

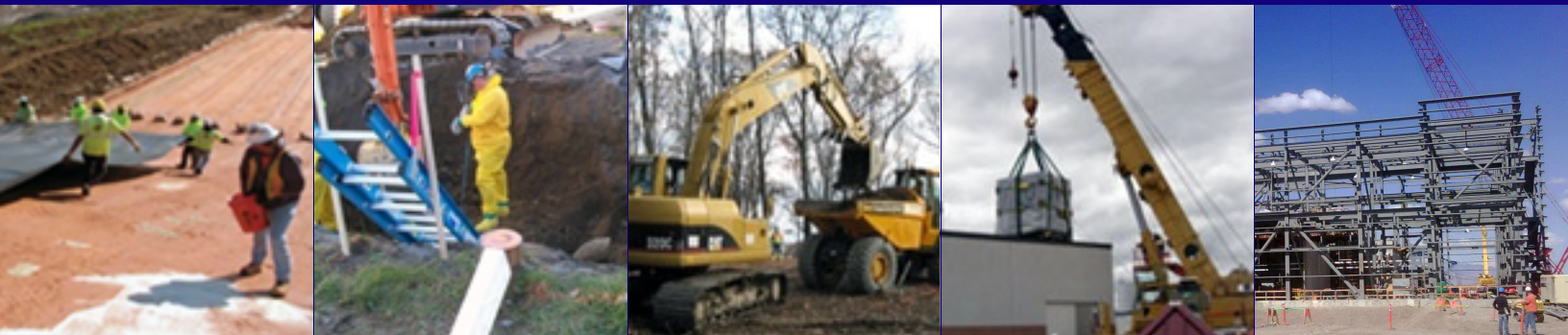


**DOE - EM - SRP - 2010**  
**2nd Edition**

**Environmental Management**  
*Safety ▪ Performance ▪ Cleanup ▪ Closure*

# STANDARD REVIEW PLAN (SRP)

## SEISMIC DESIGN EXPECTATIONS REPORT



**CORPORATE CRITICAL DECISION (CD) REVIEW AND  
APPROVAL FRAMEWORK ASSOCIATED WITH NUCLEAR FACILITY CAPITAL AND  
MAJOR CONSTRUCTION PROJECTS**

MARCH 2010

OFFICE OF ENVIRONMENTAL MANAGEMENT  
U.S. DEPARTMENT OF ENERGY  
WASHINGTON D. C. 20585

**OFFICE OF ENVIRONMENTAL MANAGEMENT**

**Standard Review Plan (SRP)**

**Seismic Design Expectations Report (SDER)**

<b>Critical Decision (CD) Applicability</b>					
<b>CD-0</b>	<b>CD-1</b>	<b>CD-2</b>	<b>CD-3</b>	<b>CD-4</b>	<b>Post Operation</b>
✓	✓	✓	✓	✓	✓



**March 2010**

This Review Module was used to develop the Review Plan for the Oak Ridge Bldg. 3019 60% design review as part of the overall Construction Project Review conducted in 2009. Lessons learned from this review have been incorporated in the current version of the Module.

## FOREWORD

The Standard Review Plan (SRP)<sup>1</sup> provides a consistent, predictable corporate review framework to ensure that issues and risks that could challenge the success of Office of Environmental Management (EM) projects are identified early and addressed proactively. The internal EM project review process encompasses key milestones established by DOE O 413.3A, Change 1, *Program and Project Management for the Acquisition of Capital Assets*, DOE-STD-1189-2008, *Integration of Safety into the Design Process*, and EM's internal business management practices.

The SRP follows the Critical Decision (CD) process and consists of a series of Review Modules that address key functional areas of project management, engineering and design, safety, environment, security, and quality assurance, grouped by each specific CD phase.

This Review Module provides the starting point for a set of corporate Performance Expectations and Criteria. Review teams are expected to build on these and develop additional project-specific Lines of Inquiry, as needed. The criteria and the review process are intended to be used on an ongoing basis during the appropriate CD phase to ensure that issues are identified and resolved.

