

Chapter 17 Quality Assurance

17.0 Introduction

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

Add the following after the last paragraph.

EF3 SUP 17.0-1

The QAPD applicable to the COL licensee is described in [Section 17.5](#). The licensee's QAPD describes the basis of the program, its scope of activities, and the control of work performed by suppliers.

17.1 Quality Assurance During Design

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

Add the following after the first paragraph.

EF3 SUP 17.1-1

QA applied during COL application preparation and site specific design activities is addressed in [Section 17.5](#).

17.2 Quality Assurance During Construction and Operations

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

Replace the first paragraph with the following.

EF3 COL 17.2-1-A EF3 COL 17.2-2-A

The licensee's Quality Assurance Program in place during the construction and operations phases, including adapting the design to specific plant implementation, is described in [Section 17.5](#).

17.2.1 COL Information

17.2-1-A QA Program for the Construction and Operations Phases

EF3 COL 17.2-1-A

This COL Item is addressed in [Section 17.2](#).

17.2-2-A QA Program for Design Activities

EF3 COL 17.2-2-A

This COL Item is addressed in [Section 17.2](#).

17.3 Quality Assurance Program Description

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

Replace the first and second sentences with the following.

EF3 COL 17.3-1-A

The Quality Assurance Program Document applicable to the licensee is described in [Section 17.5](#).

17.3.1 COL Information

17.3-1-A Quality Assurance Program Document

EF3 COL 17.3-1-A

This COL Item is addressed in [Section 17.3](#).

17.4 Reliability Assurance Program During Design Phase

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

17.4.1 Introduction

Replace the third paragraph with the following.

STD COL 17.4-1-A

[START COM FSAR-17.4-001] The site-specific SSCs within the scope of the Reliability Assurance Program (RAP), including a description of the quality elements for developing and implementing the Design Reliability Assurance Program (D-RAP) (that is, Organization, Design Control, Procedures and Instructions, Records, Corrective Action, and Audit Plans) will be identified prior to the initial fuel load. **[END COM FSAR-17.4-001]**

Replace the fourth paragraph and subsequent bulleted list with the following.

STD COL 17.4-2-A

The objectives of reliability assurance during the operations phase are integrated into the Quality Assurance Program ([Section 17.5](#)), the Maintenance Rule (MR) Program ([Section 17.6](#)), and other operational programs. Specific reliability assurance activities are addressed within operational programs (e.g., maintenance rule, surveillance testing,

inservice testing, inservice inspection, and quality assurance) and the maintenance programs.

The MR Program incorporates the following aspects of operational reliability assurance (refer to [Section 17.6](#)):

- Use of PRA importance measures, the expert panel process, and deterministic methods to determine the list of risk-significant SSCs
- Evaluation and maintenance of the reliability of SSCs in the scope of the D-RAP
- Monitoring the effectiveness of maintenance activities needed for operational reliability assurance
- Classifying, initially, as high-safety-significant, all SSCs that are in the scope of the D-RAP, or applying expert panel review for any exceptions
- Use of historical data and industry operating experience on equipment performance as available
- Use of specific criteria to establish the level of performance or condition being maintained for SSCs within the scope of the MR Program; and use of monitoring to identify declining trends between surveillances and to minimize the likelihood of undetected performance or condition degradation to unacceptable levels, to the extent possible
- Use of maintenance programs to determine the nature and frequency of maintenance activities to be performed on plant equipment, including SSCs within the scope of the MR Program

17.4.6 **SSC Identification/Prioritization**

Add the following new paragraph at the end of this section.

STD COL 17.4-1-H

The list of risk-significant SSCs will be confirmed via ITAAC (see [DCD Tier 1 Table 3.6-1](#)).

17.4.9 **Operational Reliability Assurance Activities**

Replace the second paragraph with the following.

STD COL 17.4-1-H Refer to [Subsection 17.4.1](#) for the implementation of reliability assurance during the operations phase.

17.4.10 Owner/Operator’s Reliability Assurance Program

Replace the fifth bullet with the following.

STD COL 17.4-1-H • **MR Program:** The MR Program is described in [Section 17.6](#).

