

February 12, 1987

Docket No. 50-341

Mr. B. Ralph Sylvia
Group Vice President - Nuclear Operations
Detroit Edison Company
6400 North Dixie Highway
Newport, Michigan 48166

Dear Mr. Sylvia:

DISTRIBUTION:

Docket No. 50-341

NRC PDR	Atty, OGC	EMarinos
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Subject: Audit of the Fermi-2 Detailed Control Room Design
Review and Safety Parameter Display System Design

Confirming telephone conversations held with your licensing staff in January 1987, the NRC plans to conduct a combined detailed Control Room Design Review (DCRDR) and Safety Parameter Display System (SPDS) design audit at the Fermi-2 plant site the week of March 16-20, 1987. The agenda for the combined audit is enclosed. Note that the SPDS design audit agenda items are in "bold" type.

In preparation for the audit, it is requested that:

1. DECo make available personnel (including contractors) knowledgeable in each of the DCRDR and SPDS design tasks to discuss the review process and to respond to questions raised by the NRC audit team members during the combined audit period.
2. DECo provide up-to-date documentation of the organization, process and results of the DCRDR and SPDS design efforts to the NRC audit team as required.
3. DECo provide conference and office space for NRC audit team meetings with DECo and for the NRC audit team and its consultants to meet privately.
4. Access be permitted to the control room, simulator, SPDS equipment, and remote shutdown facilities as required by the NRC audit team. Unescorted access to these plant areas will not be required.
5. DECo make arrangements in advance of the NRC audit team's visit to provide all necessary clearances enabling the audit team members to bring camera equipment on site to take photographs in the control room and other plant areas during the DCRDR and SPDS design audit.

The names of, and appropriate identification information for, each NRC audit team member will be communicated separately to your licensing staff at least one week prior to the team's visit.

Additionally, to enable the NRC audit team to prepare for the SPDS design audit, DECo is also requested to provide answers to the following questions and to submit

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PDR ADDCK 05000341
P PDR

Mr. B. Ralph Sylvia
Detroit Edison Company

Fermi-2 Facility

cc:

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U. S. Nuclear Regulatory Commission
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Glen Ellyn, Illinois 60137

formally answers no later than March 1, 1987:

1. On what date was the SPDS declared operational and what was the basis for scheduling that operational date (NRC Order, FSAR commitment, etc.)? If not operational, on what date will the SPDS become operational?
2. On what date was the Verification and Validation program for the SPDS completed?
3. Were the plant operations staff trained in the use of the SPDS equipment and are there SPDS procedures available to them?
4. Has DECo reviewed the SPDS design against problems identified in IE Information Notice 86-10? Have there been similar problems experienced with the Fermi-2 design?
5. Are the SPDS procedures incorporated with the plant Emergency Operating Procedures?
6. Who is the primary user of the SPDS equipment at Fermi-2?
7. Assuming the SPDS is operational, have notifications been made, since the system was declared operational, and on what were the notifications made?
8. Does the Fermi-2 plant operations staff find that the SPDS makes their jobs easier? If so, how? If not, why not?
9. Describe to what extent the plant operations staff is using or relying upon information provided by the SPDS? If the SPDS information is not relied upon, why not?

An advance copy of this letter has been provided to your licensing staff. Should there be any questions concerning this combined audit, please have your staff contact me by telephone at (301) 492-9473. While I will not be a member of the audit team, I do plan to visit the plant during the final 2-3 days of the audit and participate in meetings between the team and DECo.

Sincerely,

/S/

John J. Stefano, Senior Project Manager
BWR Project Directorate No. 3
Division of BWR Licensing

Enclosure:
As Stated

cc: See next page

LA:BWD-3:DBL
EHylton
02/ /87

BWD-3:DBL
JStefano/vag
02/12/87

AC-EICSB
EMarinos
02/12/87

D:BWD-3:DBL
EAdensam
02/12/87

**TENTATIVE AGENDA
FERMI -2
COMBINED SAFETY PARAMETER DISPLAY SYSTEM
AND
DETAILED CONTROL ROOM DESIGN REVIEW AUDIT**

DAY 1, Monday, March 16, 1987

8:30 A.M. **NRC Entrance Briefing FOR SPDS and Introductions**

8:45 A.M. **Description of SPDS design program and current status by utility including:**

- . **Boundaries of the SPDS with respect to the EOF, TSC and/or plant computer**
- . **Basis for parameters displayed**
- . **Human factors analysis, standards, and criteria used in the design process with emphasis on plant specific considerations**
- . **Displays layouts and basis for displays selected**
- . **System reliability and availability:**
 - **Design characteristics to ensure high availability**
 - **Methods used to estimate system availability**
 - **Methods planned to monitor operational availability**
 - **System security provisions**
- . **Data validation methodology used in the SPDS, including data validation performed by any necessary support systems that provide validated data to the SPDS. Possible examples are RVLIS and radiation monitoring.**
- . **Operator training in the use of the SPDS**
- . **System maintenance philosophy and staffing**

SPDS audit activities are indicated in boldface type.
DCRDR audit activities are indicated in normal type.

