Chapter 3 Design of Structures, Components, Equipment, and Systems

3.1 Conformance with NRC General Design Criteria

This section of the referenced is incorporated by reference with no departures or supplements.

3.2 Classification of Structures, Systems and Components

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

STD CDI

Add the following sentence at the end of Section 3.2

There are no site specific safety related or non-safety related RTNSS systems beyond the scope of the DCD.

Table 3.2-1 Classification Summary

Replace the note for System P73 with the following.

STD CDI

The site-specific plant design includes the HWCS. See Subsection 9.3.9 for further details.

Replace the note for System P74 with the following.

STD CDI

The site-specific plant design does not include the Zinc Injection System.

3.3 Wind and Tornado Loadings

This section of the referenced DCD is incorporated by reference with no departures or supplements.

3.4 Water Level (Flood) Design

This section of the referenced DCD is incorporated by reference with no departures or supplements.

3.5 Missile Protection

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

3.5.1.5 Site Proximity Missiles (Except Aircraft)

Add the following sentence after the first sentence in the first paragraph.

STD SUP 3.5-1

Site-specific missile sources are addressed in Section 2.2.

3.5.1.6 Aircraft Hazards

Add the following at the end of the first paragraph.

STD SUP 3.5-2

Site-specific aircraft hazard analysis and the site-specific critical areas are addressed in Section 2.2.

3.6 Protection Against Dynamic Effects Associated with the Postulated Rupture of Piping

This section of the referenced DCD is incorporated by reference with no departures or supplements.

3.7 Seismic Design

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

3.7.1.1 Design Ground Motion

Add the following at the end of this section.

EF3 SUP 3.7-7

Figure 2.0-201 and Figure 2.0-202 provide the CSDRS, which envelope the site-specific design groundmotions (the FIRS) for the RB/FB and CB. Figure 2.0-203 and Figure 2.0-204 also provide the CSDRS, which envelope the site-specific design ground motions (the FIRS) for the FWSC. The lower of the two CSDRS is that shown on Figure 2.0-201 and Figure 2.0-202. Therefore, the site-specific SSE applicable for plant shut down purposes is the CSDRS as shown in Figure 2.0-201 and Figure 2.0-202.

The operating basis earthquake (OBE) is one-third of the lower of these two sets of design groundmotion response spectra. That is, the OBE for the site is one-third of the CSDRS as shown in Figure 2.0-201 and Figure 2.0-202. These SSE and OBE definitions are used in conjunction with the

criteria specified in DCD Section 3.7.4.4 to determine whether a plant shutdown is required following a seismic event.

EF3 SUP 3.7-1

3.7.1.1.4 **Site-Specific Design Ground Motion Response Spectra**

The site-specific design Ground Motion Response Spectra (GMRS) and the FIRS are described in Subsection 2.5.2. The CSDRS are compared with the FIRS in Table 2.0-201.

EF3 SUP 3.7-2

3.7.1.1.5 **Site-Specific Design Ground Motion Time History**

As shown in Table 2.0-201, the CSDRS fully envelope the site specific FIRS, and the Fermi 3 site parameters meet the requirements of the DCD for foundation bearing capacities,minimum shear wave velocity, and liquefaction potential. Therefore, site-specific earthquake ground motion time history is not developed to match the GMRS/FIRS.

3.7.1.3 **Supporting Media for Seismic Category I Structures**

Add the following at the end of the first paragraph.

EF3 SUP 3.7-3

Subsection 2.5.4 provides site-specific properties of subsurface materials.

3.7.2.4 **Soil-Structure Interaction**

Add the following at the end of the first paragraph.

EF3 SUP 3.7-4

Subsection 2.5.4 describes the site-specific properties of subsurface materials.

3.7.2.8 **Interaction of Non-Category I Structures with Seismic Category I Structures**

Add the following at the end of this section.

EF3 SUP 3.7-5

The locations of structures are provided in Figure 2.1-204. Non-Category I structures within the scope of the DCD are addressed in the DCD. Non-Category I structures outside the scope of the DCD are located at least a distance of its height above grade from Seismic Category I structures.