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<sup>1</sup> *The entire EM SRP and individual Review Modules can be accessed on EM website at <http://www.em.doe.gov/Pages/Safety.aspx>, or on EM's internet Portal at <https://edoe.doe.gov/portal/server.pt> Please see under /Programmatic Folder/Project Management Subfolder.*

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## ACRONYMS

ANS	American Nuclear Society
ANSI	American National Standard Institute
ASCE	American Society of Civil Engineers
CD	Critical Decision
DOE	Department of Energy
EM	Environmental Management
I&C	Instrument and Control
FPD	Federal Project Director
LOI	Lines of Inquiry
NPH	Natural Phenomena Hazard
SDC	Seismic Design Categories
SDER	Seismic Design Expectations Report
SEI	Structural Engineering Institute
SRP	Standard Review Plan
SSC	Structures, Systems, and Components

SSI                      Soil Structure Interaction

TEDE                    Total Effective Dose Equivalent

## **I. INTRODUCTION**

It is the policy of the Department of Energy (DOE) to design, construct, operate, and decommission DOE facilities so that workers, the general public, environment, and properties are protected from the impacts of natural phenomena hazards (NPHs) and other hazards on DOE facilities. Designing a new facility to protect NPHs is more cost-effective than back fitting to achieve the same NPH protection after the structures, systems, and components are completed and in service.

The NPHs include seismic, wind, flood, and lightning. This report only focuses on the seismic design expectations. NPH safety requirements are described in 10 CFR Part 830, *Nuclear Safety Management*, DOE O 420.1B, *Facility Safety*, and DOE-STD-1189-2008, *Integration of Safety into the Design Process*. The seismic design criteria contained in Appendix A of DOE-STD-1189-2008 are invoked by DOE O 413.3A, Change 1, *Program and Project Management for the Acquisition of Capital Assets*. Also, the implementation of these requirements are supported by the DOE 420 series guides, DOE 1020 series technical standards, and external consensus standards published by American National Standard Institute (ANSI), American Nuclear Society (ANS), American Society of Civil Engineers (ASCE), and Structural Engineering Institute (SEI).

## **II. PURPOSE OF THIS REPORT**

The Seismic Design Expectations Report (SDER) is a tool that assists DOE federal project review teams in evaluating the technical sufficiency of the project seismic design activities prior to Critical Decision (CD) approvals at CD-0, CD-1, CD-2, CD-3 and CD-4. This SDER provides performance objectives and criteria for facility design, evaluation and construction of seismic mitigation features to ensure:

- Life safety – protect occupants of DOE facilities from building collapse and other failures that could endanger their lives or prevent safety exit;
- Cost-effectiveness – provide cost-effective engineering solutions to protect capital investments in structures or to reduce the risk of property damage from seismic-induced accidents and effects;
- Continued operation – assure continued operation of essential facilities after an earthquake, including one-of-the-kind Environmental Management (EM) facilities needed to support critical EM mission.
- Confinement of hazardous materials – assure protection of workers, public, environment, and property against exposure to hazardous materials.

## **III. ROLES AND RESPONSIBILITIES**

A critical element of seismic design review is the qualifications, training and most importantly the experience of the personnel selected to conduct the review. To the maximum extent possible, the

personnel selected to participate in the reviews should have “on the ground”, first-hand experience (as opposed to an oversight role) in seismic and structural engineering.

The core review team personnel should include individuals possessing qualification and experience, including the following areas:

- Geotechnical, Geologic and Geophysical Engineering
- Seismic Hazard Assessment
- Soil-Structure Interaction Analyses (SSI)
- Civil-Structural Design
- Systems and components (electrical, I&C, mechanical) analyses
- NPH Performance Categorization and Seismic Design Categorization

The table below provides a compilation of seismic design review roles and responsibilities.