Replace the last sentence in this section with the following:

Refer to [Subsection 17.4.1](#) for the implementation of reliability assurance activities.

17.4.13 COL Information

17.4-1-A Identification of Site-Specific SSCs Within the Scope of the RAP

STD COL 17.4-1-A This COL Item is addressed in Subsection 17.4.1.

17.4-2-A Operation Reliability Assurance Activities

STD COL 17.4-2-A This COL Item is addressed in [Subsection 17.4.1](#), [Subsection 17.4.6](#), [Subsection 17.4.9](#), [Subsection 17.4.10](#), and [Subsection 17.6](#).

EF3 COL 17.3-1-A **17.5 Quality Assurance Program Description – Design Certification, Early Site Permits, and New License Applicants**

QA applied to the DC activities is described in [DCD Section 17.1](#). ESP QA is not applicable to Fermi 3.

EF3 SUP 17.5-2 The following section describes the quality assurance programs applied to Fermi 3 COLA development activities, and COLA support activities, through anticipated COL issuance, in three phases. The first period began with project initiation including, selection of COLA contractor and OE, conduct of site characterization, information gathering, and initial COLA development. The second period began with the approval of the Nuclear Development Quality Assurance Program Description and ends with submittal of the COLA including activities such as; receipt, review, and acceptance of COLA work product from the

COLA contractor for submittal to the NRC. The third period began with submittal of the COLA and continues through to anticipated COL issuance including updating of the COLA, responding to RAIs and other activities to support NRC review.

The initial phase of the project was to select a COLA contractor. Detroit Edison intended to fully delegate to the COLA contractor the establishment and execution of the QA program related to the COLA project. Accordingly, requests for proposal were solicited only from potential contractors who were established in the nuclear services business, and who were currently executing comparable projects for other potential applicants under a 10 CFR 50 Appendix B QA program. Black & Veatch (B&V), headquartered in Overland Park, Kansas was ultimately selected as the COLA contractor. Detroit Edison formally established a Nuclear Development group to oversee the COLA project and secured the services of an OE to support owner-related activities such as, but not limited to: reactor technology selection, project cost estimates, development of owner's QA program, engineering support services, and COLA contractor oversight. With these organizational and contractual elements in place, COLA development commenced under the B&V 10 CFR 50 Appendix B/NQA-1 QA program. Major work interfaces for activities affecting COLA development including clear and effective lines of communication were established through the implementation of the B&V Project Management Memorandum (PMM) for the Detroit Edison COLA project.

The second phase began as Detroit Edison developed the necessary staffing to support the submittal, review, and subsequent maintenance of the COLA. The increase in staffing also included the addition of an experienced QA professional. At the same time, staff of Nuclear Development drafted the Nuclear Development Quality Assurance Program Document (ND QAPD) and implementing procedures for those elements of the ND QAPD associated with the activities planned to be performed by Detroit Edison at the time (e.g., review of B&V COLA work product).

The Sr. VP Major Enterprise Projects approved for use the ND QAPD, which continued to delegate quality and safety related services for COLA development to B&V (e.g., site characterization, development of conceptual designs). Subsequently, the implementing procedures were approved and the Nuclear Development staff was trained on the

procedures necessary to review and accept the B&V developed COLA products.

The third phase commences with submittal of the Fermi 3 COLA. At this point, the ND QAPD is superseded by the Fermi 3 QAPD submitted as part of the COLA (FSAR Chapter 17, [Appendix 17AA](#)). B&V remains the COLA contractor for Detroit Edison and continues to perform delegated quality functions. Detroit Edison retains responsibility via processes and programs necessary to implement the Fermi 3 QAPD, including procurement control and verification of the effectiveness of B&V's 10 CFR 50 Appendix B/NQA-1 QA program. All COLA activities through anticipated COL issuance will be completed in accordance with the Fermi 3 QAPD, this includes delegating responsibilities as described in Part II, Section 2 of the Fermi 3 QAPD.

EF3 COL 17.2-1-A
EF3 COL 17.2-2-A

QA applied to activities to adapt the design to specific plant implementation, construction, and operations is addressed in the Detroit Edison Fermi 3 QAPD ([Appendix 17AA](#)). The QAPD is based on NEI 06-014A ([Reference 17.5-201](#)).

