599, Section 6	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016 CPCC-PRO-EN-8336 CPCC-PRO-EN-40264

### 2.3.7 Release Design

Once prepared and verified, design documents are reviewed and approved prior to release into the DMCS. Designs prepared as part of a formal Construction Project may be released into a Project Document Control System during the construction phase of a project. These documents will be released into the DMCS as part of the Project acceptance process.

#	Requirement	Source	Implementing Procedure
a.	Design verification shall be completed prior to releasing the design outputs and prior to relying on structures, systems, components, or computer programs to perform their function.	CPCC-MP-QA-599, Section 6	CPCC-PRO-EN-40271 CPCC-PRO-EN-440 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016
b.	All changes to final designs, field changes, nonconforming items (dispositioned as “use-as-is” or “repair”), and modifications to operating facilities shall be justified. Such dispositions shall be documented, including technical justification for acceptability. Required as-built documents shall reflect any deviations from design. Design changes including changes to design inputs, final design, field changes and facility modifications, shall be controlled by measures equal to those applied to the original design.	CPCC-MP-QA-599, Section 20CPCC-MP- QA-599 Section 3	CPCC-PRO-EN-40271 CPCC-PRO-EN-20050 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016
c.	The configuration of the facility shall be documented in drawings, specification, procedures, and other documents that reflect the operational status of the facility. The process used to control the current revision and issuance of these	ASME NQA-1 Req. 3, 601.9	CPCC-PRO-EN-20050 CPCC-PRO-EN-440 CPCC-PRO-EN-2001 CPCC-RD-IRM-8310

**Engineering Requirements**

Published Date: 12/31/25

Effective Date: 12/31/25

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
	documents shall take into account the use of the document and need for revision in support of operation.		
d.	Design documents shall support facility design, construction, and operation.	NQA-1, Req 3 Design Control, 300 Design Process	CPCC-PRO-EN-40271 CPCC-PRO-EN-20050 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016
e.	Documents that authorize facility modifications (e.g., Facility Modification Package [FMP] or Document Change Notice [DCN]) shall be approved prior to being field worked.	CRD O 433.1B	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016

**2.3.8 Install Design**

#	<i>Requirement</i>		<i>Implementing Procedure</i>
a.	Work on systems, including maintenance and repair, shall be controlled under a formal change control/work control process to ensure that changes are not inadvertently introduced, and that required system performance is not compromised.	CRD O 420.1C	CPCC-PRO-EN-20050 CPCC-PRO-WKM-12115

Published Date: 12/31/25

Effective Date: 12/31/25

### 2.3.9 Test Design

The final design shall specify acceptance, in-service inspections, test requirements, and include or reference appropriate acceptance criteria.

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
a.	Inspection and acceptance testing processes shall be established and implemented by CPCCo and its subcontractors to satisfy the requirements of this section. Inspections and tests are performed to verify that physical and functional aspects of SSCs meet requirements and are fit for use and acceptance. Procedures shall be prepared that govern inspection and acceptance testing associated with the application of the requirements of this section.	CPCC-MP-QA-599, Section 8 DOE O 433.1B Section D.2.1	CPCC-PRO-EN-286 CPCC-PRO-EN-2001
b.	Design changes, including changes to design inputs, final design, field changes and facility modifications, shall be controlled by measures equal to those applied to the original design. Design change control measures shall include assurance that the design analyses for the structure, system, or components are still valid. Systems shall be tested after modification to ensure continued capability to fulfill system requirements.	CRD O 414.1D CPCC-MP-QA-599, Section 6	CPCC-PRO-EN-20050 CPCC-PRO-EN-286 CPCC-PRO-EN-2001
c.	Inspection and acceptance testing procedures shall require that measuring and test equipment (and associated firmware) used to verify conformance to design requirements are of the proper type, range, accuracy, and are uniquely identified and traceable to their calibration data.	CPCC-MP-QA-599, Section 8	CPCC-PRO-EN-286 CPCC-PRO-MN-490
d.	Test records shall be maintained as QA records in accordance with CPCC-MP-QA-599, Section 4.	CPCC-MP-QA-599, Section 8	CPCC-PRO-EN-286
e.	Where design adequacy is to be verified by qualification tests, the tests shall be identified.	CPCC-MP-QA-599, Section 8 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-8336