Position	Responsibility
Field Element Manager	Provides support and resources to the FPD and Review Team Leader in carrying out the seismic design review. This review can be conducted as part of the overall design reviews for pre-conceptual, conceptual, preliminary, and final design reviews.
	Facilitates the conduct of the seismic design review. Assigns office space, computer equipment, and support personnel to the team as necessary to accomplish the review in the scheduled time frame
Federal Project Director	Coordinates with the Review Team Leader in the selection of technical areas for the review and in developing the review criteria.
	In conjunction with the Contractor Project Manager, develops the briefing materials and schedule for the review activities.
	Coordinates the review team pre-visit activities and follows up review team requests for personnel to interview or material to review.
	Coordinates the necessary training and orientation activities to enable the review team members to access the facility and perform the review.
	Unless other personnel are assigned, acts as the site liaison with the review team. Tracks the status of requests for additional information.
	Coordinates the Federal site staff factual accuracy review of the draft report.
	Leads the development of the corrective action plan if required. Tracks the corrective actions resulting from the review.
Review Team Leader	In coordination with the Federal Project, selects the areas to be reviewed.
	Based on the project complexity and hazards involved, selects the members of the review team.



Position	Responsibility
	Verifies the qualifications: technical knowledge; process knowledge; facility specific information; and independence of the Team Members.
	Leads the seismic design review pre-visit, if needed.
	Leads the review team in completing the Lines of Inquiry for the various areas to be reviewed.
	Coordinates the development of and forwards to the Federal Project Director, the data call of documents, briefings, interviews, and presentations needed for the review.
	Forwards the final review plan to the Field Element Manager for approval
	Leads the on-site portion of the review.
	Ensures the review team members complete and document their portions of the review. Coordinates the characterization of the significance of the findings.
	Coordinates the review team handling of factual accuracy comments by Federal and Contractor personnel on the draft report.
	Remains available as necessary to participate in the closure verification of the findings from the review report.
Review Team Member	Refines and finalizes the Lines of Inquiry for the appropriate area of the review.
	Develops and provides the data call of documents, briefings, interviews, and presentations needed for his or her area of the review.
	Completes training and orientation activities necessary for the review. Conducts any necessary pre-visit document review.
	Participates in the on-site review activities, conducts interviews, document reviews, walk downs, and observations as necessary.
	Based on the criteria and review approaches in the Review Plan, assesses whether his/her assigned criteria have been met.
	Documents the results of the review for his or her areas. Prepares the review report.
	Makes recommendations to the Review Team Leader for characterization of findings in his or her area of review.
	Resolves applicable Federal and Contractor factual accuracy comments on the draft review report.
	Prepares the final review report for his or her area of review.
	Concurs in the findings for his or her area of the review.

#### **IV. REVIEW SCOPE AND CRITERIA**

The scope of the Seismic Design Expectations Report (SDER) is focused on the key technical aspects of seismic design requirements, guidance, and best practices to be implemented during pre-conceptual, conceptual, preliminary, final design, and operations. This report provides the review team with a “straw-man” template from which they may derive and pursue Lines of Inquiry that are applicable to the specific type of facility being designed and constructed.

The scope of the SDER is captured by performance objectives and criteria for specific life cycle phases of the project or facility from contract and procurement, CD-0, CD-1, CD-2, CD-3, CD-4, and post CD-4. For each phase, Appendix A of this report provides overall performance objectives and then a subset of review criteria that satisfy each performance objective. These performance objectives and review criteria will provide consistent guidance to review teams to develop their project-specific Lines of Inquiry.

#### **V. REVIEW PLANS AND DOCUMENTATION**

The results of a seismic design review based on the seismic design expectations will be used by the DOE FPD and ultimately the Acquisition Executive to help determine whether project funds may be authorized for the next Critical Decision phase. It is important to clearly document the methods, assumptions and results of the seismic design review. This review can be conducted as part of other project reviews, including conceptual, preliminary, and final design. The overall Standard Review Plan (SRP) provides guidelines for preparing a Review Plan and a final report.