1:00 P.M.

Description of Verification and Validation (V&V) Program, including:

- Description of the V&V team and discussion of the degree of independence from the design team
- Scope and depth of the V&V Program
- Test cases for validation of SPDS parameters and how they demonstrate the representativeness and usability of the selected parameters for evaluating transient conditions that do not fall within the plant design basis.
- Discussion of SPDS Validation testing
- Verification of human factors aspects of system
- Coordination with other NUREG-0737 initiatives, with emphasis on control room design review (including a short discussion of SPDS-related findings).
- Overview of SPDS V&V documentation

3:00 P.M.

NRC human factors audit of displays, display formats, control devices, access and response times. The audit team will wish to operate or witness operation of the system to access and examine all SPDS display formats. This activity may be conducted in the Control Room, TSC, EOF, Control Room Simulator, or SPDS engineering simulator.

4:00 P.M.

Discussion of outstanding questions resulting from audit of displays.

Day 2, Tuesday, March 17, 1987

8:30 A.M.

DCRDR entrance briefing

9:00 A.M.

Short tour of control room (supports both DCRDR and SPDS audit.)

10:00 A.M.

NRC questions and review of V&V documentation. As part of the V&V documentation review, the audit team will want to select sample SPDS requirements and trace their implementation through hardware and software specifications, source code, verification testing, integrated system testing, and field installation testing. The audit team will review documentation of V&V activities for each step. To support this review, all existing system documentation in the following categories should be available for the SPDS and any necessary supporting systems that provide validated data to the SPDS.

System functional requirements documents

Hardware and software specifications

Algorithm descriptions, and source code

Emergency operating procedures

Data validity criteria

Software and hardware verification test procedures and results

System validation test procedures and results

System availability study

Documentation of independent verification reviews of functional requirements documents, hardware and software specifications, algorithms, test procedures, and results.

Drawings that document the make and type of SPDS electrical isolators and the interconnection of the isolators with safety-related inputs and the SPDS.

10:00 A.M.*

Discussion of DCRDR activities and review of supporting documentation.

DCRDR Team

- Discussion of team members qualifications, responsibilities, assignments, and level of effort in specific tasks.

Operating Experience Review

- Discussion of process and results.

Operator Interviews

- Discussion of process and results.

1:00 P.M.*

Review the System Function and Task Analysis (SFTA) and comparison of operator needs with the control room inventory.

***Concurrent with audit of SPDS V&V documentation.**

- Brief overview of System Function and Task Analysis, control room inventory and comparison process by utility.
 - Audit team to select a procedure and step-through procedure reviewing task analysis, inventory and comparison documentation.
- 4:00 P.M.
- Discussion of open items resulting from the SFTA step-through.
 - Identification of outstanding questions resulting from the V&V documentation review

Day 3, Wednesday, March 18, 1987

- 8:30 A.M. Run through of plant-specific scenarios that involve monitoring of shutdown/start-up reactivity confirmation of containment isolation, monitoring of reactor building radiation levels and hydrogen and oxygen concentration, and trends and monitoring of gaseous releases. The run through should be performed by a plant operator who is familiar with SPDS operation and should make use of plant emergency operating procedures. The run through will be most effective if it is performed using the control room simulator. However, use of any SPDS display that can be driven by simulated plant transient data is acceptable.
- 1:00 P.M. Discussion of outstanding questions
- 2:00 P.M. NRC audit team caucus
- 3:00 P.M. SPDS Exit Briefing

Day 4, Thursday, March 19, 1987

- 8:30 A.M. Review of control room survey
- Discussion of survey process and HED documentation by utility.
 - Review of HED documentation.

- 10:00 A.M. NRC "Mini-Audit" of control room
- 1:00 P.M. Comparison of "mini-audit" findings with utility identified HEDs
- 2:30 P.M. Review of HED assessment process
- . Discussion of methodology for assessment process.
 - . Discussion of schedule for HED corrective action implementation.
 - . Discussion of audit team questions on specific HED assessments.
 - . Discussion of outstanding questions resulting from survey and assessment reviews.

Day 5, Friday, March 20, 1987

- 8:30 A.M. Review of process for selecting design improvements
- . Discussion of selection methodology, by utility.
 - . Discussion of HED correction schedule, by utility.
 - . Discussion of audit team questions on specific design improvements.
- 10:30 A.M. Review of process to verify HEDs are improved by corrections and do not introduce new HEDs.
- . Discussion of methodology, by utility.
 - . Audit team examination of any verification documentation.
 - documentation of completed verification reviews.
 - procedure(s) for verification review
 - human factors engineering guidelines
- 11:30 A.M. Review of process for coordinating DCRDR with other NUREG 0737 control room initiatives

- . Discussion of process, by utility.
- . Brief review of DCRDR open items.

12:00 P.M.

NRC Caucus

1:00 P.M.

DCRDR Exit Briefing

2:00 P.M.

Combined Audit Completed