Published Date: 12/31/25

Effective Date: 12/31/25

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
f.	Prototype, component, or feature testing shall be performed as early as possible before the installation would become irreversible.	CPCC-MP-QA-599, Section 8 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-286 CPCC-PRO-EN-8336
g.	The test configuration shall be defined and documented.	CPCC-MP-QA-599, Section 8 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-286
h.	Testing shall demonstrate the adequacy of performance under conditions that simulate the most adverse design conditions. Operating modes and environmental conditions in which the item must perform satisfactorily shall be considered in determining the most adverse conditions.	CPCC-MP-QA-599, Section 8 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-286
i.	Regarding qualification testing, if the tests verify only specific design features, then the other features of the design shall be verified by other means.	CPCC-MP-QA-599, Section 8 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-40271 CPCC-PRO-EN-8336
j.	Test results shall be documented and evaluated to ensure that test requirements have been met.	CPCC-MP-QA-599, Section 8 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-286 CPCC-PRO-EN-440
k.	If qualification testing indicates that a modification to an item is necessary to obtain acceptable performance, then the modification shall be documented and the item modified and retested or otherwise verified to ensure satisfactory performance.	CPCC-MP-QA-599, Section 8	CPCC-PRO-EN-2001 CPCC-PRO-EN-8016 CPCC-PRO-EN-8336
l.	When tests are being performed on models or mockups, scaling laws shall be established and reviewed and approved.	CPCC-MP-QA-599, Section 8 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-286 CPCC-PRO-EN-8336
m.	The results of model test work shall be subject to error analysis, where applicable, before using the results in final design work.	CPCC-MP-QA-599, Section 8 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-286 CPCC-PRO-EN-8336

**Engineering Requirements**

Published Date: 12/31/25

Effective Date: 12/31/25

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
n.	<p>Test planning shall include:</p> <p>A. Identification of the implementing documents to be developed to control and perform tests and provide criteria for (i) determining the accuracy requirements of test equipment and (ii) determining when tests are required and defining how and when testing activities are performed.</p> <p>B. Provisions for performing prototype, component, or feature qualification testing, including design verification testing, as early as possible before the installation would become irreversible.</p> <p>C. Identification of item to be tested and the test requirements and acceptance limits contained in applicable design and procurement documents.</p> <p>D. Identification of test methods to be employed and instructions for performing the test.</p>	<p>CPCC-MP-QA-599, Section 8 CPCC-MP-QA-599, Section 20</p>	<p>CPCC-PRO-EN-286 CPCC-PRO-EN-8336</p>

**Engineering Requirements**

Published Date: 12/31/25

Effective Date: 12/31/25

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
o.	<p>E. Test prerequisites that address the following: calibrated instrumentation; appropriate and adequate test equipment and instrumentation, including accuracy requirements, trained personnel, condition of test equipment, and the completeness of the item to be tested; suitably controlled environmental conditions; and provisions for data acquisition and storage.</p> <p>F. Mandatory inspection hold points for witnessing by the organization placing the hold</p> <p>G. Methods to record data and results.</p> <p>H. Provisions for ensuring that prerequisites for the given test have been met.</p> <p>I. Selection and identification of the measuring and test equipment to be used to perform the test to ensure that the equipment is of the proper type, range, accuracy, and tolerance to accomplish the intended function.</p>		
p.	Tests shall be performed in accordance with implementing documents that incorporate requirements and acceptance criteria contained in applicable design documents.	CPCC-MP-QA-599, Section 8 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-286 CPCC-PRO-EN-440

## Engineering Requirements

Published Date: 12/31/25

Effective Date: 12/31/25

#	Requirement	Source	Implementing Procedure
q.	<p>Tests shall be performed in accordance with implementing documents that address the following requirements as applicable:</p> <p>A. Provisions for determining when a test is required, describing how tests are performed, and ensuring that testing is conducted by trained and appropriately qualified personnel.</p> <p>B. Include or reference test objectives and provisions for ensuring that prerequisites for the given test have been met, adequate calibrated instrumentation is available and used, necessary monitoring is performed, and suitable environmental conditions are maintained.</p> <p>C. Test requirements and acceptance criteria provided or approved by the organization responsible for the design of the item to be tested unless otherwise designated.</p> <p>D. Test requirements and acceptance criteria based upon specified requirements contained in applicable design or other pertinent technical documents.</p>	<p>CPCC-MP-QA-599, Section 8 CPCC-MP-QA-599, Section 20</p>	<p>CPCC-PRO-EN-286 CPCC-PRO-EN-440</p>
r.	<p>Other testing documents (i.e., American Society for Testing and Materials specifications, supplier manuals, equipment maintenance instructions, controlled drawings, or other related documents containing acceptance criteria) may be used instead of preparing special test implementing documents. If used, these documents shall incorporate the information directly into the approved test document governing the test.</p>	<p>CPCC-MP-QA-599, Section 8 CPCC-MP-QA-599, Section 20</p>	<p>CPCC-PRO-EN-286</p>