The following activities should be conducted as part of the Review Plan development and documentation or closure of the review:

- Subsequent to the selection, formation and chartering of the review team and receipt and review of the prerequisite documents, assignment of responsibilities for the development of specific LOIs should be made.
- The review team members should develop specific LOIs using the topics and areas listed in the Appendix A of this module.
- The individual LOIs should be compiled and submitted to the review team leader authorizing the review for concurrence prior to starting the review.
- The project-specific review plan should be compiled with a consistent and uniform numbering scheme that provides a unique identifier for each line of inquiry, arranged by subject area (e.g. Management-Personnel and Qualifications, Management-Processes and Systems, Technical-Civil, etc.) such that the results of each LOI can be documented and tracked to closure.
- The LOIs should be satisfied via document review and personnel interviews and any combination of these methods. The method used, the basis for closure/comment/finding, and the result of the inquiry should all be documented and tracked.

## VI. REFERENCE MATERIAL

- DOE O 420.1B, *Facility Safety*
- DOE G 420.1-1, *Nonreactor Nuclear Safety Design Criteria and Explosive Safety Criteria Guide*
- DOE G 420.1-2, *Guide for the Mitigation of Natural Phenomena Hazards for DOE Nuclear Facilities and Nonnuclear Facilities*
- DOE-STD-1189-2008, *Integration of Safety into the Design Process*
- DOE-STD-3009, Change Notice No. 3, March 2006, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses*
- DOE-STD-1020-2002, *Natural Phenomena Hazards Design and Evaluation Criteria for Department of Energy Facilities*
- DOE-STD-1021-93, *Natural Phenomena Hazards Performance Categorization Criteria for Structures, Systems, and Components*
- DOE-STD-1022-94, *Natural Phenomena Hazards Site Characterization Criteria*
- DOE-STD-1023-95, *Natural Phenomena Hazards Assessment Criteria*
- ANSI/ANS 2.26-2004, *Categorization of Nuclear Facility Structures, Systems and Components for Seismic Design*
- ASCE/SEI 43-05, *Seismic Design Criteria for Structures, Systems, and Components in Nuclear Facilities*
- ANSI/ANS-2.27-2008, *Criteria for Investigations of Nuclear Facility Sites for Seismic Hazard Assessments*
- ANSI/ANS-2.29-2008, *Probabilistic Seismic Hazard Analysis*

**APPENDIX A – PERFORMANCE AND CRITERIA**

*Legend of Seismic Design Review Topics*

Review Topical Area	Identifier
Seismic Design Expectations for Contract and Procurement Review	CP
Seismic Design Expectations prior to CD-0 for Mission Need Determination	C0
Seismic Design Expectations prior to CD-1 for Conceptual Design	C1
Seismic Expectations prior to CD-2 for Preliminary Design	C2
Seismic Expectations prior to CD-3 for Final Design	C3
Seismic Expectations prior to CD-4 for Start of Operations	C4
Seismic Expectations post CD-4	OP

ID #	Performance Objectives and Criteria <sup>2 3</sup>	Met?
<b>Seismic Design Expectations for Contract and Procurement Review</b>		
CP-1	<i>Does the Contract or the Request for Proposals include an overview of the NPH design requirements for the facility?</i>	
CD-2	<i>Does the Contract or the Request for Proposals reference any applicable site NPH-related standards and/or NPH analysis standards?</i>	
CP-3	<i>Does the Contract or the Request for Proposals stipulate any required geotechnical investigations and engineering to be performed in support of facility design, while referencing any pertinent existing information such as geotechnical reports from nearby facilities, regional geotechnical data, etc?</i>	
CP-4	<i>Does the Contract or the Request for Proposals define the expected peer reviews of geotechnical, structural, and seismic design, as well as the requirement for a Structural Summary Report?</i>	
<b>Seismic Design Expectations prior to CD-0 for Mission Need Determination</b>		
C0-1	Has existing, relevant geologic, seismologic, and geotechnical information, such as that listed in ANSI/ANS-2.27-2008, Section 4, been identified for the potential sites?	
C0-2	Does the mission need statement include an assessment of existing geologic, seismologic, geotechnical, and other NPH-related information for the potential sites, as required by ANSI/ANS-2.27-2008, Section 4.3.1?	

