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February 1, 1985  
EF2-70235

Mr. James G. Keppler  
Regional Administrator  
Region III  
U. S. Nuclear Regulatory Commission  
799 Roosevelt Road  
Glen Ellyn, Illinois 60137

Dear Mr. Keppler:

Reference: Fermi 2  
NRC Docket No. 50-341

Subject: Detroit Edison Response  
Inspection Report 50-341/84-53

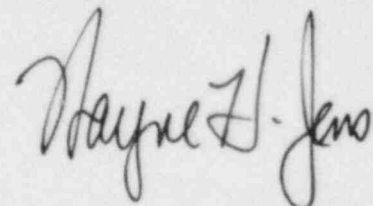
The attached report responds to the items of noncompliance described in your Inspection Report No. 50-341/84-53. This inspection was conducted by Messrs. S. Hara and F. Maura of NRC Region III on November 26-30 and December 1-2, 1984.

The items of noncompliance are discussed in this reply as required by Section 2.201 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations.

The enclosed response is arranged to correspond to the sequence of items cited in the body of the inspection report. The appropriate criterion and the number identifying the item are referenced. Detroit Edison's response to the Inspector's concern regarding the documentation of equipment problems by startup engineers is also included.

We trust this letter satisfactorily responds to the concerns identified in the inspection report. If you have questions regarding this matter, please contact Mr. Lewis Bregni, (313) 586-5083.

Sincerely,



cc: P. M. Byron  
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THE DETROIT EDISON COMPANY

FERMI 2

NUCLEAR OPERATIONS ORGANIZATION

RESPONSE TO NRC REPORT NO. 50-341/84-53

DOCKET NO. 50-341

LICENSE NO. CPPR-87

INSPECTION AT: FERMI 2, NEWPORT, MICHIGAN

INSPECTION CONDUCTED: NOVEMBER 26-30, 1984  
DECEMBER 1 - 2, 1984

Documentation of Equipment Problems

Detroit Edison has been requested to respond to an NRC Inspector's concern that startup engineers may know of equipment problems that have never been properly documented. This concern arose during the Inspector's review of the history of problems associated with position indication for Target Rock Corporation solenoid operated valves E41-F402 and E11-F415. This response addresses the concern and briefly describes the methods used by Detroit Edison to identify, evaluate, and trend equipment problems.

There are eight basic mechanisms used during the preoperational startup testing program to identify problems and/or initiate corrective measures.

- o Design Change Notice/Request, Field Modification Request, and As-Built Record Forms (DCN, DCR, FMR, and ASB) are used to document change requests or field modifications affecting engineering documents. Changes made via this form are reviewed and approved by engineering.
- o Field Deviation Disposition Request and Field Disposition Instruction (FDDR and FDI) are originated by GE site and headquarters personnel, respectively, to address changes in GE designs, equipment, procedures, etc. in conjunction with an FMR or DCR to document any changes affecting Detroit Edison Engineering Documents.
- o Deviation Disposition Requests (DDR) were issued to document and resolve deviations from QA requirements.
- o Nonconformance Reports (NCR) were used to document nonconforming conditions and their resolution.
- o Startup Field Reports (SFR) are used to document problems encountered during preoperational testing for resolution by engineering.
- o Punchlist Cards (PLC) were issued to implement work to be done under the authority of the System Completion Organization (SCO). This work includes the correction of equipment problems required by a DDR, NCR, or DCN/DCR/FMR.
- o PN-21 Attachment A documents work done under the authority of Nuclear Production. This work includes work to diagnose problems and implement corrective action required by a DDR, NCR, or DCN/DCR/FMR.

RESPONSE TO NRC INSPECTION REPORT NO. 50-341/84-53

- o Deviation/Event Report (DER) provides a reporting system which documents the identification, evaluation, corrective action and reporting requirements for conditions adverse to quality and/or nuclear safety. The DER process has replaced the DDR and NCR processes previously discussed.

These methods have provided a means to identify and correct equipment problems as they were discovered during preoperational testing. They provide a record which can be reviewed if an equipment problem with possible generic implications is identified. Additional discussion regarding Detroit Edison's trending activities was provided in our response to NRC Inspection Report 50-341/84-32.

As the Inspector's research revealed, problems with position indication for these valves were documented and investigated when the problems were discovered during local leak rate testing in May 1984. At that time, Detroit Edison requested and received the assistance of the vendor in troubleshooting and correcting the problems with these valves. At that time, these problems were thought to have been resolved.