**Engineering Requirements**

Published Date: 12/31/25

Effective Date: 12/31/25

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
s.	Other testing documents shall include adequate supplemental instructions as required to ensure the required quality of the testing work.	CPCC-MP-QA-599, Section 8 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-286
t.	Test results shall be documented and their conformance with acceptance criteria shall be evaluated by a qualified individual within the responsible organization to ensure that test requirements have been satisfied.	CPCC-MP-QA-599, Section 8 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-286 CPCC-PRO-EN-440
u.	<p>Test documentation shall identify the:</p> <ul style="list-style-type: none"> <li>A. Item or work product tested</li> <li>B. Date of test</li> <li>C. Name of the tester and data recorders</li> <li>D. Type of observation and method of testing</li> <li>E. Identification of test criteria or reference documents used to determine acceptance</li> <li>F. Results and acceptability of the test</li> <li>G. Actions taken in connection with any nonconformances noted</li> <li>H. Name of the person evaluating the test results</li> <li>I. Identification of the measuring and test equipment used during the test including the identification number and the next calibration due date</li> </ul>	CPCC-MP-QA-599, Section 8 CPCC-MP-QA-599, Section 20	CPCC-PRO-EN-286 CPCC-PRO-EN-440

Published Date: 12/31/25

Effective Date: 12/31/25

### 2.3.10 As-Built Design Documents/Drawings

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
---	--------------------	---------------	-------------------------------

### 2.3.11 Accept Design

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
a.	The status of nonconforming items shall be tracked to closure. Satisfactory completion of actions required by the nonconformance disposition shall be verified prior to closure.	CPCC-MP-QA-599, Section 3	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8017

### 2.3.12 Update Technical Baseline

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
a.	Update baseline documents to reflect the modified baseline.	EIA-649, Principle 16	CPCC-PRO-EN-40271 CPCC-PRO-EN-20050 CPCC-PRO-EN-440 CPCC-PRO-EN-2001
b.	All configuration baseline changes shall be field verified prior to acceptance and release into the DMCS.	EIA-649, Principle 16	CPCC-PRO-EN-40271 CPCC-PRO-EN-20050 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016 CPCC-PRO-EN-8017
c.	The DA(s) shall ensure the modification of existing configuration baselines and establishment of new baselines reflect construction activity changes	EIA-649, Principle 16	CPCC-PRO-EN-20050 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016 CPCC-PRO-EN-8017

Published Date: 12/31/25

Effective Date: 12/31/25

### 2.4 Additional Engineering Requirements

#### 2.4.1 Procurement of Engineering Items and Services

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
a.	Procurement of engineered items and engineering services shall be in accordance with approved procedures.	CPCC-MP-QA-599, Section 7	CPCC-PRO-AC-40480 CPCC-PRO-QA-268
b.	Ensure that the requirements of 10 CFR 835, Subpart K (Design and Control) and Section 103 (education, training, and experience) are passed down to subcontractors.	10 CFR 835	CPCC-PRO-AC-40480
c.	Engineering changes to and from the A-E shall be communicated through the Buyer's Technical Representative and involve appropriate coordination of the Buyer.	CPCC-MP-QA-599, Section 7	CPCC-PRO-AC-40480
d.	Engineering managers responsible for purchased engineered items and engineering services shall provide feedback to CPCCo Quality Assurance and Contracts Management regarding significant poor contractor performance.	CPCC-MP-QA-599, Section 7	CPCC-PRO-QA-3144

Published Date: 12/31/25

Effective Date: 12/31/25

### 2.4.2 Materials and Equipment

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
a.	Portable and installed instruments used for process monitoring or data collection shall be controlled, calibrated, and maintained as required by applicable regulations, DOE Orders, and site procedures.	CPCC-MP-QA-599, Section 5	CPCC-PRO-MN-490 CPCC-MP-MN-40443
b.	Sufficient engineering information shall be provided so that Spare parts, spare equipment, and special tools may be established in inventory, as appropriate, to maintain continuity of facility operations and reduce system and facility downtime through availability of equipment, parts, and components.	CPCC-MP-QA-599, Section 7	CPCC-PRO-EN-129 HMIS-PRO-FM-375