Thus, the collapse of any site specific non-Category I structure, system, or component will not cause the non-Category I structure, system, or component to strike a Seismic Category I structure, system, or component.

3.7.4 **Seismic Instrumentation**

Add the following at the end of this section.

EF3 SUP 3.7-6

[START COM 3.7-001] The seismic monitoring program described in this subsection, including the necessary test and operating procedures, will be implemented prior to receipt of fuel on site. **[END COM 3.7-001]**

3.8 Seismic Category I Structures

This section of the referenced DCD is incorporated by reference with no departures or supplements.

3.9 Mechanical Systems and Components

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

3.9.2.4 **Initial Startup Flow-Induced Vibration Testing of Reactor Internals**

Replace the last paragraph with the following.

EF3 COL 3.9.9-1-A

The vibration assessment program, as specified in RG 1.20, is provided in DCD Appendix 3L and the following referenced GEH Reports.

- NEDE-33259P, “Reactor Internals Flow Induced Vibration Program”
- NEDE-33312P, “Steam Dryer - Acoustic Load Definition”
- NEDE-33313P, “Steam Dryer - Structural Evaluation”
- NEDC-33408P, “ESBWR Steam Dryer - Plant Based Load Evaluation Methodology”
- NEDC-33408P, Supplement 1, “ESBWR Steam Dryer - Plant Based Load Evaluation Methodology Supplement 1”

The classification of the Fermi 3 reactor internals in accordance with RG 1.20 is dependent on ESBWR status, i.e. if Fermi 3 is the initial ESBWR

to perform testing of the reactor internals, or if testing is performed at another reactor prior to Fermi 3 testing. There are two different scenarios:

1. A valid prototype for the Fermi 3 reactor internals does not exist. Under this scenario, Fermi 3 reactor internals is classified as a prototype per Regulatory Guide 1.20.
2. A valid prototype for Fermi 3 reactor internals does exist. If the prototype testing is performed outside the United States, the guidance in Regulatory Guide 1.20, Revision 3, Regulatory Position 1.2 would need to be satisfied in order for this reactor to be considered a “valid prototype”. Assuming that Fermi 3 reactor internals are substantially similar to the valid prototype and that the valid prototype does not experience inservice problems that result in component or operational modifications, Fermi 3 reactor internals will be classified as non-prototype category I. If any changes to classification for Fermi 3 reactor internals are later determined to be necessary, the classification change will be addressed at the time the change is proposed with proper evaluation/justification and documented in a revision to the FSAR.

[START COM-FSAR-3.9-001] The comprehensive vibration assessment program will be developed and implemented as described in DCD Appendix 3L with no departures. The vibration measurement and inspection programs will comply with the guidance specified in RG 1.20, Revision 3, consistent with the Fermi 3 reactor internals classification. A summary of the vibration analysis program and description of the vibration measurement (including measurement locations and analysis predictions) and inspection phases of the comprehensive vibration inspection program will be submitted to the NRC six months prior to implementation. **[END COM-FSAR-3.9-001]**

[START COM-FSAR-3.9-006] The preliminary and final reports (as necessary), which together summarize the results of the vibration analysis, measurement and inspection programs will be submitted to the NRC within 60 and 180 days, respectively, following the completion of the programs. **[END COM-FSAR-3.9-006]**

3.9.3.1 Loading Combinations, Design Transients and Stress

	Limits
	Replace the last sentence with the following.
STD COL 3.9.9-2-A	**[START COM 3.9-002]** The piping stress reports identified in this DCD section will be completed within six months of completion of DCD ITAAC Table 3.1-1. **[END COM 3.9-002] [START COM 3.9-004]** The FSAR will be revised as necessary in a subsequent update to address the results of this analysis. **[END COM 3.9-004]**
	3.9.3.7.1(3)e **Snubber Preservice and Inservice Examination and Testing**
	Preservice Examination and Testing
	Add the following at the end of this section.
STD COL 3.9.9-4-A	A preservice thermal movement examination is also performed; during initial system heatup and cooldown, for systems whose design operating temperature exceeds 121°C (250°F), snubber thermal movement is verified. Additionally, preservice operational readiness testing is performed on all snubbers. The operational readiness test is performed to verify the parameters of ISTD-5120. Snubbers that fail the preservice operational readiness test are evaluated to determine the cause of failure, and are retested following completion of corrective action(s). Snubbers that are installed incorrectly or otherwise fail preservice testing requirements are re-installed correctly, adjusted, modified, repaired or replaced, as required. Preservice examination and testing is re-performed on installation- corrected, adjusted, modified, repaired or replaced snubbers as required. The preservice inspection and testing programs for snubbers will be completed in accordance with milestones described in Section 13.4.
	Inservice Examination and Testing
	Add the following at the beginning of this section.