When the position indication problems recurred in November 1984, they were again documented (DER's 148 and 150) and investigated in accordance with Fermi 2 procedures. The startup engineer's lack of confidence in the design of the position indication which was expressed during the NRC Inspection resulted from the initial inability to diagnose and correct a documented problem. The subsequent investigation revealed that the previous corrective action to prevent recurrence was ineffective because the root cause of the problem, reversed polarity of the actuator coil, was not identified by either Detroit Edison or the vendor prior to December 1984. Refer to Detroit Edison's response to 10CFR50.55(e) Item 142 for additional details regarding the misoperation of these valves.

Even though the circumstances described above indicate that the original misdiagnosis was an isolated occurrence, Detroit Edison is taking action to identify generic problems that may not have been previously identified or satisfactorily dispositioned. Current and former Startup Test Engineers and Technicians are being interviewed to review problems associated with systems on which they have worked. Also, these personnel have been reminded that they will maintain anonymity if they report their concerns through the Nuclear Quality Assurance Quality Concern Report or the SAFETEAM Program.

Statement of Noncompliance 84-53-01

10 CFR 50, Appendix B, Criterion V, as implemented by EF2 Quality Assurance Manual, QAP9, requires that activities affecting quality be accomplished in accordance with documented instructions, procedures, or drawings.

Contrary to the above:

- a. The licensee failed to include in the punchlist, at the time of the jurisdictional transfer of the personnel access hatch from construction to the systems completion organization, two outstanding work items (the removal of wood blocks disabling the door interlocks and the removal of the temporary flange and valve installed on the equalizing valve line) as required by Step 4.1 of Procedure 7.1, "Preparation and Issue of Systems Scope Packages and Punchlist".

In addition, at the time of preoperational testing of the access hatch the licensee failed to document the fact that the equalizing valves exhaust had been field modified by the installation of a flange and manual valve as required by Step 6.6.2.f of preoperational test procedure PRET.T2305.001, Revision 2. As a result of this modification Type B tests performed on the personnel access hatch prior to November 29, 1984 were invalidated.

- b. During the performance of the containment integrated leak rate test (CILRT) Test Change Notice No. 2350 was processed as a minor change in the procedure in violation of Startup Instruction 4.5.1.01, Steps 4.4.2.1 and 5.3. The change modified the intent of the procedure in that it postponed the step which ensured that certain instruments required to be part of the containment boundary were correctly valved. As a result several instruments remained isolated throughout the CILRT.

Corrective Action Taken and Results Achieved

- a. Proper operation of the equalizing line for the inner door of the personnel air lock was prevented by a wood block which prevented the equalizing valve from closing and a temporary flange and manual valve installed on the equalizing line. The wood block, flange and manual valve have been removed and the local leak rate test on the personnel air lock was completed successfully.

Corrective Action Taken and Results Achieved (Cont'd)

The air lock technical manual calls for the installation of a wooden block in the operating mechanism in order to defeat the interlock between the inner and outer door. Defeating the interlock in this manner will also block open the equalizing valve on one of the doors. Once installed, the wooden block is concealed by the cover over the door operating mechanism.

The wooden block was apparently installed by Chicago Bridge and Iron during the construction of the air lock. The flange on the equalizing valve was subsequently installed to allow the initial pressure test at the completion of construction.

The wood block and equalizing valve should have been punchlisted or removed when the air lock was turned over.

- b. During the Primary Containment Integrated Leak Rate Test (PCILRT), some containment instruments were isolated from test pressure and, therefore, were not included in the leak rate test. Subsequent individual leak rate tests have been performed on these instruments and their leak rates have been added to the PCILRT results.

The improper isolation of these instruments resulted from two causes. Some instruments were isolated because of the improper operation of a Target Rock Solenoid valve. Target Rock solenoid valve operation is discussed in this report in response to Noncompliance 84-53-02. The remaining instruments were isolated because of an improper lineup of manually operated instrument isolation valves. The instruments were identified in the procedure as being tested, but the isolation valves were not included in the valve lineup sheet.