### 2.4.3 Inspections

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
a.	Inspection of Vehicle-Mounted Aerial ("bucket") Lifts, specifically the large truck mounted units used by Electrical Utilities and other organizations shall be conducted per the applicable sections of the listed standards.	10 CFR 851 29 CFR 1910.67 29 CFR 1926.453	CPCC-STD-EN-52773
b.	Inspection of Boilers and Pressure Vessels and piping systems shall be conducted per the applicable sections of listed standards.	10 CFR 851 29 CFR 1910.67 29 CFR 1926.453	CPCC-STD-EN-52773
c.	Inspection of Elevators shall be conducted per the applicable sections of the listed standards.	10 CFR 851 29 CFR 1910	CPCC-STD-EN-52773

Published Date: 12/31/25

Effective Date: 12/31/25

### 2.4.4 Development of Technical Standards

#	<i>Requirement</i>	<i>Source</i>	<i>Implementing Procedure</i>
a.	Select, use, and adhere to appropriate voluntary consensus standards (VCSs) when choosing technical standards to support assigned DOE missions and functions, including the design, construction, testing, modification, operation, decommissioning, decontamination, and remediation of DOE's facilities and activities	CRD O 252.1A	CPCC-PRO-EN-40271 CPCC-PRO-EN-2001 CPCC-PRO-EN-8016
b.	<p>Use the processes and procedures of the DOE Technical Standards Program (TSP) for developing DOE Technical Standards when:</p> <ol style="list-style-type: none"> <li>1. suitable VCSs do not exist to meet the DOE-wide need</li> <li>2. existing VCSs do not suffice or are not appropriate for the intended application</li> <li>3. a new VCS cannot readily be developed through a standards development organization (SDO).</li> </ol>	CRD O 252.1A	DOE G 252.1-1

Published Date: 12/31/25

Effective Date: 12/31/25

**3.0 FORMS**

None

**4.0 RECORD IDENTIFICATION**

Records shall be released and maintained in accordance with CPCC-PRO-EN-440, *Engineering Documentation Preparation and Control*, and CPCC-PRO-IRM-10588, *Records Management Processes (non-OCRWM)*, or CPCC-PRO-QA-19579, *OCRWM Records Management (OCRWM)*, as applicable.

**5.0 SOURCES****5.1 Requirements**

10 CFR 830, *Nuclear Safety Management*  
10 CFR 835, *Occupational Radiation Protection*  
10 CFR 851, *Worker Safety and Health Program*  
29 CFR 1910, *Occupational Safety And Health Standards*  
29 CFR 1926, *Safety And Health Regulations for Construction*  
CPCC-00175, *Central Plateau Cleanup Company Radiological Control Manual*  
CPCC-MP-QA-599, *Quality Assurance Program*  
CRD O 252.1A, *Technical Standards Program*  
CRD O 413.3B, *Program and Project Management for the Acquisition of Capital Assets*  
CRD O 414.1D, *Quality Assurance*  
CRD O 420.1C (Change 3), *Facility Safety*  
CRD O 426.2 (Supplement Rev 1), *Personnel Selection, Qualifications, and Training Requirements for DOE Nuclear Facilities*  
CRD O 433.1B (Change 1), *Maintenance Management Program for DOE Nuclear Facilities*  
CRD O 436.1, *Departmental Sustainability*  
DOE-HRD-SH-51953, *Hanford Radiological Health and Safety*  
DOE/RW-0351, *ICN 1 Civilian Radioactive Waste Management, Waste Acceptance System Requirements Document*  
DOE/RW-0511, *ICN1 Integrated Interface Control Document*  
DOE-STD-1189, *Integration of Safety into the Design Process*  
DOE-STD-3009, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses*  
NQA-1-2022, Part II, Subpart 2.25, *Quality Assurance Requirements for High Level Waste Custodians*  
WAC 246-247, *Radiation Protection - Air Emissions*