STD COL 3.9.9-4-A Inservice examination and testing of all safety-related snubbers is conducted in accordance with the requirements of the ASME OM Code, Subsection ISTD. Inservice examination is initially performed not less than two months after attaining 5 percent reactor power operation and will be completed within 12 calendar months after attaining 5 percent reactor power. Subsequent examinations are performed at intervals defined by ISTD-4252 and Table ISTD-4252-1. Examination intervals, subsequent to the third interval, are adjusted based on the number of unacceptable snubbers identified in the then current interval.

An inservice visual examination is performed on all snubbers to identify physical damage, leakage, corrosion, degradation, indication of binding, misalignment or deformation and potential defects generic to a particular design. Snubbers that do not meet visual examination requirements are evaluated to determine the root cause of the unacceptability, and appropriate corrective actions (e.g., snubber is adjusted, repaired, modified, or replaced) are taken. Snubbers evaluated as unacceptable during visual examination may be accepted for continued service by successful completion of an operational readiness test.

Snubbers are tested inservice to determine operational readiness during each fuel cycle, beginning no sooner than 60 days before the scheduled start of the applicable refueling outage. Snubber operational readiness tests are conducted with the snubber in the as-found condition, to the extent practical, either in place or on a test bench, to verify the test parameters of ISTD-5210. When an in-place test or bench test cannot be performed, snubber subcomponents that control the parameters to be verified are examined and tested. Preservice examinations are performed on snubbers after reinstallation when bench testing is used (ISTD-5224), or on snubbers where individual subcomponents are reinstalled after examination (ISTD-5225).

Defined test plan groups (DTPG) are established and the snubbers of each DTPG are tested according to an established sampling plan each fuel cycle. Sample plan size and composition are determined as required for the selected sample plan, with additional sampling as may be required for that sample plan based on test failures and failure modes identified. Snubbers that do not meet test requirements are evaluated to determine root cause of the failure, and are assigned to failure mode groups (FMG) based on the evaluation, unless the failure is considered unexplained or isolated. The number of unexplained snubber failures not assigned to an

FMG determines the additional testing sample. Isolated failures do not require additional testing. For unacceptable snubbers, additional testing is conducted for the DTPG or FMG until the appropriate sample plan completion criteria are satisfied.

Unacceptable snubbers are adjusted, repaired, modified, or replaced. Replacement snubbers meet the requirements of ISTD-1600. Post-maintenance examination and testing, and examination and testing of repaired snubbers, is done to ensure that test parameters that may have been affected by the repair or maintenance activity are verified acceptable.

Service life for snubbers is established, monitored and adjusted as required by ISTD-6000 and the guidance of ASME OM Code Nonmandatory Appendix F .

The inservice inspection and testing programs for snubbers will be completed in accordance with milestones described in Section 13.4.

Delete the last two sentences of the last paragraph.

3.9.3.7.1(3)f **Snubber Support Data**

Replace the first sentence with the following.

STD COL 3.9.9-4-A

[START COM 3.9-003] For the ASME Class 1, 2, and 3 systems listed in DCD Tier 1, Section 3.1, that contain snubbers, a plant specific table will be prepared in conjunction with the closure of the system-specific ITAAC for piping and component design and will include the following specific snubber information. **[END COM 3.9-003]**

Add the following at the end of this section.