<sup>2</sup> Questions based on best practices are italicized.

<sup>3</sup> The site should provide the technical bases and assumptions that support the answers provided to each Line of Inquiry. If possible, the review teams should independently verify the technical bases and assumptions.

ID #	Performance Objectives and Criteria <sup>2 3</sup>	Met?
C0-3	<i>Has a schedule for a geologic, seismologic, and geotechnical site investigation plan, supporting completion early in the preliminary design phase, been established?</i>	
C0-4	<i>If an existing NPH assessment requires updating, is there a schedule for completing this update?</i>	
C0-5	<i>Have a structural design plan and seismic analysis plan been initiated? (These plans establish requirements, codes of record, and analysis and design methods. If an existing facility will undergo a major modification, then codes of record must be updated.)</i>	
C0-6	Have the need and schedule for a peer review team to address geotechnical, seismic, and structural design, as well as component qualification, been established, as required by ASCE/SEI 43-05, Section 9.1?	
C0-7	<i>For Major Modification project, has the material condition of the existing facility been determined?</i>	
C0-8	<i>For Major Modification project, have the NPH mitigation features for the new mission been evaluated against the existing facility's performance categorization?</i>	
<b>Seismic Design Expectations prior to CD-1 for Conceptual Design</b>		
C1-1	Have geologic, seismologic, and geotechnical site investigation plans been completed, as required by ANSI/ANS-2.27-2008, Section 4.3.2, and is execution well underway, using a graded approach appropriate for the potential seismic hazard as required by DOE O 420.1B, Chapter IV?	
C1-2	Are the NPH loads for the facility appropriately determined for the conceptual design, as required by ASCE/SEI 43-05, Section 3.1?	
C1-3	<i>Does the sizing of the facility account for the estimated NPH loads?</i>	
C1-4	<i>Have the structural design plan and seismic analysis plan been finalized?</i>	
C1-5	Has development of structural and seismic analysis models, as required by ASCE/SEI 43-05, Sections 3 and 4, been initiated?	
C1-6	Have any necessary alternative studies related to structural and seismic analysis and design been completed, as recommended by DOE-STD-1189-2008, Section 3.2?	
C1-7	Has an initial "seismic equipment list" of safety-related SSCs, listing functions, seismic design categories (SDCs), and acceptable limit states been developed, as recommended by DOE-STD-1189-2008, Appendix A and DOE-STD-1021-93, Section 3.10?	