## Engineering Requirements

Published Date: 12/31/25

Effective Date: 12/31/25

### 5.2 References

89303320DEM000030, *Central Plateau Cleanup Contract*  
HMIS-PRO-FM-375, *Management of Central Warehouse Facilities and Stored Material*  
CPCC-MP-EN-54929, *System Engineer Program*  
CPCC-MP-MN-40443, *Nuclear Maintenance Management Program (NMMP) Description Document*  
CPCC-MP-MS-19361, *CH2M HILL Plateau Remediation Company Project Execution Plan*  
CPCC-PRO-AC-40480, *Acquisition Planning*  
CPCC-PRO-AC-16405, *Submittal Management System*  
CPCC-PRO-EN-097, *Engineering Design and Evaluation (Natural Phenomena Hazard)*  
CPCC-PRO-EN-129, *Controlling Spare Parts Inventory*  
CPCC-PRO-EN-286, *Testing of Equipment and Systems*  
CPCC-PRO-EN-440, *Engineering Document Change*  
CPCC-STD-EN-52773, *Third Party Inspections*  
CPCC-PRO-EN-2001, *Facility Modification Package Process*  
CPCC-PRO-EN-8016, *Design Change Notice Process*  
CPCC-PRO-EN-8017, *As-Built Verification Process*  
CPCC-PRO-EN-8323, *Management of HEPA Filter Systems*  
CPCC-PRO-EN-8336, *Design Verification*  
CPCC-PRO-EN-20050, *Engineering Configuration Management*  
CPCC-PRO-EN-24208, *HEPA Filter System Degradation Evaluation Process*  
CPCC-PRO-EN-40189, *Commercial Grade Dedication Process*  
CPCC-PRO-EN-40264, *Formal Design Review*  
CPCC-PRO-EN-40271, *Engineering Design Process*  
CPCC-PRO-EN-40357, *Engineering Software Management*  
CPCC-PRO-EN-40259, *Engineering Calculations*  
CPCC-PRO-IRM-10588, *Records Management Processes*  
CPCC-PRO-MN-490, *Calibration Management Program*  
CPCC-PRO-QA-268, *Control of Purchased/Acquired Items and Services*  
CPCC-PRO-QA-283, *Control of Inspections*  
CPCC-PRO-QA-3144, *Supplier Quality Assurance Program Evaluation*  
CPCC-PRO-QA-19579, *OCRWM Records Management*  
CPCC-PRO-RP-1622, *Radiological Design Review Process*  
CPCC-PRO-WKM-12115, *Work Management*  
CPCC-RD-IRM-8310, *Document Control Processes*  
CPCC-STD-TQ-40175, *Engineering Training Program Description*  
DOE G 252.1-1, *Technical Standards Program Guide*  
DOE-STD-1073-2003, *Configuration Management*  
Enforcement Guidance Supplement 99-01: *Enforcement of 10 CFR Part 830.120 [Quality Assurance Rule] for Facilities below Hazard Category III*  
HNF-7098, *Criticality Safety Program*  
HNF-11724, *Central Plateau Cleanup Company Safety Management Programs*  
HNF-54800, *2018 Hanford Site Sustainability Plan*

**Engineering Requirements**

Published Date: 12/31/25

Effective Date: 12/31/25

**Appendix A - Activities Which Mandate Licensed Professional Engineer Stamp or Certification**

<b>Activity</b>	<b>Requirement Description</b>	<b>Requirement Source</b>	<b>Implementing Procedure</b>
RCRA Permit Modification Requests (PMRs) / Dangerous Waste Permit Applications (DWPAs)	<p>IQRPE Certification:</p> <p>Independent Qualified Registered Professional Engineer (IQRPE) certification is required under certain conditions when proposing PMAs or DWPAs:</p> <ul style="list-style-type: none"> <li>– <u>Design Assessment Certifications</u>: A written design assessment report for new, final status Units ensuring that the design meets applicable criteria (e.g., foundation, structural support, and waste compatibility).</li> <li>– <u>Construction/Installation Certifications</u>: A post-inspection certification that the construction and/or installation for a new Unit and/or component(s) conforms to modification requirements.</li> <li>– <u>Integrity Assessment Certifications</u>: A certification that the Unit current design (i.e., existing Unit operating under interim status), repairs to previously certified systems or structures (e.g., landfill liner systems, or containment buildings), or drafted design (i.e., new Unit constructed under final status) meets applicable regulatory requirements (i.e., waste compatibility of a tank system).</li> </ul>	<p>WAC 173-303-335 WAC 173 303 610 WAC 173-303-640 WAC 173-303-665 WAC 173-303-695 40 CFR 264.1101 40 CFR 264, Subpart DD 40 CFR 265.192</p>	CPCC-PRO-RP-15335