Problems with valve lineups isolating instruments should have been detected when containment pressure instruments were monitored for tracking containment pressure during pressurization. This verification was not performed because the personnel responsible for the verification did not receive the communication to start collecting data until the pressure was above 10 PSIG, which exceeded the range of most of the instruments involved. It should be noted that these pressure instruments were not being used to monitor containment test pressure; therefore, the delay in monitoring these instruments posed no safety concern.

Corrective Action Taken and Results Achieved (Cont'd)

With the containment pressure at 10 PSIG, the Test Director was informed that tracking verification of the containment pressure instruments had not been performed. The Test Director recognized that these instruments were not being used to monitor test pressure but failed to recognize that the tracking provided assurance that the instruments were included within the test boundaries. Therefore, minor Test Change Notice 2350 was issued which permitted pressure tracking verification during depressurization and the test was continued.

Verification of instrument tracking was performed during depressurization in accordance with TCN 2350. During depressurization, the problem with instruments being isolated was identified. Consequently, Detroit Edison performed a detailed review of the Test procedures and containment Piping and Instrument Drawings (P&ID) to ensure that any instruments which may have been isolated during the test were earmarked for a local leak rate test. These local leak rate tests have been completed.

Corrective Action Taken to Avoid Further Noncompliance

In response to 84-53-01A, the following action has been taken:

Since the completion of construction phase, procedures have been implemented for the strict control of plant systems' status. A temporary flange and a wood block used to disable an interlock would be considered an abnormal system lineup and would be controlled as such.

In response to 84-53-01B, the following action has been taken:

The PCILRT procedure will require that all instrument isolation valves are included in valve lineups.

Corrective Action for Target Rock solenoid valves is discussed in this report in response to Noncompliance 84-53-02.

A Testing Experience Report describing the circumstances which resulted in several instruments remaining isolated will be prepared. This report will highlight the role that the breakdown in communication had in causing this situation to remain undetected. The Startup Test Engineers (STE) are required to review these reports in order to avoid repetition of identified problems.

Date When Full Compliance Will Be Achieved

- a. Full compliance has been achieved.
- b. The requirements for instrument valve lineups will be included in the procedure the next time the PCILRT is performed. Training of the STE's via the Testing Experience Report will be completed by February 11, 1985.



Statement of Noncompliance 84-53-02

10 CFR 50, Appendix B, Criterion XVI, as implemented by the EF2 Quality Assurance Manual, QAP 17, [sic-QAPR 16] requires that in the case of significant conditions adverse to quality, the licensee shall assure that the cause is determined and prompt corrective action is taken to preclude repetition.

Contrary to the above, although enough information existed at the site regarding problems experienced with the design and failure mechanism of the position indicators used on Target Rock, totally enclosed, air operated valves [sic-valves are solenoid operated] no corrective action was taken to preclude repetition of incorrect valve position indication. As a result two isolation valves were mispositioned during the performance of the containment integrated leak rate test on November 1984.

Corrective Action Taken and Results Achieved

Detroit Edison has reported the improper operation and position indication of the Target Rock solenoid operated valves as 10 CFR 50.55(e) Item 142. An interim report of this item (EF2-70234) was supplied to Region III on January 13, 1985.

As stated in the interim report, 2 Target Rock solenoid valves (E41-F402 and E11-F415) were found to operate improperly during the Primary Containment Integrated Leak Rate Test. Detroit Edison has determined that each of these valves had remote position indication which showed the opposite of the true position of the valve. Additionally, operation of the valve actuators for either of these valves caused the valve to travel to the opposite position from that intended.

Improper operation of these valves was caused by incomplete vendor information which did not identify the vendor's convention for marking positive and negative terminals. Improper position indication resulted from alignment of the reed switches with the perceived valve position based on energization of the actuator coil. The actual position of the valve cannot be verified visually.

Corrective action to prevent repetition of improper valve position indication for the Target Rock valves was ineffective because the root cause of the problem, reversed polarity of the actuator coil, was not identified by either Detroit Edison or the vendor's representative prior to December, 1984.

Corrective Action Taken to Avoid Further Noncompliance

Detroit Edison's final report of 10 CFR 50.55(e) Item 142, "Failure of Two Target Rock Solenoid Valves" includes a description of the actions taken to ensure proper operation and position indication of Target Rock Solenoid valves.

Date When Full Compliance Will Be Achieved

Full compliance with 10CFR50 Appendix B, Criterion XVI has been achieved in that Detroit Edison has determined the cause and is taking action to correct the deficiency and prevent its recurrence.