STD COL 3.9.9-4-A

[START COM 3.9-005] This information will be included in the FSAR as part of a subsequent FSAR update. **[END COM 3.9-005]**

3.9.6 **Inservice Testing of Pumps and Valves**

Replace the last sentence of the last paragraph with the following.

STD COL 3.9.9-3-A Milestones for implementation of the ASME OM Code preservice and inservice testing programs are defined in Section 13.4.

3.9.6.1 Inservice Testing of Valves

Add the following before the last paragraph.

STD. COL 3.9.9-3-A Each valve subject to inservice testing is also tested during the preservice test (PST) period. Preservice tests are conducted under conditions as near as practicable to those expected during subsequent inservice testing. Valves (or the control system)that have undergone maintenance that could affect performance, or valves that are repaired or replaced, are re-tested to verify performance parameters that could have been affected are within acceptable limits. Safety and relief valves and nonreclosing pressure relief devices are preservice tested in accordance with the requirements of the ASME OM Code, Mandatory Appendix I.

3.9.6.1.4 Valve Testing

Add the following at the end of the introduction to this section

STD COL 3.9.9-3-A Other specific testing requirements for power-operated valves include stroke-time testing and, as applicable, diagnostic testing to evaluate valve condition and to verify the valve will continue to function under design-basis conditions.

(1) Valve Excercise Tests

Add the following after the second sentence of the first paragraph.

STD COL 3.9.9-3-A Valves are tested by full-stroke exercising, during positions required to fulfill their functions.

Add the following after the third sentence of the first paragraph.

STD COL 3.9.9-3-A If full-stroke exercising is not practicable, part-stroke exercising is performed during operation at power or during cold shutdown.

Add the following new paragraph after the first paragraph

STD COL 3.9.9-3-A

During extended shutdowns, valves that are required to be operable must remain capable of performing their intended safety function. Exercising valves during cold shutdown commences within 48 hours of achieving cold shutdown and continues until testing is complete or the plant is ready to return to operation at power. Valve testing required to be performed during a refueling outage is completed before returning the plant to operation at power.

Add the following after the first sentence of the second paragraph.

STD COL 3.9.9-3-A

Valve testing uses reference values determined from the results of PST or IST. These tests that establish reference values are performed under conditions as near as practicable to those expected during the IST. Stroke time is measured and compared to the reference value, except for valves classified as fast-acting (e.g., solenoid-operated valves (SOVs) with stroke time less than 2 seconds), for which a stroke time limit of 2 seconds is assigned.

Add the following after the third paragraph.

STD COL 3.9.9-3-A

SOVs are tested to confirm the valves move to their energized positions and are maintained in those positions, and to confirm that the valves move to the appropriate failure mode positions when de-energized. Pre-conditioning of valves or their associated actuators or controls prior to IST undermines the purpose of IST and is prohibited. Pre-conditioning includes manipulation, pre-testing, maintenance, lubrication, cleaning, exercising, stroking, operating, or disturbing the valve to be tested in any way, except as may occur in an unscheduled, unplanned, and unanticipated manner during normal operation

(4) Special Tests

Add the following after the second paragraph under the second bullet.

STD COL 3.9.9-3-A

Industry and regulatory guidance is considered in development of IST program for explosively actuated valves. In addition, the IST program for explosively actuated valves incorporates lessons learned from the design and qualification process for these valves such that surveillance activities

provide reasonable assurance of the operational readiness of explosively actuated valves to perform their safety functions.

3.9.6.1.5 **Specific Valve Test Requirements**

(1) Power-Operated Valve Tests

Replace the last paragraph with the following

STD COL 3.9.9-3-A

Subsection 3.9.6.8 describes additional (non-Code) testing of power-operated valves as discussed in Regulatory Issue Summary 2000-03.

(3) Check Valve Excercise Tests

Add the following as the first sentence of the second paragraph.

STD COL 3.9.9-3-A

Check valve testing requires verification that obturator movement is in the direction required for the valve to perform its safety function.

Add the following before the last paragraph.