**Engineering Requirements**

Published Date: 12/31/25

Effective Date: 12/31/25

**Appendix A - Activities Which Mandate Licensed Professional Engineer Stamp or Certification**

<b>Activity</b>	<b>Requirement Description</b>	<b>Requirement Source</b>	<b>Implementing Procedure</b>
Dangerous and/or Mixed Waste Tank Systems / Components	<p>IQRPE Inspection:</p> <p><u>Tank-System Specific:</u> For new dangerous and/or mixed waste tank systems and new tank system components, the responsible manager shall ensure engineering services procured meet the independence criteria of WAC 173 303 for inspections. The <u>Independent Qualified Registered Professional Engineer (IQRPE)</u> or independent qualified installation inspector, or representative, shall be present onsite during the required installation inspections.</p>	<p>WAC 173-303-640,(3) 40 CFR 265.191 40 CFR 265.192</p>	CPCC-PRO-EP-15332, 2.6.4
	<p>IQRPE Certification:</p> <p><u>Containment-Building Specific:</u> For new containment buildings, certification shall be obtained by a qualified registered professional engineer that the containment building design meets the requirements of 40 CFR 264/265.1101 (a-c).</p>	<p>WAC 173-303-695 WAC 173-303-400, (3)  40 CFR 264.1101 (a-c) 40 CFR 265.1101 (a-c)</p>	CPCC-PRO-EP-15332, 2.6.6
Spill Prevention Control and Countermeasure (SPCC) Plans	<p>IQRPE Certification:</p> <p>The SPCC Plan shall be reviewed and certified by a registered professional engineer that the plan meets the requirements for preparation and implementation.</p>	<p>40 CFR 112.3(d) 40 CFR 112.7 40 CFR 112.8</p>	<p>CPCC-PRO-EP-15332, 2.9.2 CPCC-PRO-EP-15333, 5.9.6</p>

**Engineering Requirements**

Published Date: 12/31/25

Effective Date: 12/31/25

**Appendix A - Activities Which Mandate Licensed Professional Engineer Stamp or Certification**

<b>Activity</b>	<b>Requirement Description</b>	<b>Requirement Source</b>	<b>Implementing Procedure</b>
Spill Prevention Control and Countermeasure (SPCC) Plans	<p>IQRPE Certification:</p> <p>Amendments to an SPCC Plan shall be made within 6 months after there is a change; the amended SPCC Plan must be reviewed and approved by a registered professional engineer.</p>	40 CFR 112.5(a)(c)	CPCC-PRO-EP-15332, 2.17.4 CPCC-PRO-EP-15333, 5.17.3.d
Large Onsite Sewage System (LOSS)	<p>Professional Engineer Stamp:</p> <p>Before a new LOSS is used, have a professional engineer stamp, sign, and submit a LOSS construction report to the Clean Water Act SME for transmittal to WDOH within 45 days following the completion of construction of the LOSS including:</p> <ul style="list-style-type: none"> <li>• A completed form stating the LOSS was constructed in accordance with WDOH's approved plans and specifications, and an "as built" or "record" drawing.</li> <li>• An operation and maintenance manual developed by a professional engineer for the installed LOSS.</li> </ul>	CPCC-PRO-EP-15332	CPCC-PRO-EP-15333, 5.8.5.e

## Engineering Requirements

Published Date: 12/31/25

Effective Date: 12/31/25

## Appendix A - Activities Which Mandate Licensed Professional Engineer Stamp or Certification

Activity	Requirement Description	Requirement Source	Implementing Procedure
Treatment, Storage, and/or Disposal (TSD) Unit Design and Construction	<p>IQRPE Certification:</p> <p>Construct or modify the unit according to the approved Permit or Permit modification. Ensure an IQRPE is involved as follows:</p> <p>a. If a new dangerous waste tank system, or tank system component is to be added or a major repair is to be performed, obtain the engineering services of an IQRPE to assess whether the design system meets WAC 173-303-640 for final status tank systems or 40 CFR 265.192 for interim status tank systems.</p> <p>b. If a new containment building is to be added, obtain an IQRPE to certify that the containment building is designed to meet the requirements of 40 CFR 264 (for final status tank systems) or 40 CFR 265.1101(a-c) (for interim status tank systems).</p>	<p>WAC 173-303-640</p> <p>40 CFR 264 40 CFR 265.192 40 CFR 265.1101(a-c)</p>	CPCC-PRO-EP-15335, 5.13.10
	<p><i>NOTE: The independent, qualified installation inspector or independent, qualified, Registered Professional Engineer is an independent individual consistent with the regulatory provisions for IQRPEs or Independent Qualified Installation Inspector.</i></p>		