The implementation milestones for the Operational Quality Assurance Program are provided in [Section 13.4](#)

17.5.1 References

17.5-201 Nuclear Energy Institute, "Quality Assurance Program Description." NEI 06-14A.

STD COL 17.4-1-H

17.6 Maintenance Rule Program

NEI 07-02, "Generic FSAR Template Guidance for Maintenance Rule Program Description for Plants Licensed Under 10 CFR Part 52," ([Reference 17.6-7](#)) is incorporated by reference with the following supplemental information:

STD SUP 17.6-1

The text of the template provided in NEI 07-02 is generically numbered as "17.X." When the template is incorporated by reference into this section, numbering is changed from "17.X" to "17.6."

STD SUP 17.6-3

17.6.1.1. **Maintenance Rule Scoping per 10 CFR 50.65(b)**

In Paragraph 17.6.1.1.b, replace “(DRAP - see FSAR Section 17.Y)” with the following.

(See [Section 17.4](#))

17.6.3 Maintenance Rule Program Relationship with Reliability Assurance Activities

Replace with the following.

STD SUP 17.6-2

Reliability during the operations phase is assured through the implementation of operational programs, i.e., the MR program ([Section 17.6](#)), the Quality Assurance Program ([Section 17.5](#)), the Inservice Inspection Program ([Subsection 5.2.4](#), [Section 6.6](#), and [DCD Section 3.8.1.7.3](#)), and the Inservice Testing Program ([Subsection 3.9.6](#), and [Section 3.9.3.7.1\(3\)e](#)), as well as the Technical Specifications Surveillance Requirements ([Chapter 16](#)), and maintenance programs.


17.6.6 References

17.6-7 Nuclear Energy Institute, “Generic FSAR Template Guidance for Maintenance Rule Program Description for Plants Licensed Under 10 CFR Part 52,” NEI 07-02.

EF3 SUP 17.5-3

Appendix 17AA

**Fermi 3 Quality Assurance Program
Description**

| | | | | | |
|---|--|------------------------------------|---|--|--|
|  <p>DTE Energy <i>Detroit Edison</i></p> | | | Enrico Fermi, Unit 3 Program Description | | |
| Title: Quality Assurance Program Description | | | | | |
| EF3 QAPD | | Revision Number 0 | | | |
| Revision Summary New Document Defines the quality assurance measures to be applied for activities related to design, construction, and operations of an ESBWR at the Fermi 3 site. Incorporates the text from NEI 06-14A, Rev 4 template with Detroit Edison specific information added where appropriate. | | | | | |
| | | | | | |

Detroit Edison Company Fermi 3 Policy

Quality Assurance During Construction and Operation

Detroit Edison Company shall design, procure, construct and operate the Enrico Fermi Nuclear Station, Unit 3 (Fermi 3) nuclear plant in a manner that will ensure the health and safety of the public and workers. These activities shall be performed in compliance with the requirements of the Code of Federal Regulations (CFR), the applicable Nuclear Regulatory Commission (NRC) Facility Operating Licenses, and applicable laws and regulations of the state and local governments.

The Fermi 3 ESBWR Quality Assurance Program (QAP) is the Quality Assurance Program Description (QAPD) provided in this document and the associated implementing documents. Together they provide for control of Fermi 3 activities that affect the quality of safety-related nuclear plant structures, systems, and components and include all planned and systematic activities necessary to provide adequate confidence that such structures, systems, and components will perform satisfactorily in service. The QAPD may also be applied to certain equipment and activities that are not safety-related, but support safe plant operations, or where other NRC guidance establishes program requirements

The QAPD is the top-level policy document that establishes the manner in which the quality is to be achieved and presents Fermi 3's overall philosophy regarding achievement and assurance of quality. Implementing documents assign more detailed responsibilities and requirements and define the organizational interfaces involved in conducting activities within the scope of the QAP. Compliance with the QAPD and implementing documents is mandatory for personnel directly or indirectly associated with implementation of the Fermi 3 QAP.