STD COL 3.9.9-3-A

Acceptance criteria for this testing consider the specific system design and valve application. For example, a valve's safety function may require obturator movement in both open and closed directions. A mechanical exerciser may be used to operate a check valve for testing. Where a mechanical exerciser is used, acceptance criteria are provided for the force or torque required to move the check valve's obturator. Exercise tests also detect missing, sticking, or binding obturators.

If these test methods are impractical for certain check valves, or if sufficient flowcannot be achieved or verified, a sample disassembly examination program verifies valve obturator movement. The sample disassembly examination program groups check valves by category of similar design, application, and service condition.

During the disassembly process, the full-stroke motion of the obturator is verified. Nondestructive examination is performed on the hinge pin to assess wear, and seat contact surfaces are examined to verify adequate contact. Full-stroke motion of the obturator is re-verified immediately prior

to completing reassembly. At least one valve from each group is disassembled and examined at each refueling outage, and all the valves in each group are disassembled and examined at least once every eight years. Before being returned to service, valves disassembled for examination or valves that received maintenance that could affect their performance are exercised with a full- or part-stroke. Details and bases of the sampling program are documented and recorded in the test plan.

When operating conditions, valve design, valve location, or other considerations prevent direct observation or measurements by use of conventional methods to determine adequate check valve function, diagnostic equipment and nonintrusive techniques are used to monitor internal conditions. Nonintrusive tests used are dependent on system and valve configuration, valve design and materials, and include methods such as ultrasonic (acoustic), magnetic, radiography, and use of accelerometers to measure system and valve operating parameters (e.g., fluid flow, disk position, disk movement, disk impact, and the presence or absence of cavitation and back-tapping). Nonintrusive techniques also detect valve degradation. Diagnostic equipment and techniques used for valve operability determinations are verified as effective and accurate under the PST program.

Testing is performed, to the extent practical, under normal operation, cold shutdown, or refueling conditions applicable to each check valve. Testing includes effects created by sudden starting and stopping of pumps, if applicable, or other conditions, such as flow reversal. When maintenance that could affect valve performance is performed on a valve in the IST program, post-maintenance testing is conducted prior to returning the valve to service.

Preoperational testing is performed during the initial test program (refer to Section 14.2) to verify that valves are installed in a configuration that allows correct operation, testing, and maintenance. Preoperational testing verifies that piping design features accommodate check valve testing requirements. Tests also verify disk movement to and from the seat and determine, without disassembly, that the valve disk positions correctly, fully opens or fully closes as expected, and remains stable in the open position under the full spectrum of system design-basis fluid flow conditions.

Data acquired during check valve testing and inspections, and the maintenance history of a valve or group of valves is collected and

maintained in order to establish the basis for specifying inservice testing, examination, and preventive maintenance activities that will identify and/or mitigate the failure of the check valves or groups of check valves tested. This data is also used to determine if certain check valve condition monitoring tests, such as nonintrusive tests, are feasible and effective in monitoring for these identified failure mechanisms, whether periodic disassembly and examination activities would be effective in monitoring for these failure mechanisms, as well as to determine possible valve groupings to implement in a future check valve condition monitoring program as allowed by ISTC-5222, the requirements of which are described in ASME OM Code, Appendix II.

3.9.6.5 **Valve Replacement, Repair and Maintenance**

Add the following to the end of the paragraph.

STD COL 3.9.9-3-A

When a valve or its control system has been replaced, repaired, or has undergone maintenance that could affect valve performance, a new reference value is determined, or the previous value is reconfirmed by an inservice test. This test is performed before the valve is returned to service, or immediately if the valve is not removed from service. Deviations between the previous and new reference values are identified and analyzed. Verification that the new values represent acceptable operation is documented.

3.9.6.6 **10 CFR 50.55a Relief Requests and Code Cases**

Add the following at the end of the first paragraph.

STD SUP 3.9-1

No relief from or alternative to the ASME OM Code is being requested.

3.9.6.7 **Inservice Testing Program Implementation**

Delete the last paragraph

3.9.6.8 **Non-Code Testing of Power-Operated Valves**

Replace the second sentence of the first paragraph with the following.

STD COL 3.9.9-3-A These tests, which are typically performed under static (no flow or pressure) conditions, also document the "baseline" performance of the valves to support maintenance and trending programs.