ID #	Performance Objectives and Criteria <sup>2 3</sup>	Met?
C1-8	<p>Are the criteria for selecting an SDC based on the following methodologies and criteria, as required by Appendix A of DOE-STD-1189-2008?</p> <ul style="list-style-type: none"> <li>• DOE implementation of ANS 2.26 relies on conservative bases for unmitigated accident analysis.</li> <li>• A worker, in the ANS 2.26, is interpreted to mean a collocated worker at a distance of 100 m from a facility (building perimeter) or estimated release point.</li> <li>• For criteria associated with the public, the methodology of assessment to be followed is that of Appendix A of DOE-STD-3009-94, CN 3.</li> <li>• Criteria doses are Total Effective Dose Equivalent (TEDE).</li> <li>• In conceptual design, if there are no bases for defining seismic related DBAs, Hazard Category 2 facility structural designs must default to ANSI/ANS 2.26 SDC-3, Limit State D. If the hazards analysis conducted during subsequent stages of design shows that unmitigated consequences are less than the threshold criteria for SDC-3 shown in Table A-1 below, then this may be reflected in the evolving design stages.</li> <li>• Until ANS 2.27 and ANS 2.29 (which are referenced in ANS 2.26) are formally issued by ANS and adopted by DOE, DOE-STD-1022 and 1023 should continue to be used in seismic design. Note that for other NPHs, DOE STD-1020, 1021, 1022, and 1023 are applicable.</li> </ul>	
C1-9	Has the initial seismic qualification plan for safety-related equipment been developed, as required by ASCE/SEI 43-05, Section 8?	
C1-10	If seismic qualification will use DOE/EH-0545, has DOE approval been obtained?	
C1-11	Has a peer review team for geotechnical, seismic, and structural design, as well as component qualification, been selected as required by ASCE/SEI 43-05, Section 9.1?	
C1-12	Have the SSCs and their safety classifications been proposed for the major safety functions to prevent common cause effects and adverse interactions from NPH events as required by DOE O 420.1B, Chapter IV? For example, loss of offsite power and fire coincident with NPH events should be considered when developing the seismic equipment list.	
C1-13	Are the guidance of DOE G 421.1-2 and DOE-STD-3009, CN3, Appendix A, being used in classifying SSCs as Safety Class for radiological protection?	
C1-14	Is 100 rem TEDE used as the threshold for designation of facility-level SSCs as Safety Significant for the purpose of collocated worker protection, as required by Appendix A of DOE-STD-1189-2008?	
<b>Seismic Design Expectations prior to CD-2 for Preliminary Design</b>		
C2-1	Has any remaining site geotechnical investigation work been completed as required by ANSI/ANS-2.27-2008, Section 4.3.2?	
C2-2	Have any necessary NPH update assessments been completed, as required by DOE O 420.1B, Chapter IV?	
C2-3	Have all appropriate NPH design inputs been identified, including ground motion design spectra, wind speeds, and flooding levels, as required by ASCE/SEI 43-05, Section 3.1 and DOE-STD-1020-2002?	
C2-4	<i>Have the structural design plan and seismic analysis plan been properly revised, if necessary?</i>	

ID #	Performance Objectives and Criteria <sup>2 3</sup>	Met?
C2-5	Has a revised, essentially final, "seismic equipment list" of safety-related SSCs, listing functions, SDCs, and acceptable limit states been developed in coordination with preliminary design safety basis work, as recommended by DOE-STD-1189-2008, Section 3.3 and Appendix A, and DOE-STD-1021-93, Section 3.10?	
C2-6	Has the seismic qualification plan for safety-related equipment been finalized, as required by ASCE/SEI 43-05, Section 8?	
C2-7	<i>Have acceptance criteria documents for structural design, piping design, and equipment design/evaluation been completed?</i>	
C2-8	Are the acceptance criteria appropriate for the SDC and limit state of the individual facility SSCs, as required by ASCE/SEI 43-05, Section 5.2?	
C2-9	<i>Are the acceptance criteria documents appropriately linked to one another?</i>	
C2-10	<i>Are the design calculations being reviewed in-process by DOE reviewers?</i>	
C2-11	Has a seismic structural model, with soil-structure interaction analysis, soil settlement profiles, and critical soil profiles (if necessary), been completed, as required by ASCE/SEI 43-05, Sections 3 and 4?	
C2-12	Has the seismic structural model been executed to develop a preliminary structural design for ensuring adequate load path, as required by ASCE/SEI 43-05, Sections 3 and 4?	
C2-13	Has an initial in-structure floor spectrum been established per ASCE/SEI 43-05, Section 2.3, and have any vulnerable components (those that may be difficult to seismically design and/or require seismic testing) been identified?	
C2-14	Has a peer review of geotechnical, seismic, and structural design, as well as component qualification, been completed, as required by ASCE/SEI 43-05, Section 9.1?	
C2-15	<i>Do the project structural engineers demonstrate a sound understanding of the load path?</i>	
C2-16	<i>Are appropriate finite element techniques and established calculation procedures being used in structural modeling and design?</i>	
C2-17	<i>Are the applicable national codes and standards being used appropriately?</i>	
C2-18	Are the estimated loads on the facility SSCs, calculated per ASCE/SEI 43-05, Sections 3 and 4, consistent with the conceptual design SDC and limit state for the individual SSCs?	
C2-19	<i>Do the design calculations reflect the most current facility layout?</i>	
C2-20	Does the shear distribution in the structure, calculated per ASCE/SEI 43-05, Sections 3 and 4, appear reasonable?	
C2-21	<i>Are the piping and equipment sizes and weights appropriately accounted for in the structural calculations?</i>	
C2-22	<i>If active confinement is not required after a seismic event, has a justification been provided?</i>	
<b>Seismic Design Expectations prior to CD-3 for Final Design and Start of Construction</b>		
C3-1	Has the final design of the structure been developed, as required by DOE O 413.3A, Section 5.d. (4) and ASCE/SEI 43-05, Sections 3 and 4?	
C3-2	Has a final "seismic equipment list" of safety-related SSCs, listing functions, SDCs, and acceptable limit states been developed, as recommended by DOE-STD-1189-2008 Section 3.4 and Appendix A, and DOE-STD-1021-93 Section 3.10? (The final version should include piping and instrumentation diagrams indicating SSC boundaries.)	