**Engineering Requirements**

Published Date: 12/31/25

Effective Date: 12/31/25

**Appendix A - Activities Which Mandate Licensed Professional Engineer Stamp or Certification**

<b>Activity</b>	<b>Requirement Description</b>	<b>Requirement Source</b>	<b>Implementing Procedure</b>
Treatment, Storage, and/or Disposal (TSD) Unit Design and Construction	e. If a physical alteration or addition to a Solid Waste Operations Complex (SWOC) Dangerous Waste Management Unit (DWMU) classifies as a RCRA Class 2 or 3 permit modification, obtain an IQRPE to certify that the physical modification is in compliance with the modification submitted to Ecology. Arrange for the certification to be submitted to Ecology. (See Agreed Order and Stipulated Penalty No. DE 10156, Appendix A, Section 1.12.)		
Scaffolding	Professional Engineer Stamp:  Tube and coupler and tubular welded frame scaffolds over 125 feet in height, pole scaffolds over 60 feet in height, and all outrigger beam scaffolds and their components shall be designed by a registered professional engineer.	29 CFR 1926.452, (a) and (b)	MSC-PRO-WP-095
Excavation, Trenching, Shoring	Professional Engineer Stamp:  The Hanford Site classifies soil as Type C, per 29 CFR 1926, Subpart P. Soil that is considered any other classification must be verified by a Hanford Site Prime Contractor's Registered Professional Engineer (RPE) prior to excavation.	29 CFR 1926 Subpart P	DOE-0344, Section 4.0
	Professional Engineer Stamp:  Registered Professional	29 CFR 1926	DOE-0344, Section 5.3.4.7

**Engineering Requirements**

Published Date: 12/31/25

Effective Date: 12/31/25

**Appendix A - Activities Which Mandate Licensed Professional Engineer Stamp or Certification**

<b>Activity</b>	<b>Requirement Description</b>	<b>Requirement Source</b>	<b>Implementing Procedure</b>
	<p>Engineer (RPE) approval is required when:</p> <ul style="list-style-type: none"> <li>a. Excavation activities near buildings/structures may cause property damage or pose additional hazards to employees.</li> <li>b. Excavation depth exceeds 20 feet; verify protective systems have been designed by an RPE when personnel are exposed to potential excavation hazards.</li> </ul> <p><i>NOTE: 29 CFR 1926.652 (Appendices A, B, D, and E), manufacturer specifications, other tabulated data, or design approved by an RPE are used for shoring or shielding support systems.</i></p>		
Ecology Blocks	<p>Professional Engineer Stamp:</p> <p>Ecology Blocks shall be designed by a licensed professional engineer.</p>		CPCC-PRO-EN-097, 2.4.2
Pressure System Design	<p>Professional Engineer Stamp:</p> <p>When national consensus codes are not applicable (because of pressure range, vessel geometry, use of special materials, etc.), contractors must implement measures to provide equivalent protection and ensure a level of safety greater than or equal to the level of protection afforded by the ASME or applicable state or local code. Measures must</p>	10 CFR 851, Appendix A, Section 4	CPCC-STD-EN-52736, Section 2.1.c

**Engineering Requirements**

Published Date: 12/31/25

Effective Date: 12/31/25

**Appendix A - Activities Which Mandate Licensed Professional Engineer Stamp or Certification**

<i>Activity</i>	<i>Requirement Description</i>	<i>Requirement Source</i>	<i>Implementing Procedure</i>
	include the following:  (1) Design drawings, sketches, and calculations must be reviewed and approved by a qualified independent design professional (i.e., professional engineer). Documented organizational peer review is acceptable.		
Public Water Systems	Professional Engineer Stamp:  Ensure all design drawings, Facility Modification Packages, Engineering Change Notices, and Specifications for any water systems are stamped by a Washington State Licensed Professional Engineer.	WAC 246-290-120 (5)	MSC-PRO-WS-27075, 4.1.6