Replace the fifth sentence of the first paragraph with the following.

STD COL 3.9.9-3-A Uncertainties associated with performance of these tests and use of the test results (including those associated with measurement equipment and potential degradation mechanisms) are addressed appropriately.

Replace the last sentence of the first paragraph with the following.

STD COL 3.9.9-3-A Uncertainties affecting both valve function and structural limits are addressed.

Replace the second paragraph with the following.

STD COL 3.9.9-3-A Additional testing is performed as part of the air-operated valve (AOV) program, which includes the key elements for an AOV Program as identified in the JOG AOV program document, Joint Owners Group Air Operated Valve Program Document, Revision 1, December 13, 2000 (Reference 3.9-201) and (Reference 3.9-202). The AOV program incorporates the attributes for a successful power-operated valve long-term periodic verification program, as discussed in RIS 2000-03, Resolution of Generic Safety Issue 158: Performance of Safety-related Power- Operated Valves Under Design Basis Conditions, (Reference 3.9-203) by incorporating lessons learned from previous nuclear power plant operations and research programs as they apply to the periodic testing of air- and other power- operated valves included in the IST program. For example, key lessons learned addressed in the AOV program include:

- Valves are categorized according to their safety significance and risk ranking.
- Setpoints for AOVs are defined based on current vendor information or valve qualification diagnostic testing, such that the valve is capable of performing its design-basis function(s).
- Periodic static testing is performed, at a minimum on high risk (high safety significance) valves, to identify potential degradation, unless

those valves are periodically cycled during normal plant operation under conditions that meet or exceed the worst case operating conditions within the licensing basis of the plant for the valve, which would provide adequate periodic demonstration of AOV capability. If required based on valve qualification or operating experience, periodic dynamic testing is performed to re-verify the capability of the valve to perform is required functions.

- Sufficient diagnostics are used to collect relevant data (e.g., valve stem thrust and torque, fluid pressure and temperature, stroke time, operating and/or control air pressure, etc.) to verify the valve meets the functional requirements of the qualification specification.
- Test frequency is specified, and is evaluated each refueling outage based on data trends as a result of testing. Frequency for periodic testing is in accordance with (Reference 3.9-201) and (Reference 3.9-202), with a minimum of 5 years (or 3 refueling cycles) of data collected and evaluated before extending test intervals.
- Post-maintenance procedures include appropriate instructions and criteria to ensure baseline testing is re-performed as necessary when maintenance on the valve, valve repair or replacement, have the potential to affect valve functional performance.
- Guidance is included to address lessons learned from other valve programs in procedures and training specific to the AOV program.
- Documentation from AOV testing, including maintenance records and records from the corrective action program are retained and periodically evaluated as a part of the AOV program.

The attributes of the AOV testing program described above, to the extent that they apply to and can be implemented on other safety-related power-operated valves, such as electro-hydraulic valves, are applied to those other power-operated valves.

3.9.7 **Risk-Informed Inservice Testing**

Replace this section with the following.

STD SUP 3.9-2

Risk informed inservice testing is not being utilized.

3.9.8 Risk-Informed Inservice Inspection of Piping

Replace this section with the following.

STD SUP 3.9-3 Risk informed inservice inspection is not being utilized.

3.9.9 COL Information

3.9.9-1-A Reactor Internals Vibration Analysis, Measurement and Inspection Program

EF3 COL 3.9.9-1-A This COL item is addressed in Subsection 3.9.2.4.

3.9.9-2-A ASME Class 2 or 3 or Quality Group D Components with 60 Year Design Life

STD COL 3.9.9-2-A This COL item is addressed in Subsection 3.9.3.1.

3.9.9.3-A Inservice Testing Programs

STD COL 3.9.9-3-A This COL item is addressed in Subsection 3.9.6.

3.9.9.4-A Snubber Inspection and Test Program

STD COL 3.9.9-4-A This COL item is addressed in Subsection 3.9.3.7.1(3)e and Subsection 3.9.3.7.1(3)f.