ID #	Performance Objectives and Criteria <sup>2 3</sup>	Met?
C3-3	Has the seismic qualification of safety-related equipment been completed, as required by ASCE/SEI 43-05, Section 8?	
C3-4	<i>Have acceptance criteria documents been updated to reflect changes to the facility layout and/or changes to the SDC or limit state of the individual facility SSCs?</i>	
C3-5	<i>Are the design calculations being reviewed in-process by DOE reviewers?</i>	
C3-6	Have the final in-structure floor spectra been developed, as required by ASCE/SEI 43-05, Section 2.3?	
C3-7	Has a final peer review report of the geotechnical, seismic, and structural design, as well as component qualification, been completed, as required by ASCE/SEI 43-05, Section 9.1?	
C3-8	<i>Does the finite element model reflect the latest design drawings?</i>	
C3-9	Has the structural load path been refined, and is the shear distribution in the structure, calculated per ASCE/SEI 43-05, Sections 3 and 4, reasonable?	
C3-10	Are design calculations, per ASCE/SEI 43-05, Sections 3 and 4, consistent with the latest changes to the SDC or limit state of individual facility SSCs?	
C3-11	<i>Are the current estimates of the piping and equipment size and weight used in the design?</i>	
<b>Seismic Design Expectations prior to CD-4 for Start of Operations</b>		
C4-1	Are the as-built conditions reflected in the final version of the drawings prior to startup, as required by DOE O 420.1B, Chapter V, and DOE-STD-1073-2003?	
C4-2	Are field changes appropriately evaluated by engineering prior to execution, as required by DOE O 420.1B, Chapter V, and DOE-STD-1073-2003?	
C4-3	If the facility will contain hazardous materials, does it have instrumentation or other means to detect and record the occurrence and severity of seismic events, as required by DOE O 420.1B, Chapter IV?	
C4-4	If the facility will contain hazardous materials, are procedures in place for inspecting for damage from NPH events and placing the facility into a safe configuration if damage occurs, as required by DOE O 420.1B, Chapter IV?	
C4-5	<i>If post-seismic event operator actions are required, is this addressed in emergency response procedures?</i>	
<b>Seismic Design Expectations for post CD-4</b>		
OP-1	Are the SSCs maintained in accord with the final design drawings or as-built drawings, as required by DOE O 420.1B, Chapter V, and DOE-STD-1073-2003?	
OP-2	Are changes to the SSCs appropriately analyzed by engineering to remain consistent with the design basis, as required by DOE O 420.1B, Chapter V, and DOE-STD-1073-2003?	
OP-3	Is the NPH assessment review conducted at least every 10 years and recommendations made to DOE for updating the existing assessments based on significant changes found in the methods and data, as required by DOE O 420.1B, Chapter IV?	