3.9.10 References

3.9-201 Joint Owners Group Air Operated Valve Program Document, Revision1, December 13, 2000.Joint Owners Group Air Operated Valve Program Document, Revision 1, December 13, 2000.

3.9-202 USNRC, Eugene V. Imbro, letter to Mr. David J. Modeen, Nuclear Energy Institute, Comments On Joint Owners' Group Air Operated Valve Program Document, October 8, 1999.

3.9-203 Regulatory Issue Summary 2000-03, Resolution of Generic Safety Issue 158: Performance of Safety-related Power-Operated Valves Under Design Basis Conditions, March 15, 2000.

3.10 Seismic and Dynamic Qualification of Mechanical and Electrical Equipment

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

3.10.1.4 Dynamic Qualification Report

Replace the last paragraph with the following.

STD COL 3.10.4-1-A

[START COM 3.10-003] Detroit Edison shall submit to the NRC, no later than 1 year after issuance of the combined license or at the start of construction as defined in 10 CFR 50.10(a), whichever is later, its implementation schedules for completing of the following ITAACs. Detroit Edison shall submit updates to the ITAAC schedules every 6 months thereafter and, within 1 year of its scheduled date for initial loading of fuel, and shall submit updates to the ITAAC schedules every 30 days until the final notification is provided to the NRC under paragraph (c)(1) of this section." **[END COM 3.10-003]**

[START COM 3.10-001] The Dynamic Qualification Report and documentation that describe the seismic and dynamic qualification methods will be made available for NRC staff review, inspection, and audit. Information that verifies the seismic and dynamic qualification will be made available to the NRC to facilitate reviews, inspections, and audits throughout the process. **[END COM 3.10-001] [START COM 3.10-002]** FSAR information will be revised, as necessary, as part of a subsequent FSAR update. **[END COM 3.10-002]**

STD SUP 3.10-1

Section 17.5 defines the Quality Assurance Program requirements that are applied to equipment qualification files, including requirements for handling safety-related quality records, control of purchased material, equipment and services, test control, and other quality related processes.

3.10.4 COL Information

STD COL 3.10.4-1-A

3.10.4-1-A Dynamic Qualification Report

This COL item is addressed in Subsection 3.10.1.4.

3.11 Environmental Qualification of Mechanical and Electrical Equipment

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

3.11.4.4 Environmental Qualification Documentation

Replace the last paragraph with the following.

STD COL 3.11-1-A

The documentation necessary to support the continued qualification of the equipment installed in the plant that is within the Environmental Qualification (EQ) Program scope is available in accordance with 10 CFR 50 Appendix A, General Design Criterion 1. EQ files are maintained for equipment and certain post-accident monitoring devices that are subject to a harsh environment. The files are maintained for the operational life of the plant.

Central to the EQ Program is the EQ Master Equipment List (EQMEL). The EQMEL identifies the electrical and mechanical equipment or components that must be environmentally qualified for use in a harsh environment. The EQMEL consists of equipment that is essential to emergency reactor shutdown, containment isolation, reactor core cooling, or containment and reactor heat removal, or that is otherwise essential in preventing a significant release of radioactive material to the environment. This list is developed from the equipment list provided in DCD Table 3.11-1. The EQMEL and a summary of equipment qualification results are maintained as part of the equipment qualification file for the operational life of the plant.

Administrative programs are in place to control revisions to the EQ files and the EQMEL. When adding or modifying components in the EQ Program, EQ files are generated or revised to support qualification. The EQMEL is revised to reflect these new components. To delete a component from the EQ Program requires a deletion justification to be prepared that demonstrates why the component can be deleted. This justification consists of an analysis of the component, an associated circuit review, if appropriate and a safety evaluation. The justification is released and/or referenced on the appropriate change document.

For changes to the EQMEL, supporting documentation is completed and approved prior to issuing the changes. This documentation includes safety reviews and new or revised EQ files. Plant modifications and design basis changes are subject to change process reviews, e.g., reviews in accordance with 10 CFR 50.59 or the change control requirements of the ESBWR-specific appendix to 10 CFR Part 52, in accordance with appropriate plant procedures. These reviews address EQ issues associated with the activity. Any changes to the EQMEL that are not the result of a modification or design basis change are subject to a separate review that is accomplished and documented in accordance with plant procedures.

Engineering change documents or maintenance documents generated to document work performed on an EQ component are reviewed against the current revision of the EQ files for potential impact. Changes to EQ documentation may be due to, but not limited to, plant modifications, calculations, corrective maintenance, or other EQ concerns.

The operational aspects of the EQ program include:

- Evaluation of EQ results for design life to establish activities to support continued EQ
- Determination of surveillance and preventive maintenance activities based on EQ results
- Consideration of EQ maintenance recommendations from equipment vendors
- Evaluation of operating experience in developing surveillance and preventive maintenance activities for specific equipment
- Development of plant procedures that specify individual equipment identification, appropriate references, installation requirements, surveillance and maintenance requirements, post-maintenance testing requirements, condition monitoring requirements replacement part identification, and applicable design changes and modifications
- Development of plant procedures for reviewing equipment performance and EQ operational activities, and for trending the results to incorporate lessons learned through appropriate modifications to the operational EQ program
- Development of plant procedures for the control and maintenance of EQ records

Implementation of the environmental qualification program, including development of the plant specific Environmental Qualification Document (EQD), will be in accordance with the milestone defined in Section 13.4.

3.11.7 COL Information

3.11-1-A Environmental Qualification Document

STD COL 3.11-1-A This COL item is addressed in Subsection 3.11.4.4.

STD SUP 3.12-1

3.12 Piping Design Review

Information on seismic Category I and II, and nonseismic piping analysis and their associated supports is presented in DCD Sections 3.7, 3.9, 3D, 3K, 5.2 and 5.4.

STD SUP 3.13-1

3.13 Threaded Fasteners - ASME Code Class 1, 2, and 3

Criteria applied to the selection of materials, design, inspection and testing of threaded fasteners (i.e., threaded bolts, studs, etc.) are presented in DCD Section 3.9.3.9, with supporting information in DCD Sections 4.5.1, 5.2.3, and 6.1.1.

Appendix 3A Seismic Soil-Structure Interaction Analysis

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

3A.1 Introduction

Replace the last sentence in the second paragraph with the following.

EF3 CDI Site-specific geotechnical data is described in Chapter 2. This data is compatible with the site enveloping parameters considered in the standard design.

3A.2 ESBWR Standard Plant Site Plan

Replace the first two sentences of the first paragraph with the following.

EF3 CDI

The site plan is shown in Figure 2.1-204. The plan orientation is denoted on the figure.

Appendix 3B Containment Hydrodynamic Load Definitions

This section of the referenced DCD is incorporated by reference with no departures or supplements.

Appendix 3C Computer Programs Used in the Design and Analysis of Seismic Category I Structures

This section of the referenced DCD is incorporated by reference with no departures or supplements.

Appendix 3D Computer Programs Used in the Design of Components, Equipment, and Structures

This section of the referenced DCD is incorporated by reference with no departures or supplements.

Appendix 3E [Deleted]

Appendix 3F Response of Structures to Containment Loads

This section of the referenced DCD is incorporated by reference with no departures or supplements.

Appendix 3G Design Details and Evaluation Results of Seismic Category I Structures

This section of the referenced DCD is incorporated by reference with no departures or supplements.

Appendix 3H Equipment Qualification Design Environmental Conditions

This section of the referenced DCD is incorporated by reference with no departures or supplements.

Appendix 3I Designated NEDE-24326-1-P Material Which May Not Change Without Prior NRC Approval

This section of the referenced DCD is incorporated by reference with no departures or supplements.

Appendix 3J Evaluation of Postulated Ruptures in High Energy Pipes

This section of the referenced DCD is incorporated by reference with no departures or supplements.

Appendix 3K Resolution of Intersystem Loss of Coolant Accident

This section of the referenced DCD is incorporated by reference with no departures or supplements.

Appendix 3L Reactor Internals Flow Induced Vibration Program

This section of the referenced DCD is incorporated by reference with no departures or supplements.